

Situation Update on Emergency Transboundary Outbreak Pest (ETOP) for December, 2017 with a Forecast till mid-February, 2018
résumé en français est inclus

SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**¹) situation remained calm in the Western Outbreak Region (**WOR**) during December. Only some scattered adults were detected in a few places in northern **Mauritania** and **Algeria** during this month.

In the Central Outbreak Region (**COR**), a few isolated adults were observed in **Sudan** and along the railway lines in eastern **Ethiopia**.

The Eastern Outbreak Region (**EOR**) remained calm during December.

Forecast

The SGR situation will generally remain calm in **WOR** during the forecast period and only a few adults may persist in Mauritania, Morocco, and northern Mali and Niger, but significant developments are not expected.

In **COR**, small-scale breeding is likely in areas of recent rainfall in winter breeding areas along the Red Sea coasts in **Sudan** and perhaps Yemen and the Red Sea coasts in Saudi, but

significant developments are not expected during the forecast period.

In **EOR**, the SGR situation will remain calm during the forecast period.

Red (Nomadic) Locust (*Nomadacris septemfasciata*) (**NSE**): No update was received at the time this report was compiled, however, NSE hoppers likely continued forming during December in the primary outbreak areas in **Malawi, Mozambique, Tanzania** and **Zambia**.

Fall armyworm (FAW) (*Spodoptera frugiperda*) (**SFR**): FAW was reported in maize crops in **Burundi, Kenya, Malawi, Madagascar, Mozambique, Somalia, Tanzania, Uganda** and in irrigated crops in southern **Ethiopia** during December (for further detail, please, refer to pages 7-8).

African Armyworm (AAW) (*Spodoptera exempta*): Large numbers of AAW moth catches were recorded in **Tanzania** during December. However, no caterpillars were reported in the southern or eastern outbreak regions during this time.

Italian (CIT), Moroccan (DMA), Asian Migratory (LMI) Locusts: The locust season has ended in the CAC region and will remain so till spring 2018.

Quelea birds (QQU): QQU outbreaks were reported in **Tanzania** and

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

Ethiopia on small grain cereal crops during December.

Active surveillance and monitoring as well as timely preventive interventions remain critical to abate any threats ETOPs pose to crops and pasture.

USAID/OFDA/PSPM regularly monitors ETOPs in close collaboration with its network of national PPDs/DPVs, regional and international pest monitoring organizations, including FAO, CLCPRO, CRC, DLCO-EA, and IRLCO-CSA and provides timely analytical reports, updates to various stakeholders across the globe. **End summary**

RÉSUMÉ

La situation du Criquet pèlerin (Schistoseca gregaria - SGR) est restée calme dans la Région des épidémies occidentales (**WOR**) en décembre. Seuls quelques ailés épars ont été détectés dans quelques endroits du nord de la Mauritanie et de l'Algérie au cours de ce mois.

Dans la région centrale de l'épidémie (**COR**), quelques ailés isolés ont été observés au Soudan et le long des voies ferrées dans l'est de l'Éthiopie.

La région de l'Est de l'Outbreak (**EOR**) est restée calme en décembre.

Prévoir

La situation du SGR restera généralement calme dans WOR durant la période de prévision et seuls quelques adultes peuvent persister en Mauritanie, au

Maroc et dans le nord du Mali et du Niger, mais des développements significatifs ne sont pas attendus.

Dans le COR, une reproduction à petite échelle est probable dans les zones de reproduction hivernale des côtes de la mer Rouge au Soudan et peut-être au Yémen et sur les côtes de la mer Rouge en Arabie saoudite, mais aucune évolution significative n'est attendue pendant la période de prévision.

En EOR, la situation SGR restera calme pendant la période de prévision.

Nomadacris septemfasciata

(*Nomadacris septemfasciata*): Aucune mise à jour n'a été reçue au moment de la rédaction du présent rapport. Cependant, les larves d'ESN pourraient avoir continué à se former en décembre dans les zones de foyers primaires au Malawi, Mozambique, Tanzanie et Zambie.

Chenille Légionnaire d'automne

(FAW) (*Spodoptera frugiperda*) (SFR): FAW a été signalé dans des cultures de maïs au Burundi, Kenya, Malawi, Madagascar, Mozambique, Somalie, Tanzanie, Ouganda et dans des cultures irriguées dans le sud de l'Éthiopie en décembre (pour plus de détails, se référer aux pages 7-8).

Chenille Légionnaire africaine (AAA)

(*Spodoptera exempta*): Un grand nombre de captures de papillons nocturnes ont été enregistrés en Tanzanie en décembre. Cependant, aucune autre activité n'a été signalée dans les régions du sud ou de l'est de l'Afrique pendant cette période.

Criquets italiens (CIT), marocains (DMA), asiatiques migratrices (LMI):

La saison acridienne a pris fin dans la région du CAC et le restera jusqu'au printemps 2018.

Quelea birds (QQU): Des éclosions de QQU ont été signalées au Kenya, en Tanzanie et en Éthiopie au sujet des cultures céréalières à petits grains en décembre.

La surveillance active ainsi que les interventions préventives en temps voulu restent essentielles pour réduire les menaces que les ETOP posent aux cultures et aux pâturages.

L'USAID / OFDA / PSPM surveille régulièrement les ETOP en étroite collaboration avec son réseau de PPV / DPV nationaux, les organisations régionales et internationales de surveillance des ravageurs, notamment la FAO, CLCPRO, CRC, DLCO-EA et IRLCO-CSA et fournit des rapports analytiques opportuns, des mises à jour diverses parties prenantes à travers le monde.
Résumé de fin

OFDA's Contributions to ETOP Activities

The online Pesticide Stock Management System (PSMS) that was developed by the UN/FAO with financial assistance from USAID/OFDA and other partners has been installed in several dozen countries in Africa, South America, the Caribbean, Middle East, Asia and Pacific and helping participating countries maintain inventories. Thanks to this tool many countries 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 had been incorporated into 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 maintains a line of communications with participating countries and monitor progress.

OFDA/PSPM is working with interested parties to explore means and ways to expand this innovative technology to other AAW affected countries to benefit farmers and rural communities.

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

USAID/OFDA-sponsored DRR projects implemented by FAO to strengthen national and regional capacity for emergency locust control and prevention helped tens of millions of farmers, pastoralists across Sahel West Africa, Northwest Africa, Eastern and Northeastern Africa, Caucasus and Central Asia (CAC), and the Middle East. These projects have not only enhanced, but also created/facilitated collaborations among neighboring countries for joint monitoring, surveillance, information/technical sharing, reporting and launching preventive interventions against locusts.

Through these projects, several dozens of technical staff and farmers received training in safer and effective ETOP monitoring and preventive/curative operations. These projects promoted, encouraged and helped realize south-south collaborations among frontline countries. Thanks to these and other similar efforts, potentially serious locust outbreaks and invasions had been abated several times in many countries across the primary outbreak regions.

Note: ETOP SITREPs can be accessed on USAID Pest and Pesticide Management website: <https://www.usaid.gov/what-we-do/working-crises-and-conflict/responding-times-crisis/how-we-do-it/humanitarian-sectors/agriculture-and-food-security/pest-and-pesticide-monitoring>

Weather and Ecological Conditions

WOR region largely remained dry and ecological conditions remained unfavorable to sustain SGR breeding or survival during December. Only sparingly patchy perennial green vegetation was present in a few low laying areas during this period (**CNLA/Chad, CNLA/Mali, CNLA/Mauritania, CNLAA/Morocco, CNLA/Tunisia, FAO-DLIS, NLCC/Libya**).

COR: Significant rainfall was not reported in COR during December.

EOR: Dry and hot conditions persisted in the EOR during December.

NSE Outbreak Regions: During December, much of Tanzania, portions of Zambia, Malawi, many parts of Mozambique, and much of Madagascar

had above-average rainfall. Zimbabwe, southern Zambia, local areas in Mozambique, and southwestern Madagascar on the other hand, had below-average rainfall during this time (NOAA).

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

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

Note: *Changes in the weather pattern and increased temperature can contribute to ecological shift in ETOP habitats and increase the risk of pest outbreaks, resurgence and emergence of new pests. In Uzbekistan, Moroccan locust (DMA) which is normally a low to medium altitude pest has shown a considerable vertical habitat expansion by up to 1,000 feet or 300 meters from its ambient altitude due to warmer higher elevations.*

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

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

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

SGR – WOR: The **SGR** situation remained calm in **WOR** during December and only a few low density scattered mature and immature adults and 2nd to 5th instar larvae were detected in a few places in Adrar and Tiris in northwest and northern **Mauritania** where small-scale breeding occurred. Scattered adults were also reported in southern Sahara in **Algeria** and northeastern **Chad** during this month, but the situation remained calm elsewhere in the region (CNLA/Chad, CNLA/Mali, CNLA/Mauritania, CNLAA/Morocco, CNLA/Tunisia, CNLA/Libya, FAO-DLIS).

Forecast: The SGR situation will likely remain calm in WOR during the forecast period. Only some adults may persist in a few places in **Morocco, Mauritania** and northern **Mali** and **Niger**, but significant development are not likely during the forecast period (CNLA/Chad, CNLA/Mali, NLCC/Libya, CNLA/Mauritania, CNLAA/Morocco, CNLA/Tunisia, FAO-DLIS).

*In the spirit of South-South cooperation, **Mali** National Locust Control Center hosted a team of locust staff from **Madagascar**. The Malagasy team received training on locust operations from 26-30 November, 2017.*

SGR (Desert Locust) - COR:

COR remained calm and only scattered solitary adults were present in winter breeding areas along the Red Sea coasts in **Sudan** where small scale breeding

occurred in one place. Solitary adults were detected along the railway lines between Dire Dawa and Ayisha in eastern **Ethiopia**. No locusts were reported in Djibouti, Eritrea, Oman, Somalia or Yemen during December (DAF/Djibouti, DLCCM/Yemen, FAO-DLIS, LCC/Oman, PPD/Ethiopia, PPD/Sudan).

Forecast: In **COR**, small-scale breeding may occur in a few places along the Red Sea coasts in **Sudan** and perhaps in Saudi Arabia and Yemen, but significant developments are not likely during the forecast period.

SGR - EOR: The SGR situation remained calm and no locusts were reported during December and the region will likely remain calm during the forecast period.

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

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

Red (Nomadic) Locust (NSE):

Extensive breeding that commenced in the outbreak areas in Lake Chilwa/L. Chiuta plains and Mpatsanjoka Dambo in **Malawi** as well as in Dimba and Buzi-Gorongosa plains in **Mozambique** and in Kafue Flats in **Zambia** and Ikuu-Katavi, Malagarasi Basin, North and South Rukwa

and Wembere plains in **Tanzania** may have caused large numbers of hoppers to begin appearing.

Forecast: Large numbers of hoppers will likely continue appearing in the primary outbreak areas in **Mozambique, Malawi, Zambia** and **Tanzania** during the forecast period. Hoppers must be vigilantly and closely monitored and prevented from causing potentially serious crop damage in cultivated zones.

IRLCO-CSA continues consulting with its Member States for resources to undertake urgent survey and control operations. It is in the interest of all concerned countries and partners that IRLCO-CSA member-states respond to the Organization's appeal for resources to abate these pests successfully so as to contribute to food security of vulnerable populations (IRLCO-CSA, OFDA-AELGA).

Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locusts in Central Asia and the Caucasus (CAC): The locust season had ended in the CAC region the situation will remain calm until spring (OFDA/PSPM).

Fall armyworm (FAW) (*Spodoptera frugiperda*) (SFR):

SFR/FAW was reported in maize crops in **Malawi** where crop damage to maize was reported in 20 of the 28 districts during December. The pest was first detected in the southern parts of the country and spread further and will likely move northwards where maize planting follows the seasonal rainfall. The GoM has issued a disaster declaration to control the pest that reported threatening food security and livelihoods of hundreds of thousands of households. It has provided pesticides

and technical guidance to the affected farmers. Training and awareness raising are in progress. USAID provides assistance through media messaging and distributing printed materials to educate communities in FAW control; creating call centers to assist farmers with FAW questions, providing pheromone traps for surveillance and monitoring; supporting research trials on pesticide efficacy and providing ToT in pest control and damage assessments through private sector engagement.



File photo of a typical FAW damage on maize.

In **Rwanda**, more than 18,355 ha of the 258,133 ha of maize crops were reported affected by FAW as of December. Proper weeding, handpicking and crashing larvae and eggs masses and

pesticides were utilized to control the pest. 90-95% crop recovery through this control means was reported in the northern and western parts of the country. No FAW presence was reported elsewhere in the country as of December 2017 (MoA/Rwanda).

In **Burundi**, the pest was reported attacking early planted maize crops across the country during December. It was also reported in **Kenya, Tanzania** and **Uganda** during this month.

FAW was reported in maize crops in Sofala province in **Mozambique** where

control operations were conducted by the affected farmers with material and technical assistance from the Ministry of Agriculture. In **Uganda**, timely control interventions by the Crop Protection Department of the Ministry of Agriculture resulted in significant reduction in crop damage and that the country expects a bumper harvest this cropping season. Elsewhere in the region, FAW may have begun causing damage to irrigated or rain-fed cereal crops (DLCO-EA)

The need for developing ecologically sustainable, economically profitable and socially acceptable IPM programs to mitigate the impact of the FAW in Africa where hundreds of millions of resource strained farmers eke their living from small-scale farming remains critical to avert food crisis and economic stagnation.

Forecast: FAW will remain a threat to irrigated and rain-fed maize and other crops across Africa during the forecast period.



File photo of first instar larva of SFR (Benin, Calavi Akassato, 2.vi.2016, G. Goergen).

OFDA co-sponsored disaster risk reduction project is being

implemented by a consortium led by FAO and composed of the Center for Agriculture and Biosciences International (CABI), the Desert Locust Control Organization for Eastern Africa (DLCO-EA), International Center for Insect Physiology and Ecology (ICIPE) and

National MinAgri and other partners. The project is aimed at strengthening capacity in scouting, monitoring, forecasting, early warning and planning and implementing effective and safer FAW management interventions.

Additional information sources

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

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

Latest African and Fall Armyworm Forecast from IRLCO-CSA - 5th Jul 2017:
http://www.lancaster.ac.uk/armyworm/forecasts/?article_id=002971

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

Drought and armyworm threaten Africa's food security:
<http://www.theeastafrican.co.ke/news/Drought-and-armyworm-threaten-Africa-food-security/2558-3996692-ggws8q/index.html>

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

African Armyworm (AAW): AAW outbreaks were not reported in the seasonal outbreak regions in Africa during December. However, large numbers of moth catches were recorded in Mbeya, Lindi and Shinyanga regions in Tanzania during this time.

Forecast: AAW outbreak is expected to appear in the southern outbreak regions where seasonal rains have been reported.

Trap operators for AAW [and FAW as applicable] are advised to actively monitor their traps. Trap monitoring must be accompanied by routine crop scouting to detect egg and larval presence and damages. Egg and larval detections and moth catches must be reported to the national forecasting officers and concerned staff and *authorities immediately to help facilitate rapid interventions. Vigilance and timely preventive interventions remain critical to avoid crop damage (IRLCO-CSA, OFDA/AELGA, DLCO-EA).*

Active monitoring, surveillance, routine pheromone trap inspection and crop scouting as well as information sharing and reporting remain critical to help implement preventive interventions to abate any major damage the pest could cause to crops.

Note: PSPM continuous collecting, analyzing and reporting on A/FAW information. So far, printable and web-based maps have been developed for AAW outbreak and invasion countries in the central and southern regions (click on the below link for the maps: <http://usaid.maps.arcgis.com/apps/Viewer/index.html?appid=9d2ab2f918284595819836d1f16a526f> (OFDA/PSPM in collaboration with the GIU will develop a similar map for SFR as needed)

Quelea (QQU): QQU outbreaks were carried out in Arusha, Kilimanjaro and Manyara regions in **Tanzania** where the pest was detected attacking maize crops and roosting on sugarcane plantations and reed during December. QQU outbreaks were also controlled in the northeastern Rift Valley in the Amhara Administrative region in **Ethiopia** during December. In Sudan, QQU outbreaks had

ended and no updates were received elsewhere in the region although the pest may have been threatening small-grain crops (DLCO-EA, IRLCO-CSA).

Forecast: QQU birds will likely continue being a problem to small grain cereal growers in **Kenya, Ethiopia, and Tanzania** during the forecast period.

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

Rodents: No update was received on rodents during December.

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

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

Inventories of Pesticide Stocks for SGR Prevention and Control

The SGR pesticide inventory remained unchanged during December.

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

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

Table 1. ETOP Pesticide Inventory in Frontline Countries as of October, 2017

Country	Quantity (l/kg)*
Algeria	1,188,708~
Chad	38,300
Egypt	68,070~ (18,300 ULV, 49,770 l)
Eritrea	17,122~ + 20,000 ^D
Ethiopia	9,681~
Libya	25,000~
Madagascar	206,000~ + 100,000 ^D
Mali	7,000
Mauritania	14,998 ^{DM}
Morocco	3,490,732 ^D
Niger	75,750~

Oman	10,000~
S. Arabia	89,357~
Senegal	156,000~
Sudan	169,710~
Tunisia	68,514 obsolete
Yemen	40,090 ^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 = <i>GreenMuscle</i> TM (fungal-based biological pesticide)	

LIST OF ACRONYMS

AAW	African armyworm (<i>Spodoptera expempta</i>)
AELGA	Assistance for Emergency Locust Grasshopper Abatement
AFCS	Armyworm Forecasting and Control Services, Tanzania
AfDB	African Development Bank
AGRA	Agricultural Green Revolution in Africa
AME	<i>Anacridium melanorhodon</i> (Tree Locust)
APLC	Australian Plague Locust Commission
APLC	Australian Plague Locust Commission
	Bands groups of hoppers marching pretty much in the same direction

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

NCDLC	National Center for the Desert Locust Control, Libya	role in the case of locust and other emergency pests.
NOAA (US)	National Oceanic and Aeronautic Administration	USAID the United States Agency for International Development
NPS	National Park Services	UN the United Nations
NSD	Republic of North Sudan	WOR Western SGR Outbreak Region
NSE	<i>Nomadacris septemfasciata</i> (Red Locust)	ZEL <i>Zonocerus elegans</i> , the elegant grasshopper
OFDA	Office of U.S. Foreign Disaster Assistance	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
PBB	Pine Bark Beetle (<i>Dendroctonus</i> sp. – true weevils)	
PHD	Plant Health Directorate	
PHS	Plant Health Services, MoA Tanzania	
PPD	Plant Protection Department	
PPM	Pest and Pesticide Management	
PPSD	Plant Protection Services Division/Department	
PRRSN	Pesticide Risk Reduction through Stewardship Network	
QQU	<i>Quelea Qulelea</i> (Red Billed <i>Quelea</i> bird)	
SARCOF	Southern Africa Region Climate Outlook Forum	
SFR	<i>Spodoptera frugiperda</i> (SFR) (Fall armyworm (FAW))	
SPB	Southern Pine Beetle (<i>Dendroctonus frontalis</i>) – true weevils	
SGR	<i>Schistoseca gregaria</i> (the Desert Locust)	
SSD	Republic of South Sudan	
SWAC	South West Asia DL Commission	
PBB	Pine Bark Beetle	
PSPM	Preparedness, Strategic Planning and Mitigation (formerly known as Technical Assistance Group - TAG)	
Triangulation	The process whereby pesticides are donated by a country, with large inventories, but often no immediate need, to a country with immediate need with the help of a third party in the negotiation and shipments, etc. Usually FAO plays the third party	

Who to contact for more information:

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