Special Report

East Africa Desert Locust and Food Security Update:

Current Upsurge Threatens Upcoming 2020 Agricultural Season

17 February 2020

KEY MESSAGES

Figure 1. An Invasion of Locusts in the Somali Region of Ethiopia

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- The desert locust is considered the most dangerous migratory pest in the world. According to FAO, the current upsurge in East Africa is the worst in 25 years in Ethiopia and Somalia and the worst in 70 years in Kenya.

- Most affected areas are currently facing *Crisis* (IPC Phase 3) or *Stressed* (IPC Phase 2) food insecurity. According to the IPC, 9.75 million people living in areas affected by desert locusts in Ethiopia, Kenya, and Somalia are currently or projected to be in *Crisis* (IPC Phase 3) or worse.

- While the locust upsurge is rapidly developing, its current impacts on food security has not yet been felt on a large scale. Most major cropping areas of the region have not yet been affected. In the case of agricultural areas, most crops had either already been harvested or were in late stages of maturity when desert locust swarms passed through, thereby limiting losses. In pastoral areas, rangeland resources were well above average following heavy October – December seasonal rains, which helped to offset the effects of desert locust damages thus far.

- Desert locusts are expected to continue to breed and spread during the coming months. Given their life cycle, the March-April start of the long rains, coinciding with a regeneration of rangeland and the start of planting activities, will enable a new wave of breeding and further spread of the pest. Desert locusts have already reached northern Uganda, and looking forward, the infestation could: 1) spread further into the Rift Valley (especially in Ethiopia), as well as to South Sudan, 2) affect the 2020 main and secondary staple cropping seasons, and 3) continue to affect rangeland across the region.

- Under a most-likely scenario, the food security impacts will be significant for affected households in areas where swarms pass through and cause damages, with the greatest food security impacts felt by households reliant on cropping activities who are already facing food insecurity (IPC Phase 2+) due to their existing high vulnerability and the effects of expected crop losses. Pasture losses are also expected in areas where swarms land, though expected above-average to average rainfall over the coming months is likely to partially offset the impacts.

- Though not considered likely, a worst-case scenario where desert locusts cause 1) below-average 2020 national harvests, and 2) major pasture losses in arid and semi-arid regions, the food security outlook would be more dire. In this scenario, below-average food stocks and pasture conditions, reduced incomes, and rising food prices would likely drive widespread food insecurity for cropping, agro-pastoral, and pastoral households across the region.

Inputs for this analysis have been provided by:

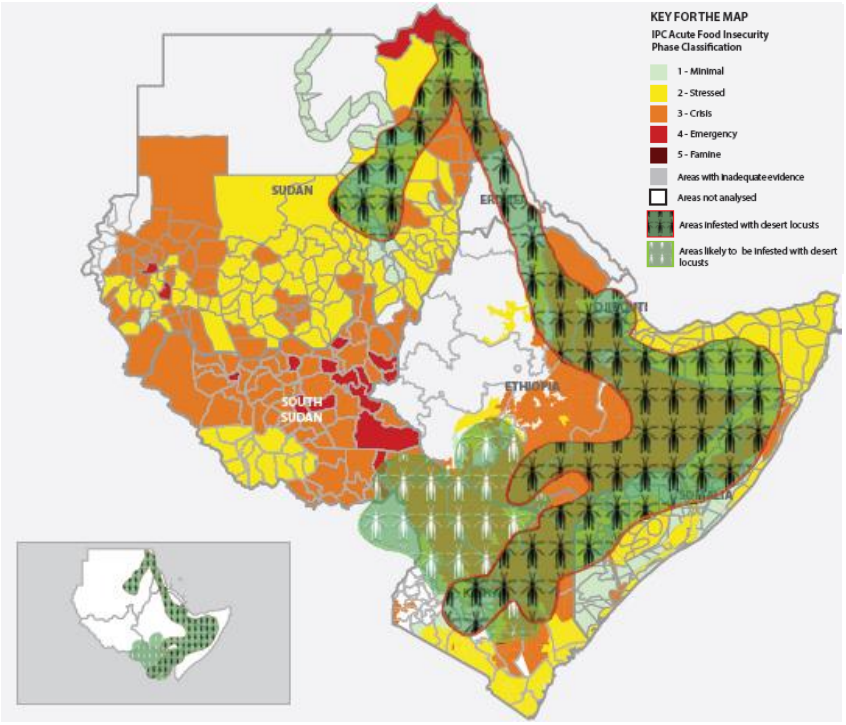
BACKGROUND

The desert locust is considered the most dangerous migratory pest in the world. According to FAO, the current upsurge in East Africa is the worst in 25 years in Ethiopia and Somalia and the worst in 70 years in Kenya. A typical swarm can be made up of 150 million locusts per km^2, and a one km^2 swarm has the capacity to consume in the equivalent in crops that could feed 35 000 people for a year. Locust swarms can also move quickly, covering 100 to 150 km per day, enabling their quick spread and destruction and complicating control measures.

The current desert locust upsurge originated from uncontrolled swarms in the Arabian Peninsula that crossed over to the Horn of Africa in June 2019. Once in East Africa, swarms spread quickly due to favorable climatic and vegetative conditions (e.g. above-average rainfall between October and December and the passing of Tropical Cyclone Pawan).

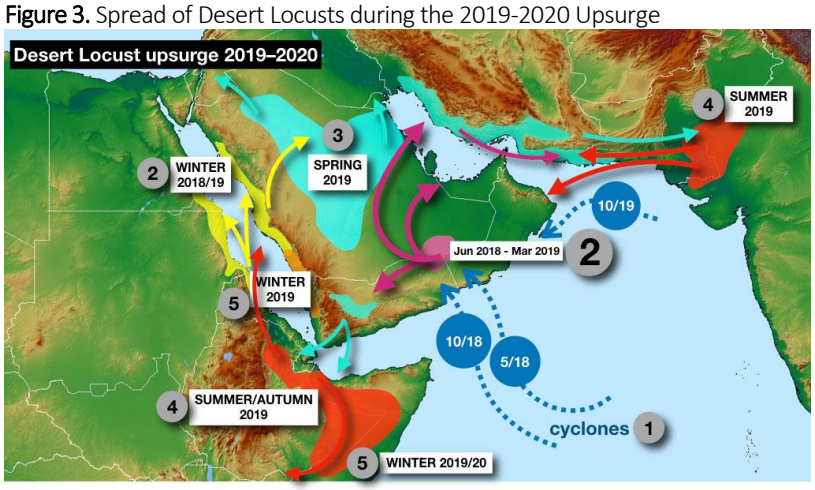
As shown by a study of historical outbreaks (Annex 1), agricultural production losses in desert locust affected areas tend be significant for affected households but not widespread in nature. However, in affected areas, the losses can drive food insecurity, particularly in contexts of multiple shocks and already high vulnerability.

Figure 2. IPC Acute Food Insecurity Phase Classification Overlaid with Desert Locust Infestations (as of 5 February, 2020)[1]



Source: IPC and FAO

Figure 3. Spread of Desert Locusts during the 2019-2020 Upsurge



Source: FAO

CURRENT SITUATION

Desert Locust Upsurge

As of the beginning of February 2020, the desert locust situation has become extremely concerning with increasing swarm numbers in Somalia, Kenya, and Ethiopia. Swarms have also been observed in Eritrea, Djibouti, and northeastern Uganda.

[1] After 5 February, desert locusts have continued to spread across the region, and have since arrived in Uganda.

Looking forward, given favorable forecasted weather conditions, swarms are expected to increase in areas already affected, as well as spread to neighboring areas. There is also a high risk that locusts will spread to South Sudan.

Control operations have been scaled up to respond to the upsurge, though are still considered insufficient to manage the upsurge. During the month of January 2020, the following number of hectares have been treated by country: Ethiopia: 22 550 ha; Kenya 20 000 ha, Sudan 18 714 ha; Eritrea 15 068 ha; and Somalia 15 000 ha. In parts of the region, access constraints due to conflict and instability has complicated control operations.

Desert Locust Definitions

Experts indicate that the East Africa region is currently facing a desert locust upsurge. Additional information on the difference between desert locust outbreaks, upsurges, and plagues can be found below:

"Desert Locust are always present somewhere in the deserts between Mauritania and India. If good rains fall and green vegetation develop, Desert Locust can rapidly increase in number and within a month or two, start to concentrate, gregarize which, unless checked, can lead to the formation of small groups or bands of wingless hoppers and small groups or swarms winged adults. This is called an **OUTBREAK** and usually occurs with an area of about 5,000 sq. km (100 km by 50 km) in one part of a country.

If an outbreak or contemporaneous outbreaks are not controlled and if widespread or unusually heavy rains fall in adjacent areas, several successive seasons of breeding can occur that causes further hopper band and adult swarm formation. This is called an **UPSURGE** and generally affects an entire region.

If an upsurge is not controlled and ecological conditions remain favourable for breeding, locust populations continue to increase in number and size, and the majority of the infestations occur as bands and swarms, then a **PLAGUE** can develop. A major plague exists when two or more regions are affected simultaneously."

- FAO Locust Watch

Food Security

Currently, the region faces widespread food insecurity, with approximately 12.7 million people in *Crisis* (IPC Phase 3) and above in Ethiopia, Kenya, and Somalia (8.5 million in Ethiopia, 3.1 million in Kenya[2], and 1.1 million people in Somalia), according to the most recent IPC analyses. Drivers of this food insecurity include climate shocks, conflict, and macroeconomic crises.

Considering only areas that have been affected by desert locusts, most are currently facing *Crisis* (IPC Phase 3) or *Stressed* (IPC Phase 2) food insecurity (Figure 2). According to the IPC, 9.75 million people living in desert locust-affected areas of Ethiopia, Kenya, and Somalia are currently or projected to be in *Crisis* (IPC Phase 3) or worse.

While the locust upsurge is rapidly developing, its current impacts on food security has not yet been felt on a large scale. For example, the 2020 Post-*Deyr* assessment in Somalia estimates that favorable October – December 2019 rains drove above-average production in southern Somalia (+16 percent compared to the long-term average). Additionally, in Somalia, the assessment found that desert locusts only caused minimal losses on both pasture and crops, mainly in central regions. Field reports from Kenya and Ethiopia also suggest only minimal to moderate pasture and crop losses. Reasons for these low impacts to date include:

- Most major cropping areas of the region have not yet been affected, except for parts of Ethiopia (e.g. northern and southeastern Tigray, northeastern Amhara, and eastern Oromia regions);

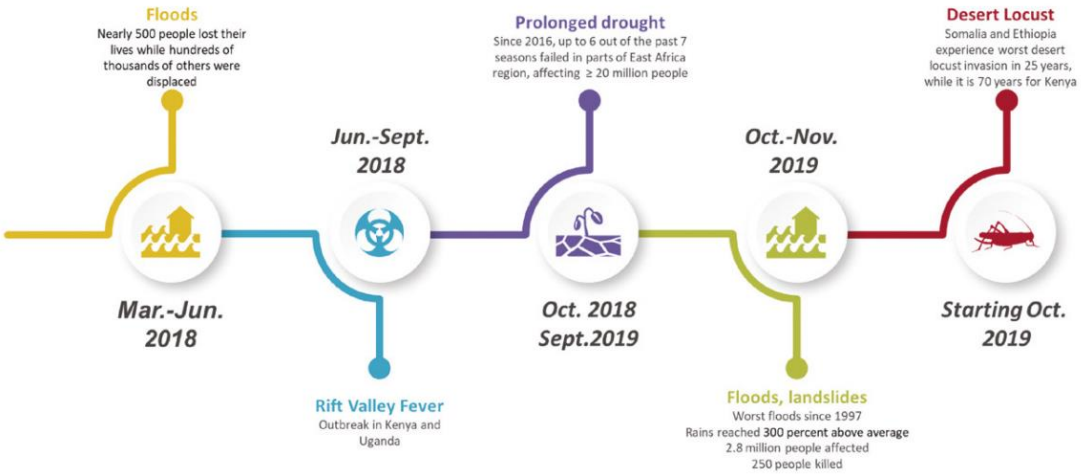
[2] Estimate was valid for August to October 2019. Updated figures are expected after the next IPC analysis to be conducted after the completion of ongoing Short Rain Assessment.

- In other cropping areas, most crops had either already been harvested or were in late stages of maturity when desert locust swarms passed through, limiting resulting losses; and

- In pastoral areas, rangeland resources were well above average before the desert locust arrival, as shown by NDVI anomalies in late January, which helped to offset the effects of desert locust damages.

Desert locust impact assessments are currently ongoing throughout the region, and should provide additional information in the coming weeks.

Figure 4. Timeline of Recent Hazards Affecting the East Africa Region

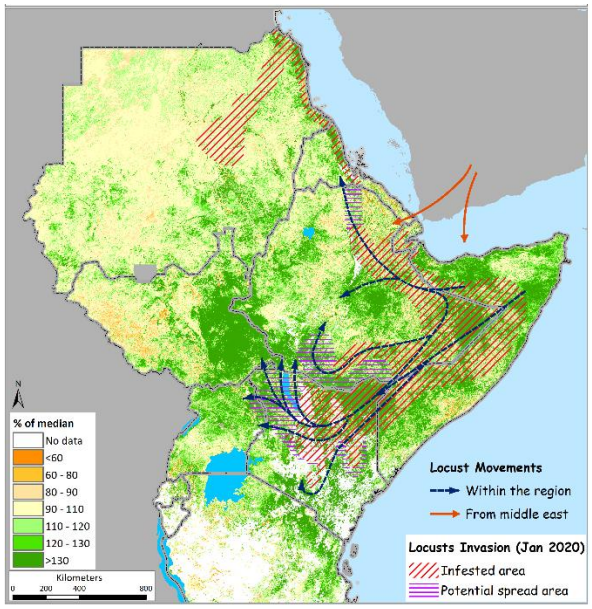


Source: FAO

OUTLOOK

Climatic conditions, including winds, soil moisture, temperature, and vegetation, are currently favorable for desert locusts and are forecasted to remain the same throughout the March – May 2020 season (ICPAC GHACOF 54). According to FAO's most recent Locust Watch, desert locusts will continue to breed and spread under a most-likely scenario. Of particular concern is the March-April start of the long rains season, which is coinciding with a regeneration of rangeland and the start of planting activities. Given the life cycle of desert locusts, the start of these rains will enable a new wave of breeding and further spread of the pest. This means that the infestation could: 1) spread further into the Rift Valley (especially in Ethiopia), as well as to South Sudan, 2) affect the 2020 main and secondary staple cropping seasons, and 3) continue to affect rangeland conditions across the region. Additionally, parts of the region, such as southern Somalia and northeastern Kenya, has conflict and insecurity, which will likely hamper control operations.

Figure 5. NDVI Status in Late January 2020 and Desert Locust Infestations



Source: WFP

Most-Likely Scenario for Food Security

The food security impacts of this spread will be highly dependent on the magnitude of production losses, both in marginal agricultural zones and in key surplus production areas, as well as for rangeland resources.

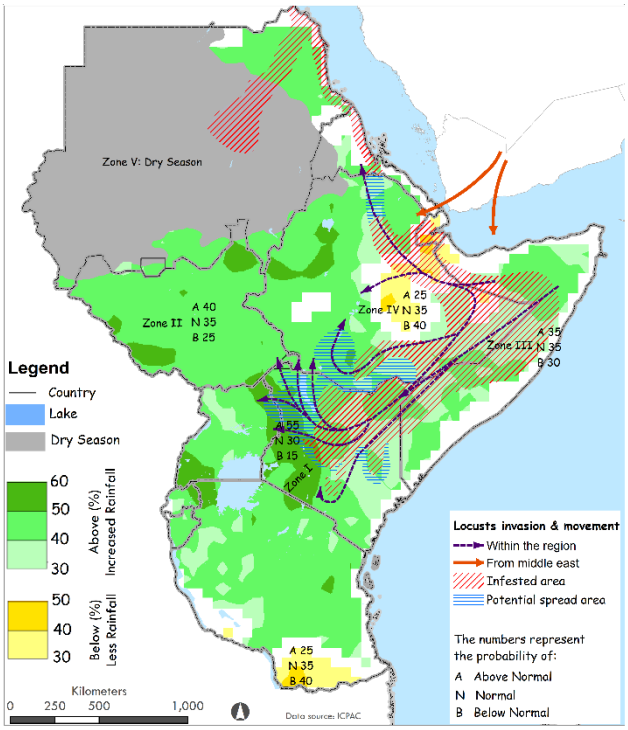
Given current information and forecasted desert locust movements and impacts seen during historical locust upsurges/plagues, a most-likely scenario at this time is that future food security impacts will be significant for affected households in areas where swarms pass through and cause damages, with the greatest food security impacts felt by households reliant on cropping activities who are already facing severe food insecurity (IPC Phase 2+) due to their existing high vulnerability and the effects of expected crop losses[3] An analysis of historical locust events shows that locust-related losses do not often drive below-average national crop production and in cases where national production during locust years were below average, additional factors (e.g. drought, cyclones,…) were usually involved. With this in mind, given that current forecasts indicate an increased probability of above-average to average rains, it is assumed that 2020 national production levels will not be significantly affected in most countries. However, desert locust affected areas could experience below-average harvests at a sub-national level. Similarly, impacts on agricultural labor wages are assumed to be minimal, outside of affected areas.

In pastoral areas, this scenario assumes rangeland losses where swarms land, though expected above-average to average rainfall over the coming months likely to partially offset the impacts.

As noted earlier, the region is already quite vulnerable with already high levels of food insecurity (IPC Phase 3+), caused by the effects of recent shocks (droughts, floods, macroeconomic crises, conflict) with little time for recovery.[4] Therefore, an additional shock, such as below-average harvests in affected areas, could have major impacts for affected households, driving further deteriorations in their food security. For these populations, most of the food security deteriorations are expected to be observed towards the end of 2020 with a peak during the first half of 2021, during the height of the lean season.

Under this most-likely scenario, the number of people facing severe acute food insecurity (IPC Phase 3+) at a regional level is not expected to increase significantly, given both the nature of expected production losses and the positive impacts of the upcoming favorable rains.

Figure 6. March to May 2020 Rainfall Forecast and Spread of Desert Locusts



Source of map: WFP; Source of data: GHACOF 54/ICPAC and FAO

Worst-Case Scenario for Food Security

Though not considered likely given current information, a worst-case scenario where desert locusts both 1) cause significant crop losses during the 2020 main and secondary seasons, resulting in below-average national harvests, and 2) cause major pasture and browse losses in arid and semi-arid regions, the food security outlook would be more dire.

[3] Locust-related damages can be up to 100 percent for both crops and fodder.

[4] Shocks include multiple seasons of below-average and erratic rainfall, flooding, conflict, economic crisis, etc.

For cropping and agro-pastoral households, income from agricultural employment (crop sales and agricultural wage labor) would decline. Households would also have reduced access to green harvests, and food stocks would deplete earlier than usual, requiring a dependence on market purchases for a prolonged period.

For pastoralists, significant pasture and browse losses could drive atypical livestock migration, leading to a rapid depletion of scarce rangeland resources, increased livestock diseases, and the possibility of elevated levels of resource-based conflict. In some cases, poor pastoral households may not be able to afford the costs of migration with their livestock to distant grazing areas or may have limited migration options due to conflict or insecurity. Additionally, deteriorations in pasture availability and quality could reduce milk yield and supply, with a negative impact on the food security of poor pastoral households.

In addition to causing cropping and livestock production deficits, market impacts would also be expected in this scenario. More specifically, food prices are already above average across much of the region, driven by below-average 2019 harvests and macroeconomic crises in several countries. Should grain supplies contract due to poor 2020 harvests, this could drive additional price increases, limiting food access, and result in more widespread food insecurity. This food insecurity would affect both cropping and agro-pastoral households who have experienced significant production losses and pastoral households who are heavily dependent on market purchases. Though reduced agricultural wages and green harvests could affected food security outcomes between April and June, the most significant food security deteriorations would begin starting from mid-2020.

It should also be noted that this worst-case scenario assumes above-average to average rainfall, as well as no changes relating to other drivers of food insecurity across the region. However, if below-average rainfall were to occur (the GHACOF 54 indicates a 15 – 30 percent likelihood in most areas, with the exception of Djibouti and north-central Ethiopia), significantly worse food security outcomes could occur compared to what is outlined in this scenario.

Somalia Analysis

Based on IPC released findings, FAO and WFP have conducted additional analyses of the food security impacts of desert locusts for Somalia. This analysis shows that under mid case scenario, an additional 336 000 people would move from *Stressed* (IPC Phase 2) to *Crisis* (IPC Phase 3) in desert locust areas between April and June 2020. Under a worst-case scenario, the additional number of people in severe food insecurity (IPC Phase 3+) would be 616 000.

ANNEX 1: FOOD SECURITY IMPACTS OF HISTORICAL LOCUST OUTBREAKS

West Africa

The 2004-2005 desert locust outbreak, which most severely impacted southern Mauritania, Mali, northern Burkina Faso and central and western Niger and was considered the worst in 15 years at the time, resulted in localized food insecurity, particularly in agro-pastoral and pastoral areas, according to food security reports from FEWS NET and CILSS. Locusts, along with poor rainfall, contributed to significant production losses, particularly in Mauritania (-35 percent compared to the five-year average), Chad (-18 percent), and Niger (-4 percent), according to December estimates. In the case of Niger, the 2004 CFSAM indicated that 1/3 of production losses were due to desert locusts while 2/3 were due to drought. This below-average production, along with a sharp tightening of regional supplies and increased demand caused by poor crop production in Nigeria (unrelated to desert locusts) drove sharp food price increases, limiting access and increasing food insecurity for poor households. Niger's 2005 food crisis was particularly severe, with 2.4 million people estimated to be affected by severe food shortages in 2005, including 800 000 people critically that were food insecure (FEWS NET).

Meanwhile, the 1987-1989 locust plague across the Sahel caused high crop and pasture losses for affected areas (Table 1). Though the macro-level impacts on national production were minimal, the resulting income shock felt by affected rural households in Mali (micro-level) has been shown to have had long-term and statistically significant effects on school enrollments for children under the age of seven compared to neighboring communities that were not affected (de Vreyer, Guilbert, Mesplé-Somps).

Table 1. Crop Losses in West Africa during the 1987 – 1989 Locust Plague

Country	Type of agriculture	Area Affected (Ha)	Percent Loss
Mauritania	Grazing land	200 000	60
	Rainfed crops	200 000	70
	Irrigated crops	400 000	50
Niger	Grazing land	1 million	50
	Rainfed crops	12 000	33
Mali	Grazing land	700 000	65 – 90
	Rainfed crops	300 000	5 – 75
	Market gardening crops	550	85 – 100
	Perennial crops	200	35

Source: Lecoq

Madagascar

In 2013, a Malagasy migratory locust plague affected 2/3 of the country, and resulted in rice crop losses of 10 to 40 percent. Though most of the country remained food secure, a FEWS NET assessment projected that in highly vulnerable southern regions, the locust outbreak, along with other climatic shocks (a cyclone and erratic rainfall), would likely drive *Crisis* (IPC Phase 3) food insecurity.