Emergency Transboundary Outbreak Pest (ETOP) Situation Report for May with a Forecast till mid-July, 2013

Summary

The Desert Locust (SGR[1]) situation continued developing in May in northwestern Africa where control operations were carried out in spring breeding areas south of the Atlas Mountains as well as in southern Libya. In Morocco, control operations treated small groups of hoppers and adults in some 1,930 ha in the Draa Valley in the southeast during this period. In Algeria, control operations were carried out against hoppers and adult groups and treated 6,864 ha in the southern Sahara. Small-scale breeding occurred in the Air Mountain in northwestern Niger and a similar situation may have occurred in areas of recent rainfall in Mali.

In Sudan, breeding continued in the North where surveys covered 55,600 ha and ground control treated 1,415 ha against hopper bands and fledglings near cropping areas in the Nile Valley. In Saudi Arabia control operations treated hoppers, bands and immature adults 13,712 ha in the northern Red Sea coast and sub-coastal areas during this period. Small-scale breeding was reported near Lake Nasser in southern Egypt where 1,184 ha were controlled in May. Breeding occurred in parts of the Sinai in Egypt and hopper groups and bands may have formed. Groups of hoppers and bands from locusts that hatched in mid-April continued to form in northern Sinai Peninsula along both sides of the Egyptian/Israel border. Aerial and ground surveys and control operations continued in Israel in mid-May and 14,100 ha were treated from mid-April through the second dekad of May (autochtonous - local hopper bands were last reported in Israel in April 1961).

Small-scale breeding occurred in southeast Iran and scattered adults were reported in Baluchistan, Pakistan where favorable ecological conditions were reported. No locusts were reported in other countries in during May (CNLA/Chad, CNLA/Mauritania, CNLAA/Morocco, DLCO-EA, DPPQS/India, FAO-DLIS, PPD/Oman, PPD/Sudan).

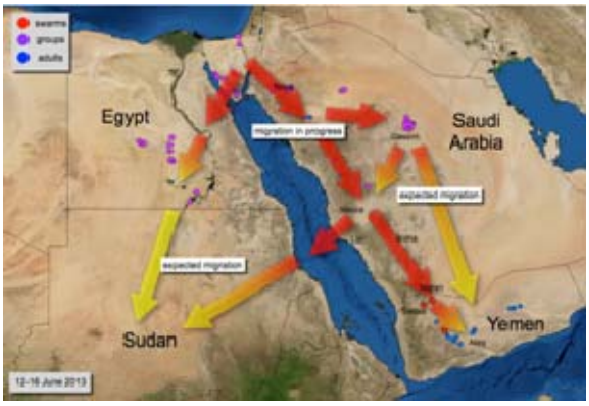
Forecast: As vegetation continues drying up in northern and northwestern Africa, locusts will fledge and move south towards northern Sahel reaching Mauritania, Mali, Niger and Chad during June. A few adults from northern Sudan may appear in Chad and even Niger during the forecast period and begin breeding with the onset of the summer rains.

In Sudan, adult locusts will mature in the Nile Valley and breed locally and/or migrate to the summer breeding areas further south and southeast and start laying eggs in June. Adult locust groups and swarms will likely form in Egypt and Israel and move southwest and reach the summer breeding areas in Sudan. Some locusts will also move south from the Sinai and the Negev Desert as well as coastal and sub-coastal areas in northern Saudi Arabia and reach the interior of Saudi Arabia as well as Yemen and begin

[1] *Descriptions of all acronyms can be found at the end of the report.*

breeding at the foothills of the summer rains.

Low numbers of adults will appear along the borders of India and Pakistan and begin breeding with the onset of the summer (*Monsoon*) rains. A few groups of locusts may also form in southeastern Iran during the forecast period. Active surveillance and proactive preventive interventions remain essential to avoid unnecessary surprises (CNLA/Chad, CNLAA/ Morocco, DLCO-EA, DPPQS/India, FAO-DLIS, PPD/Oman, PPD/Sudan).



(SGR situation, FAO, 6/2013)

Other ETOPs

Red (Nomadic) Locust (*NSE*): *NSE swarms* persisted in Ikuu-Katavi plains (Tanzania) and Lake Chilwa/Lake Chiuta plains (Malawi and Mozambique). Despite limited control undertaken in Ikuu-Katavi plains during March, the presence of swarms continued to pose serious threats to crops in Rukwa, Kigoma and Kagera regions in Tanzania. Swarms pose a serious threat to rice production in Lake Chilwa/Lake Chiuta Plains and the areas surrounding areas. Surveys were not carried out in other outbreak areas in Mozambique (Buzi-Gorongosa and Dimba plains) and Zambia (Kafue Flats and Lukanga swamps), but it is expected that significant locust populations exist and require control. The International Red Locust Control Organization for Central and Southern Africa (IRLCOCSA) could not launch planned surveys due to lack of resources (IRLCO-CSA).

Forecast: As the dry season continues and grass burning intensifies, NSE will concentrate and form small swarms. Some swarms could escape Ikuu-Katavi plains in Tanzania and will likely damage cereal crops in Rukwa, Kigoma and Kagera regions and may reach Uganda, Rwanda, Burundi and perhaps the Democratic Republic of Congo. Swarms escaping from Lake Chilwa/Lake Chiuta plains may invade Mozambique and Zambia and cause localized crop damages. As favorable conditions gradually fade away locust populations will concentrate and form groups and swarms and require immediate control. Active surveillance, monitoring and timely preventive interventions remain essential to avoid impacts of locusts on food security (AELGA, IRLCO-CSA).

Madagascar Migratory Locust (LMC): Large numbers of swarms continued appearing in Madagascar since they were first detected in January and February. According to DPV, so far some 134 small, medium and large swarms have been detected in several places in the greater south, south-central, northwest and the south plateaus of which 89 were reported controlled. Lack of resources, particularly pesticides, spray aircraft, logistical support, fuel etc. undermined control operations (DPV).

Two assessments were carried out, one by FAO and another by FEWS net and confirmed the presence of locust swarms and crop damage. Given the unseasonably favorable ecological conditions (enhanced by Cyclone *Haruna*) and lack of timely and effective control interventions, large numbers of locust swarms were able to migrate further north into northern, northwestern and north-central parts of the country crossing the 18th parallel. This will likely allow potentially much larger and more intensive invasions during the 2013/14 breeding season which begins at the foothills of the rainy season in October/November, 2013 (AELAG, FAO, DPV/Madagascar, FEWS).

Forecast: Swarms will continue moving north and northwest and reach the major wheat growing areas. Hatchings and hopper formations could lead to more swarm developments during the 2nd to 3rd dekads of May. A similar situation could occur in the Manambien circle where conditions could be more favorable due to Cyclone *Haruna* and cause locusts to further develop. Aggressive and timely surveillance and control are essential to avoid major crop losses (DPV, FAO).

The latest locust information from FAO-DPV is available at: http://www.fao.org/emergencies/results/en/?keywords=Madagascar%20locust%20crisis and http://www.fao.org/emergencies/crisis/madagascar-locust/en/

Funding status:

According to the FAO-MoA/Madagascar joint emergency locust response project, $22.4 million of the estimated $41.5 million needs to be made available by June 2013 to launch an effective campaign from September 2013-September 2014 to break the current locust cycle and avoid a plague. As of the 26th June, FAO reported that development partners and others including the World Bank, the African Development Bank, European Union, CERF, IFAD, France etc., have pledged $19.4 million. Others, including Norway and a consortium of private enterprises in Madagascar have also expressed interest to support the multi-year program (FAO).

Threats and potential crop losses: According to a DPV/FAO estimate, crop losses to locust invasions could exceed 10% of the annual rice production in the mid-west. There is also a risk of losses of off season rice and other cereal crops in the mid-west and in the Antsirabe basin with an estimated cumulative loss of 630,000 MT of rice (DPV, FAO).

Moroccan (*DMA*), Italian (*CIT*), Migratory (*LMI*) Locusts in Central Asia and the Caucasus (CAC): A late receive report indicated that DMA started hatching in late March in Afghanistan, Tajikistan and Uzbekistan and continued well into April. As of April a combined total of 173,932 ha has been treated in Afghanistan, Tajikistan, Kyrgyzstan and Kazakhstan (double the number reported the same time last year). In Azerbaijan, 8,000 ha were reported controlled in April. The pest may have also begun developing in Turkmenistan and Uzbekistan during this period.

(Locust prone CAC countries, FAO)

Forecast: Massive hatchings of CIT and LMI will likely occur during the forecast period (FAO-ECLO). Armenia and Georgia may have witnessed CIT hatching during this month, but no update was received from the field. Given the massive egg laying by LMI last year in the Aral Sea flood plains in parts of Uzbekistan and adjacent countries, large-scale hatching and invasions will likely occur during the forecast period. Hence, escalated surveillance and monitoring as well as timely preventive interventions must be maintained to avert any potentially large-scale LMI outbreaks and invasions (AELGA, FAO-ECLO).

African Armyworm (AAW): In Ethiopia, AAW outbreaks were reported continued in May and control operations were carried out in several places. The outbreak occurred on 300 ha in Dire Dawa and control was undertaken on 250 ha using 350 liters of pesticides. The outbreak was reported on more than 28, 000 ha in 10 Woredas in Hararghe in eastern Ethiopia. Nearly half of the infested areas were pasture. Control operations treated about 1,100 ha with pesticides and cultural control means. The infestation was reported to be patchy, but some areas experienced dense AAW larvae, 5-10 per plant and 100-150 per square meter on pasture. AAW activities have ended in the southern and south-central outbreak regions. The Armyworm outbreak season will soon come to an end in Kenya and Tanzania (DLCO-EA, IRLCO-CSA).

Forecast: AAW outbreaks are expected to begin appearing in northern Ethiopia and perhaps, Eritrea and northern Somalia, eastern Uganda during the forecast period. Trap operators, including those from the community based armyworm survey, monitoring, forecasting and early warning (CBAMFEW) must report trap catches to the appropriate personnel on a timely bases. AAW will fade away in most of Tanzania and the central and southern outbreak countries will remain free of the pest during the forecast period (AELGA, DLCO-EA, IRLCO-CSA).

Fall armyworm, *Spodoptera frugiperda*, caterpillars cause damage to rice seedlings (samplings) on several acres in Bhutan during May. The outbreak was first reported in Shengana, one of the largest rice grower gewogs in the dzongkhag, during the first week of May. In Dangchu gewog the pest attacked nurseries of 32 households of Ridha chewog around May 10th. Several farmers in Punakha also spotted armyworm feeding on their paddy saplings in their nursery. By mid-month, the infestation became severe in Guma, Goenshari, Toep and Talo geowgs and in Wangduephodrang, nine gewogs reported a similar infestation on some 10 acres of paddy nursery. In Nysho gewog, 4 acres of rice plants were defoliated and Gasetsowom and

Gasetsogom sustained damage on an acre each. By the second dekad of the month, almost all 11 gewogs in the dzongkhag reported armyworm attacks where farmers have lost their nurseries and most of their rice plants.

MoA experts suggested the prolonged cloudy weather and the frequent rain over the past few days provided the pest with ideal conditions to thrive and break out. Experts tend to relate the unusual weather conditions, where dry spells are followed by wet weather, a phenomenon that may be associated with climate change/variability.

Control operations were carried out by the affected farmers with material and technical assistance from the Min Agri. In areas where rice plants sustained damage at an early stage crop protection experts advise affected farmers to apply urea to the soil to rejuvenate the seedlings and stimulate re-growth and gain strength. As the season for paddy transplantation is closing down in many places, farmers are worried of a low yield year.

Quelea (QU): QU outbreaks were reported in Siaya and Busia counties in Kenya and where control was carried out by the Ministry of Agriculture, Livestock and Fisheries. In Tanzania Quelea birds were reported damaging small grain cereals in Shinyanga, Singida, Dodoma, Mbeya and Mwanza regions. An estimated 48.6 million birds were controlled during aerial operations (IRLCO-CSA).

A DLCO-EA spray aircraft with material assistance by MoA/Tanzania controlled QU infestations, roosts and colonies in several locations in Tanzania. The birds were seen threatening rice, sorghum and millet crops. QU birds were also reported in Chokwe district in Mozambique, but other outbreak or invasion countries did not report QU activities during this period (DLCO-EA, IRLCO-EA).

Forecast: As small grain crops mature in Kenya, Tanzania, Mozambique, Zimbabwe and other countries QU outbreaks will likely appear. Active surveillance and timely reporting and interventions remain essential (AELGA, DLCO-EA, IRLCO-CSA).

OFDA / AELGA (Assistance for Emergency Pest Abatement**)** will continue monitoring ETOP situations closely in all regions and issue decadal and monthly updates and advices as necessary. **End summary**

Progresses made in SGR Frontline Countries:

SGR frontline countries (FCs) in Sahel West Africa, namely **Chad**, **Mali**, **Mauritania, Niger,** and **Senegal (**an **invasion country)** have established autonomous national locust control units (CNLA) responsible for all DL activities.

Funds provided by the African Development Bank, USAID, the World Bank, France, FAO, host-governments as well as assistance from neighboring countries enabled FCs to equip CNLAs and build infrastructure as well as help train staff to prevent and respond to SGR outbreaks. Through these supports and with their own resources, FCs were able to minimize and avoid the threats the SGR poses to food security and livelihoods of vulnerable communities.

It is worth noting that the ongoing insecurity situation in some of the SGR outbreak continues undermining implementation of timely and effective survey and control interventions.

CNLAs' continued efforts *to prevent, mitigate, avert and/or respond to potentially devastating SGR outbreaks and invasions* are a good example of **sustainable disaster risk reduction** that *deserves* encouragements and support.

OFDA ETOP Activities and Impacts

- OFDA's Senior Advisor for pests ad pesticides participated in two back to back meetings – 11th Technical Meeting and the 7th Executive Committee meetings of the CLCPRO in Agadir Morocco from 10 – 14th June 2013. The meetings discussed technical, management and strategic policy issues as related to the desert locust situation in 10 (ten) the northern and Sahel west Africa countries. The advisor was pleased with the rigor with which colleagues in Sahel West Africa and North Africa have been planning and developing preventive interventions as well as in their emergency responses. CLCPRO colleagues and member country representatives presented and reviewed recent DL activities and plans for the upcoming locust breeding seasons.

- OFDA/TAG continues its sustainable pesticide risk reduction initiatives through stewardship network (SPRRSN) programs through capacity strengthening to ensure safety of vulnerable populations and protect their assets as well as shared environment against pesticide poisoning and pollution. OFDA/TAG has successfully launched two sub-regional SPRRSNs in Eastern Africa and the Horn. The Horn of Africa SPRRSN initiative has created a "model" Association dubbed as Pesticide Stewardship Association-Ethiopia (PSA-E) which is being considered as a boiler plate for similar initiatives.

- Discussions that began several months ago to launch similar PRR initiatives in North Africa and the Middle East were delayed by the unrests manifested. An effort is underway to resume dialogue with partners in these regions.

- OFDA continued its assistance for DRR capacity strengthening programs through a cooperative agreement with FAO to mitigate, prevent, and respond to and reduce the risk of ETOP emergencies and avoid unsafe use and mishandling of pesticides and application platforms.

- OFDA's assistance for obsolete pesticide prevention has enabled FAO to develop a pesticide stock managing system (PSMS) that has streamlined pesticide inventory monitoring and management. Thanks to OFDA's contributions, PSMS has enabled participating countries to conduct regular inventories and monitor and make informed decisions to prevent the accumulation of obsolete stocks and thereby avoid costly disposal operations.

- OFDA supported DRR program aimed at strengthening national and regional capacities for ETOP operations in Central Asia and the Caucasus (CAC) is well underway. The program focuses on improving national and regional capacities

to better coordinate locust monitoring and reporting as well as joint plans for survey, mitigation and prevention to minimize the threats to food security and livelihoods of vulnerable populations.

- OFDA supported activities of the three-year fixed obligation grant on scaling up community-based armyworm monitoring, forecasting and early warning are in progress. The program aims at reducing the risk of armyworm threats to food security and livelihoods of rural communities and vulnerable populations. Activities are being coordinated by the DLCO-EA in collaboration with partners in Ethiopia, Kenya and Tanzania.

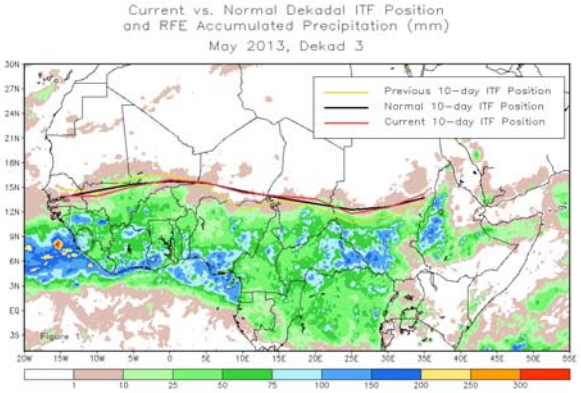
Note: All ETOP SITREPs, including the current one can be accessed on our website:

http://transition.usaid.gov/our_work/humanitarian_assistance/disaster_assistance/locust/ end note.

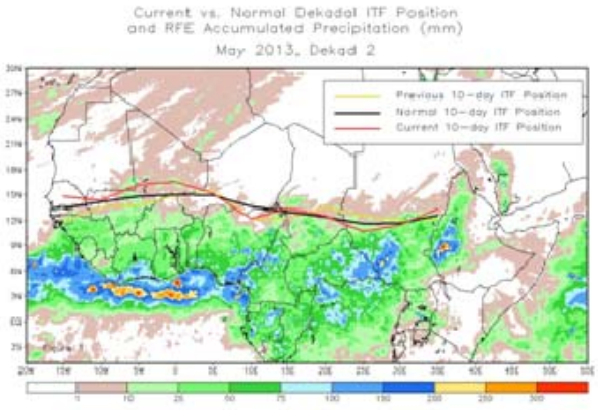
Detailed accounts of the ETOP situation and predictions for the next six weeks are presented henceforth.

Weather and ecological conditions

From May 21-31, 2013, the Inter-Tropical Front (ITF) remained close to its climatological position during the last dekad of May in both the east and west with an increased northward progress in the east than the west. The mean western portion of the ITF (10W-10E) was located approximately at 15.0 N, slightly (0.1 degree) south of the mean climatological position and 0.1 degree No of the previous dekad. The mean eastern portion of the ITF (20E-35E) was approximated at 13.0 N, 0.1 degrees N of the mean climatological position and 0.5 degree N the previous dekad position (see map and graphs) (NOAA, 6/2013).

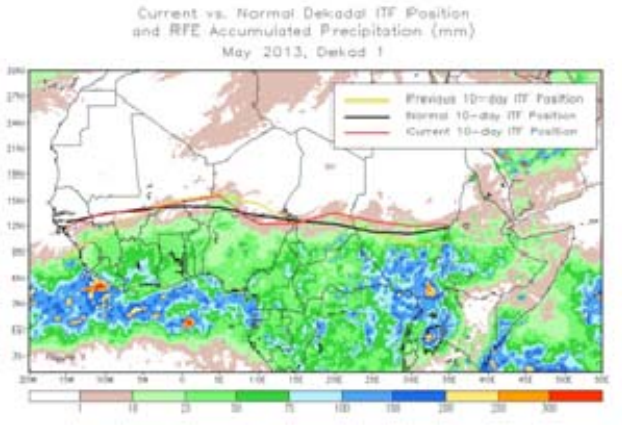


From May 11 - 20, 2013, the ITF continued its seasonal northward movement and remained close to its climatological mean position by mid-May in both the East and West Africa. In the west, the ITF was approximated 14.9 N, higher than its previous dekad over parts of Senegal, Mali and western Niger, but much lower in parts of northeastern Nigeria where precipitation was suppressed. In the east, the ITF was at a more normal position around 12.5 N after an anomalous northerly surge during early May (see map, NOAA).



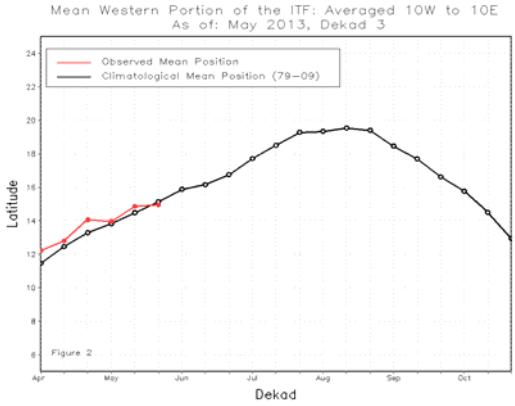
During the first dekad of May, the ITF continued its seasonal northward migration and generally remained above its climatological mean position throughout much of Africa. In the west, the mean western portion of the ITF was around 14.0 N, a bit lower than the previous dekadal position, but remained slightly above the mean position for early May. Strong, southerly winds and ample moisture occurred across parts of

Burkina Faso, western Niger, and northern Ghana, Togo and Benin.



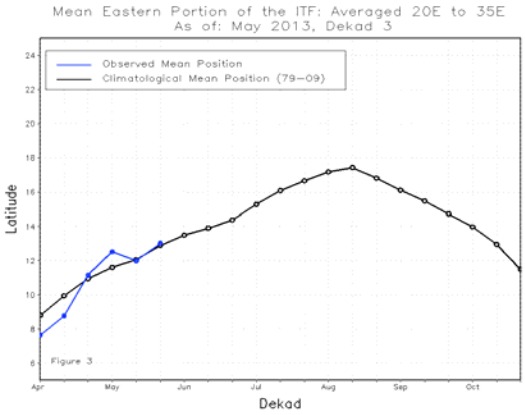
In Chad, hot (~43 + degrees C) and dry weather persisted with the exception of light to moderate rains that occurred in Ouaddai, Kanem and Lac at the foothills of the northerly migration of the ITF during May. In Mauritania precipitation was not reported and the ecological conditions remained fairly dry during May.

Western Regions



In the eastern part of the ITF, a marked northerly migration caused abundant rains across South Sudan, a situation common to late May. The mean eastern portion of the Front was located near 12.5 N, ahead of the average position by nearly 1 degree, a rapid acceleration since early April (see map, NOAA, 5/2013). The accompanied graphs show time series illustrations of the mean western and eastern positions of the ITF and their evolutions since April (NOAA, CNLA/Mauritania, CNAA/Chad, CNLA/Chad, CNLA/Morocco, DLCO-EA, FAO-DLCS). The rain season ended in all NSE breeding and outbreak areas in May. Vegetation was drying and grass burning which commenced in the region further exacerbated the situation and forced NSE to form small groups and concentrate in patches of green vegetation (IRLCO-EA).

Eastern Region



In Madagascar rainfall had ended by March and vegetation is drying up in the gregarization areas. In the grassy areas, *Heteropogon contortus* had matured with 70-80% coverage and 60 to 120 cm height and seeds will be germinating during the next rainy season. On the Horombe Plateau, the coverage ranges from 40 to 80% with a medium height of 40 to 80 cm less likely to be susceptible to the locusts (DPV, FAO-ECLO).

The weather conditions have begun improving with the exception of a brief dip in temperature in late April in Central Asia and Caucasus (CAC) where locust activities have begun developing and will likely continue during the coming months (FAO-ECLO).

Note: *The changes in the weather patterns contribute to ecological shift in ETOP habitats and can exacerbate the risk of pest outbreaks, resurgence and leading to emergence of new pests. Regular monitoring and reporting of anomalous observations in habitats and pest situation remain essential.* ***End note****.*

SGR - Western Outbreak Region: SRG continued developing in northwest Africa. In Morocco, control operations were launched against small groups of hoppers and bands as well as immature adults in and around Guelmim Zone, in the Draa Valley in the southeast and in Auntie and Errachidia and treated close to 1,932 ha in May. During the second dekad of May, ground control treated small hopper groups and bands on 52 ha in the Guelmim Zone in southeast Morocco where considerable numbers of solitary adults were also detected. Seven small hopper bands, composed of 3rd and 4th instars were detected in the Errachidia Zone towards the end of the dekad. Small groups of 1st to 5th instar hoppers were treated on 89 ha south of Guelmim and in the Draa Valley during the 1st dekad of May. Mature and maturing solitary transient adults, some mating, were also detected in Guelmim Zone south and southeast of Akka, but did not require control interventions during this time. Hoppers and bands as well as fledglings were treated on 1,790 ha during the 3rd dekad of May. In Algeria, control operations treated 6,864 ha and close to 756 ha were controlled in Libya during this period (CNLA/Mauritania, CNLA/Chad, CNLAA/Morocco, DLCC/Libya, FAO-SDLIS).

Forecast: As vegetation continues drying up in northern and northwestern Africa, locusts will fledge and move south towards northern Sahel reaching Mauritania, Mali, Niger and Chad during June. A few adults from northern Sudan may also appear in Chad and even Niger and begin breeding with the onset of the summer rains, but significant developments are not expected during the forecast period (CNLA/Chad, CNLAA/Morocco, CNLA/Mauritania, DLCC/Libya, FAO-DLIS).

SGR - Central Outbreak Region: The desert locust situation was reported relatively calm in the winter breeding areas in Sudan during May. Survey operations were carried out in the far northern parts of the country in the surrounds of Wadi Halfa along the borders with Egypt and further south along the Nile Valley extending to Merowe during the last week of May. More than 55,600 ha were surveyed (45,300 ha in Northern State and 10,300 in the River Nile State) and less than 1,500 were reported infested. In the Northern State control operations treated 3rd to 5th instar hopper bands and fledglings in some 1,415 ha mainly in cropping areas in the far North, south of Wadi Halfa where vegetation was green and the soil was wet. No locusts were reported during surveys carried out in Dakhiliya and Musandam in Oman and in eastern Ethiopia and no surveys were reported in other countries during this period (DLCO-EA, FAO-DLIS, PPD/Oman, PPD/Sudan).

Small-scale breeding was reported near Lake Nasser in southern Egypt where 1,184 ha were controlled in May. Groups of hoppers and bands from locusts that hatched in mid-April continued to form in northern Sinai Peninsula along both sides of the Egyptian/Israel border. Aerial and ground surveys and control operations continued in Israel in mid-May and treated 14,100 ha from 15 April to 19 May (14,400 ha were treated between 2nd March to 2nd April) (autochtonous - locally bred - hopper bands were last reported in Israel in April 1961). Breeding occurred in parts of the Sinai in Egypt and hopper groups and bands may have formed, but could not be confirmed due to insecurity (FAO-DLIS).

Forecast: In Sudan, adult locusts will mature in the Nile Valley and breed locally or migrate to the summer breeding areas further south and southeast and perhaps west where they will likely start breeding from June on. Adult groups and swarms from Egypt and Israel will move southwest and reach the summer breeding areas in Sudan. Some locusts will move south from the Sinai and the Negev Desert and the coastal and sub-coastal areas in northern Saudi Arabia and reach the interior of Saudi Arabia

and the Empty Quarter in the interior of Yemen and begin breeding as the summer rains commence. In Oman, low numbers of adults may begin appearing and breed on a small-scale in areas of recent rainfall during the forecast period (DLCO-EA, FAO-DLIS, PPD/Oman, PPD/Sudan).

SGR - Eastern Outbreak Region: Small-scale breeding occurred in Jaz Murian Basin in southeastern Iran. Ecological conditions remained favorable in Baluchistan, Pakistan, but only a few scattered adults were reported during this period. No locusts were reported in the summer breeding areas along the Indo-Pakistan borders (DPPQS/India, FAO-DLIS).

Forecast: Small groups of adults will appear in the spring breeding areas in Jaz Murian Basin in southeastern Iran and small small-scale breeding may commence in coastal and interior of western Pakistan. Low numbers of adult locusts will appear along the borders of India and Pakistan in Rajasthan and Cholistan and begin breeding with the onset of the summer rains (*Monsoon*) during the forecast period (DPPQS/India, FAO-DLIS).

Red (Nomadic) Locust (NSE): In Tanzania, NSE outbreak that developed during April and early May in Ikuu-Katavi plains in Tanzania persisted. Control operations were launched by the IRLCO-CSA, the Ministry of Agriculture, Food Security and Cooperatives (MAFSC) and FAO treated 3,000 ha in April 2013 in Ikuu-Katavi much less than the areas that needed control. By late April 2013, several swarms escaped from Ikuu-Katavi plains and invaded adjacent crop fields before moving further west towards Lake Tanganyika. Significant populations exist in other NSE outbreak areas in Tanzania, including Malagarasi Basin, Wembere plains, Rukwa Valley and Bahi Valley, but lack of resources on the part of IRLCO-CSA has hampered to effective control of the outbreaks. This situation still requires urgent control and aggressive survey and monitoring to safeguard food security in the region.

In Malawi, NSE swarms which developed in Lake Chilwa/Lake Chiuta plains (shared by Malawi and Mozambique) during March 2013 persisted. Grass burning which normally occurs during the dry season will cause further concentration of locusts forming large swarms which may move out of the breeding areas and invade cultivated areas. Surveys were not carried out in Buzi-Gorongosa and Dimba plains of Mozambique and Kafue Flats of Zambia, however, there is high probability that significant populations of NSE exist as conditions for breeding were favorable during the early part of the year. Surveillance and preventive measures will be undertaken by IRLCO-CSA to avert any major outbreaks.

IRLCO-CSA used Green Muscle, an environmentally friendly biopesticide and Fenitrothion 96% to control swarms before they were ready to escape into adjacent areas.

NSE outbreak countries and localities (yellow) and localities (red dots) (IRLCO-CSA)

According to IRLCO-CSA, extensive survey and control operations in Tanzania were limited by lack of resources. Swarms from Ikuu plains were observed migrating west wards into Katavi plain during the last week of April (IRLCO-CSA).

Forecast: With the dry season underway and grass burning intensifying, NSE will concentrate and form small swarms. In Ikuu-Katavi plains in Tanzania and Lake Chilwa/Lake Chiuta plains in Malawi where swarms formed early in the year, there is a high probability that swarms could escape and invade adjacent regions. Escapee swarms from Ikuu-Katavi plains will damage cereal crops in Rukwa, Kigoma and Kagera regions and may reach Uganda, Rwanda, Burundi and perhaps Democratic Republic of Congo. Swarms escaping from Lake Chilwa/Lake Chiuta plains may invade Mozambique and Zambia and cause localized crop damages. In other outbreak areas, including Malagarasi Basin, Wembere and North Rukwa plains in Tanzania, Buzi-Gorongosa and Dimba plains in Mozambique and Kafue Flats in Zambia, locust populations will concentrate and form groups and swarms as favorable conditions gradually fade away. IRLCO-CSA intends to collaborate with the national Ministries of Agriculture and carry out survey and control provided resources are available (IRLCO-CSA).

Madagascar Migratory Locust (LMC) and Red (Nomadic) Locust (NSE):
LMC: Large numbers of swarms were reported in Madagascar since they began appearing in January and February. According to DPV, so far some 134 swarms were sighted in several places in the greater south, south-central, northwest and the south plateaus. DPV indicated that it had controlled 89 of the 134 swarms. Lack of resources –pesticides, spray aircraft, and fuel limited control operations (DPV).

Two assessments were carried out, one by FAO and another by FEWS net and confirmed the presence of locust swarms and crop damage. Given the unseasonably favorable ecological conditions and lack of timely and effective control interventions, large numbers of locust swarms were able to migrate further north into northern and north-central parts of the country crossing the 18th parallel. This will likely allow potentially much larger and more intensive invasions during the 2013/14 breeding season which begins at the foothills of the rainy season to commence in October/November, 2013 (AELAG, FAO, DPV/Madagascar, FEWS).

Threats and potential crop losses:
According to DPV, new hopper bands developed in Manja, on the Bekily– Fotadrevo plains, on the Belomotra and Mahafaly plateau. However, the drying up of the vegetable begins forcing locusts to concentrate and form dense swarms and groups. DPV/LWU reported swarms on Zomandao, Horombe and Bekily highlands, in Belafy, Antsalova, and Mandoto in the mid-West where the risk of crop losses (corn and rice) could reach 50%. Swarms were also reported in Bemara and North, but the situation in Mahajanga basin was unclear at the time this information was received. Overall, estimated crop losses could amount to 10% of the annual rice production in the mid-west. There is also a risk of losses of off season rice crops and other cereal crops in the mid-west and in the Antsirabe basin and cumulative losses to be estimated at 630,l000 MT (DPV, FAO).

Recent Funding Status:

UN/FAO believes that $22.4 million of the estimated $41.5 million is needed by end of June 2013 in order to launch a campaign that will help break the current locust cycle and avoid swarms from reaching a plague level. As of the 26th June, FAO reported that the World Bank and African Development Bank have pledged 10 Million and 1 million respectively. Negotiations with European Union and African Development Bank are in advance stage to provide additional $5.8 million and $1.232 million, respectively. Others including UN/OCHA/CERF, IFAD, France and Ambatovy are considering $5 million, $1.2 million, $1.3 million and $2.5 million, respectively. Norway

and a consortium of private enterprises in Madagascar have also expressed interest to contribute to the multi-year program. According to FAO, ECHO, Germany and Japan have not yet expressed interests to make any contributions at this time.

Forecast: Swarms will continue moving from the transitory multiplication areas towards the FRIEND following the winds and likely arrive in the north (in the Majunga basin, Sofia, or even Alaotra), an area already threatened. This will increase invasion areas. Hatchings and hopper formations may have likely continued from the 3rd dekad of April and this may have led to another swarm during the 2nd to 3rd dekad of May. The same situation could also take place and further worsen in the Manambien circle where conditions could be more favorable as other areas dry out (DPV/LWU).

The latest locust information from FAO-DPV is available at: http://www.fao.org/emergencies/results/en/?keywords=Madagascar%20locust%20crisis and http://www.fao.org/emergencies/crisis/madagascar-locust/en/

Moroccan (DMA), Italian (CIT) and Migratory (LMI) locusts in Central Asia and the Caucasus (CAC): A late received report indicated that ecological conditions allowed DMA to start hatching in late March in Afghanistan, Tajikistan and Uzbekistan and continued well into April and a combined total of 173,932 ha was treated against this pest in Afghanistan, Tajikistan, Kyrgyzstan and Kazakhstan in April (double the number reported the same time last year). In Azerbaijan, 8,000 ha were reported controlled in April, but hatching was not reported in other countries in the Caucasus region. The pest may have also begun developing in Turkmenistan and Uzbekistan during this period.

(Locust prone CAC countries, FAO)

Forecast: Massive hatchings of CIT and LMI will likely occur during the forecast period (FAO-ECLO). Armenia and Georgia may have witnessed CIT hatching during this month but no update was received from the field. Given the massive egg laying by LMI last year in the Aral Sea flood plains in parts of Uzbekistan and adjacent countries, large-scale numbers of hatching and invasions will likely occur during the forecast period provided ecological conditions become favorable (the ground is moist but not heavily flooded), in the coming months. Hence, elevated surveillance and monitoring as well as timely preventive interventions must be maintained to avert any potentially large-scale LMI outbreaks and invasions (AELGA, FAO-ECLO).

Australian Plague Locust (APL): No update was available at the time this report was compiled, but extrapolation from the previous forecast, suggests that low numbers of locusts would have persisted and some may have been affected by the anomalous cold weather (AELGA, APLC).

(Australian plague locust, source: APLC)

Timor and South Pacific: No update was received on the locust situation in Timor and South Pacific in May. However, acridid activities are expected to occur during this period (AELGA).

African Armyworm (*AAW*): In Ethiopia, AAW outbreaks were reported continued in May in the eastern part of the country, including Fedis and Babile *Woredas* (Districts) and in Dire Dawa region. The AAW outbreak was reported occurred on more than 28, 000 ha (the figure could not be confirmed by PPD/ETH staff in 10 Woredas in Hararghe in eastern Ethiopia. Nearly half of the infested areas were pasture. Control operations treated about 1,100 ha with pesticides (from the MoA) and cultural control means. The infestation was reported to be patchy, but some areas experienced dense AAW larvae, 5-10 per plant and 100-150 per square meter on pasture. In Dire Dawa, 300 ha were reported infested and 250 ha controlled using pesticide. AAW activities were also reported in Wolayita Zone in the southern part of Ethiopia where large numbers (more than 84,000 ha) of crops were purportedly affected (but this figure has not been corroborated by the PPD staff and other partners (AELGA, DLCO-EA, IRLCO-CSA, PHS/Tanzania, PPD/Ethiopia).

NOTE: The first seasonal AAW outbreaks were detected and reported by farmers' forecasters who were trained and equipped through OFDA-sponsored community-based armyworm monitoring, forecasting and early warning (CBAMFEW) project after issuing an alert on a possible AAW outbreak in Fedis, Babilay and the surrounding Woredas (districts). The occurrence of the outbreaks reinforced the relevance of the CBAMFEW program and earned the forecasters trust among the farming communities and other partners. END NOTE.

(Late stage maize leaves damaged by AAW caterpillars a phenomenon uncommon as the caterpillars often feed on younger tender leaves, photo courtesy GASPAR, February, 2013)

Forecast: As the AAW reason has ended in most of the southern and south-central outbreak regions, AAW activities will likely follow the seasonal migration patterns and move further north into northern Ethiopia, Eritrea and perhaps northwestern Somalia. The pest may appear in northern Somalia and perhaps cross Gulf of Aden into Yemen riding the southwesterly trade wind by the end of the forecast season. Active monitoring, reporting and preventive interventions remain essential. There is a very low probability of AAW invasions in Kenya and Tanzania and other outbreak countries in the south (e.g., Malawi, Mozambique, Zambia and Zimbabwe) will remain free of AAW infestations during the forecast period (AELGA, DLCO-EA, IRLCO-CSA).

Bhutan

Fall armyworm, *Spodoptera frugiperda*, caterpillars caused damage to rice seedlings (saplings) on several acres in Bhutan in May. The outbreak was first reported in Shengana,

one of the largest rice grower gewogs in the dzongkhag, during the first week of May. In Dangchu gewog the pest attacked nurseries of 32 households of Ridha chewog around May 10th. Several farmers in Punakha also spotted armyworm feeding on their paddy saplings in their nursery. By mid-month, the infestation became severe in Guma, Goenshari, Toep and Talo geowgs and in Wangduephodrang, nine gewogs reported infestations on 10 acres of paddy nursery. In Nysho gewog, 4 acres of rice plants were defoliated and Gasetsowom and Gasetsogom sustained damage on an acre each. By the second dekad of the month, almost all 11 gewogs in the dzongkhag reported armyworm attacks where farmers have lost their nurseries and most of their rice plants for the season.

MoA experts suggest that the prolonged cloudy weather associated with frequent rain over the past few days provided the pest with ideal conditions to thrive and break out. Experts tend to relate the unusual weather conditions, where dry spells are followed by wet weather, a phenomenon that may be associated with climate change/variability.

Control operations were carried out by the affected farmers with material and technical assistance from the Min Agri. In areas where rice plants sustained damage at an early stage crop protection experts advise affected farmers to apply urea to the soil to rejuvenate the saplings and stimulate re-growth. As the paddy transplantation season is closing down in many places, farmers are worried of low yield this year.

In Bhutan and neighboring countries, the swarming rice worm, *Spodoptera mauritia*, a cousin of the Fall armyworm and African Armyworm, is a serious pest of rice and often causes significant damage.

Quelea (QU): In Kenya, QU bird outbreaks were reported in Siaya and Busia counties where eight (8) roosts with a total of 3.2 million birds were controlled in the two areas. Surveys were underway to identify roosting sites in Kisumu and Narok counties. In Tanzania, the birds were controlled in Shinyanga, Singida, Dodoma, Mbeya and Mwanza regions over a total of 592 ha during May using 1,200 litres of Fenthion (Queletox) resulting in an estimated 48.6 million birds were abated. Control operations started in Morogoro region. No QU activities were reported in Malawi, Mozambique, Zambia or Zimbabwe during May (IRLCO-EA).

Forecast: QU bird outbreaks are likely to continue in Kenya and Tanzania and Zimbabwe will likely experience some QU activities towards the end of the forecast period. Active surveillance and timely reporting and interventions remain essential (AELGA, DLCO-EA, IRLCO-CSA).

Facts: ***QQU*** *birds can travel ~100 km/day looking for food. An adult QQU bird can consume 3-5 g of grain and perhaps destroy the same amount each day. A QQU colony can contain a million birds (very common) and is capable of consuming and destroying 6,000 to 10,000 kg of seeds/day, enough to feed 12,000-20,000 people for a day.*

Rodents: No rodent outbreaks were reported during May.

Forecast: As rodents remain a constant threat to cereal and other produces in many outbreak and invasion areas, active surveillance and preventive interventions remain essential (AELGA).

Note: *Several raptor birds, such as barn owl, Tyto Alba and other animals are known nature's biological control agents that contribute to maintaining the balance between moderate rodent outbreaks and a period of lull.* ***End note***.
Front-line countries where ETOP outbreaks first occur are advised to remain vigilant. Invasion

countries should maintain the capacity to monitor and avoid any unexpected surprises. DLCO-EA, IRLCO-CSA, national PPDs, CNLAs, DPVs, ELOs, and others are encouraged to continue sharing information with partners and other stakeholders as often as possible. Lead farmers and community forecasters should be encouraged to remain vigilant and report any ETOP sightings to field agents and other contact persons.

Inventories of National Acridid Pesticide Stocks

Pesticide inventories of the national crop protection departments slightly changed during May as control operations treated close to 39,962 ha in the SGR countries (see table blow for estimated quantities of each country).

Mindful of the risk of pesticides becoming obsolete once passed their usability, ETOP-prone countries, particularly those with large inventories, but less likely to use them within a reasonable time period, are encouraged to test their stocks regularly and determine whether they should use, retain, share or discard them immediately.

AELGA encourages that all options be explored to avoid the risks that old stocks could pose to the human health, the environment, and non-target organisms as well as the huge financial and environmental burdens associated with disposal of obsolete and unusable stocks.

A judiciously executed triangulation of usable stocks from countries with large inventories to where there are immediate needs is a win-win situation worth considering.

It is worth mentioning that Mauritania, Senegal, Algeria and Morocco donated more than 120,000 litres of pesticides to Niger, Mali and Chad to assist with the SRG control operations during the 2012 locust campaign. During the recent meetings of the CLCPRO technical and executive committee meetings, member countries actively discussed to maintain the spirit of sharing pesticides and resources for the control of the desert locust across and within their national boundaries. These acts of solidarity and good will are examples of a win-win situation where by donating countries are not only assisting receiving countries, but also helps themselves by avoiding a potential threat from unnecessary accumulations of obsolete and save resource that could otherwise be spent in rather costly pesticide disposal operations.

Note: *The core message of* sustainable pesticide stewardship Program *is to strengthen the national and regional pesticide delivery systems by linking partners at different levels and thereby reduce pesticide related health risks and environmental pollution and improve food security as well as contribute to the national economy.* ***End note****.*

Estimated quantities of ETOP pesticide in host-countries

Country	Quantities in '000 l/kg[$]
Algeria	1,190~
Chad	43.9
Eritrea	43.7~
Egypt	Data not available
Ethiopia	1.6+~
Libya	25
Madagascar	Data not available
Mali	208.8d~
Mauritania	161.6+~
Morocco	4,097~
Niger	45.00~
Oman	20
Senegal	156~
Saudi Arabia	Date not available
Sudan	460.00
NSD	860"
Tunisia	167.6~
Yemen	33.00 + .527 kg GM~

These quantities include ULV, EC and dust formulations
~ data not necessarily current
l = Mali donated 21,000 l for RL in Malawi, ɔzambique and Tanzania late last year and FAO facilitated the triangulation
+ quantity reported in Agadez
@ left-over stocks of Chlopyrifos from the 2003-5 DL campaign was tested for quality and found to be usable through 2012
This includes EC, ULV and Dust for all crop protection uses
GM = GreenMuscle
b = biopesticide (Madagascar)
c = conventional pesticides (Madagascar)
g = insect growth regulator (Madagascar)

LIST OF ACRONYMS

AAW	*African armyworm (Spodoptera e**x**pempta - SEX)*
AELGA	*Assistance for Emergency Locust Grasshopper Abatement*
AFCS	*Armyworm Forecasting and Control Services, Tanzania*
AfDB	*African Development Bank*
AME	*Anacridium melanorhodon*
APLC	*Australian Plague Locust Commission*
APLC	*Australian Plague Locust Commission*
CAC	*Central Asia and the Caucasus*
CBAMFEW	*Community-based armyworm monitoring, forecasting and early warning*
CERF	*Central Emergency Response Fund*
CIT	*Calliptamus italicus*
CLCPRO	*Commission de Lutte Contre le Criquet Pélerin dans la Région Occidentale (Commission for the Desert Locust Control in the Western Region)*
CNLA/CNLAA	*Centre National de Lutte Antiacridienne (National Locust Control Center)*
CRC	*Commission for Controlling Desert Locust in the Central Region*
CTE	*Chortoicetes terminifera*
DDLC	*Department of Desert Locust Control*
DL	*Desert Locust*
DLCO-EA	*Desert Locust Control Organization for Eastern Africa*
DMA	*Dociostaurus maroccanus*
DPPQS	*Department of Plant Protection and Quarantine Services*
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*
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 and hence cannot breed*
GM	*Green Muscle (a fungal-based biopesticide)*
ha	*hectare (= 10,000 sq. meters, about 2.471 acres)*
	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*
Hoppers	*young, wingless locusts/grasshoppers (Latin synonym = nymphs or larvae)*

Hopper bands	*groups of hoppers aggregated and marching in unison and pretty much in the same direction*
Kg	*Kilogram (~2.2 pound)*
L	*Liter (1.057 quarts or 0.264 gallon or 33.814 US fluid ounces)*
LMC	*Locusta migratoriacapito*
LMM	*Locusta migratoria migratorioides (African Migratory Locust)*
LPA	*Locustana pardalina*
MoAFSC	*Ministry of Agriculture, Food Security and Cooperatives*
MoARD	*Ministry of Agriculture and Rural Development*
NOAA	*National Oceanic and Aeronautic Administration*
NSD	*Republic of North Sudan*
NSE	*Nomadacris septemfasciata*
OFDA	*Office of U.S. Foreign Disaster Assistance*
PHD	*Plant Health Directorate*
PHS	*Plant Health Services, MoA Tanzania*
PPD	*Plant Protection Department*
PPSD	*Plant Protection Services Division/Department*
PRRSN	*Pesticide Risk Reduction through Stewardship Network*
QQU	*Quelea quelea*
SARCOF	*Southern Africa Region Climate Outlook Forum*
SGR	*Schistoseca gregaria*
SWAC	*South West Asia DL Commission*
TAG	*Technical Assistance Group*
USAID	*Unites States Agency for International Development*
UN	*the United Nations*
ZEL	*Zonocerus elegans, the elegant grasshopper*
ZVA	*Zonocerus variegatus, variegated grasshopper (This insect is emerging as a fairly new dry season pest largely due to the destruction of it natural habitat through deforestation.)*

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