



Desert Locust Bulletin

General situation during August 2019
Forecast until mid-October 2019

WESTERN REGION: CALM

SITUATION. Small-scale breeding occurred in northern **Mali**, **Chad** and probably **Niger**. Hoppers and adults were treated (70 ha) in southwest **Libya**. Isolated adults were present in central and southern **Algeria**.

FORECAST. Small-scale breeding will continue in **Mali**, **Niger** and **Chad** and, to a lesser extent, in **Mauritania**, causing locust numbers to increase slightly. Small-scale breeding may occur in southwest **Libya**.



CENTRAL REGION: THREAT

SITUATION. Swarms spread in **Yemen** to the coast and matured; 110 ha treated. Several swarms moved through **Djibouti** to **Ethiopia** where breeding was underway (11 ha treated). Immature groups formed on the northwest coast of **Somalia**. Immature adult groups were treated (3 900 ha) in southwest **Saudi Arabia** and groups bred on the southern Red Sea coast. Isolated adults prevailed in northern **Oman**. Scattered mature adults increased in **Sudan** and adult groups were treated (200 ha). Adults and a few groups were copulating on the Red Sea coast in **Eritrea**.

FORECAST. More swarms will form in **Yemen** and coastal breeding will cause a substantial increase in locust numbers, supplemented by breeding in **Saudi Arabia**. Hopper groups and bands could form in **Ethiopia** and on the Red Sea coast in **Eritrea**. Smaller-scale breeding will occur in **Sudan** and western **Eritrea**.

Worrisome situation in eastern and central regions

The current situation is most serious in Yemen, Pakistan and India, and it could deteriorate in Ethiopia and Eritrea. In Yemen, swarms moved in the highlands and reached the Red Sea and Gulf of Aden coasts while a few swarms migrated through Djibouti and reached Ethiopia. Adult groups formed on the northwest coast of Somalia and moved to eastern Ethiopia. Unusually good rains fell along both sides of the Red Sea in Yemen, Saudi Arabia and Eritrea that will allow breeding from September onwards and hopper bands may form. A substantial increase in locust numbers is expected in Yemen as more swarms form in the interior and breeding starts in coastal areas. In northeast and eastern Ethiopia, breeding is expected to continue, giving rise to small hopper bands. In Southwest Asia, swarm laying and widespread hatching caused numerous hopper groups to form in Rajasthan, India while a second generation of breeding occurred in Pakistan. Although ground control operations increased in both countries, there remains a risk of further breeding and the possible formation of new swarms starting in late September. Smaller-scale breeding will occur in the northern Sahel between Mali and western Eritrea, causing locust numbers to increase slightly. Less breeding is expected in Mauritania due to poor rains so far. Breeding may also occur in southwest Libya.

EASTERN REGION: THREAT

SITUATION. Control operations increased in **India** (65 089 ha) and **Pakistan** (16 445 ha) due to laying swarms and widespread hatching, causing numerous hopper groups. Isolated adults persisted in southern **Iran**.

FORECAST. Another generation of breeding is expected in **Pakistan** while breeding will continue in **India**, causing locust numbers to increase further with the possibility of swarm formation from late September onwards.

The FAO Desert Locust Bulletin is issued every month by the Desert Locust Information Service (DLIS) at FAO HQ in Rome, Italy. DLIS continuously monitors the global Desert Locust situation, weather and ecology to provide early warning based on survey and control results from affected countries, combined with remote sensing, historical data and models. The bulletin is supplemented by Alerts and Updates during periods of increased Desert Locust activity.

Telephone: +39 06 570 52420 (7 days/week, 24 hr)
E-mail: eclou@fao.org / faodlislocust@gmail.com

Internet: www.fao.org/ag/locusts
Facebook/Twitter: faolocust



Weather & Ecological Conditions in August 2019

Good rains fell in the summer breeding areas of the northern Sahel from Mali to Eritrea and along the Indo-Pakistan border. Breeding conditions were favourable in all areas except for Mauritania. Widespread unusual rains fell in the winter breeding areas along both sides of the Red Sea coast.

WESTERN REGION

The Inter-Tropical Convergence Zone (ITCZ) moved further north than usual between Mali and Chad, which led to widespread above-average rainfall particularly in Chad. Consequently, ecological conditions were favourable for breeding in the Tilemsi Valley, Adrar des Iforas and Tamesna of northern Mali, the central pasture areas, Tamesna Plains and the southern Air Mountains in Niger, and throughout the northern Sahel of Chad, reaching as far north as Faya and Fada. In Mauritania, the ITCZ was further south than normal and, as a result, below-average rains fell in the south and southeast. In Northwest Africa, generally dry conditions prevailed; however, heavy rains caused flooding in the Ghat area of southwest Libya at the end of August. Green vegetation persisted in some places from earlier rains that fell from April to June.

CENTRAL REGION

The Inter-Tropical Convergence Zone (ITCZ) moved further north than usual over Sudan, causing widespread above-average rainfall throughout the summer breeding areas, extending to the Baiyuda Desert and the Nile Valley in the north and the Red Sea Hills in the east as well as the western lowlands of Eritrea. Consequently, ecological conditions were favourable for breeding over a widespread area. In the interior of Yemen, although only light showers fell at times, conditions remained favourable for breeding. Light to moderate rains fell at times in eastern Ethiopia and on the plateau in northwest Somalia as far east as Burao. Conditions were favourable for breeding in Ethiopia and were expected may be improving on the Somali plateau. In the winter breeding areas, moderate to heavy rains fell along both sides of the Red Sea on the coastal plains of Eritrea from Mersa Cuba south to Djibouti and on the entire Yemen Tihama coast, extending north to Qunfidah, Saudi Arabia. Good rains also fell on the Gulf of Aden coast. Rainfall was heaviest during the first decade of August. During the second decade, rains also fell in the Red Sea Hills of Sudan and southeast Egypt, some of which may have run off into Wadi Diib and onto the coastal plains between Port Sudan and Tokar Delta. It is unusual for such rains to fall at this time of year, which have given rise to locust outbreaks in the past.

EASTERN REGION

Moderate to heavy rains fell along both sides of the Indo-Pakistan border during the first decade and continued during the second decade in Cholistan, Pakistan and in East Rajasthan, India. Light to moderate rains fell at the end of the month from Tharparkar to Cholistan and adjacent areas of West Rajasthan. This year's monsoon in India has continued to produce above average rainfall in West Rajasthan (18% higher than normal) and East Rajasthan (42%). Consequently, breeding conditions remained favourable in both countries.



Area Treated

Nearly 86 000 ha were treated during August.

Ethiopia	11 ha (August)
India	36 330 ha (July updated)
	65 089 ha (August)
Libya	70 ha (August)
Mali	40 ha (August)
Pakistan	16 455 ha (August)
Saudi Arabia	3 900 ha (August)
Sudan	200 ha (August)
Yemen	110 ha (August)



Desert Locust Situation and Forecast

WESTERN REGION

MAURITANIA

• SITUATION

No surveys were carried out and no locusts were reported in August.

• FORECAST

Low numbers of adults are almost certainly present but breeding is likely to be limited. Depending on the extent of additional rainfall during the forecast period, small-scale breeding will continue in parts of the two Hodhs, southern Tagant, Assaba, Brakna and Trarza, causing locust numbers to increase slightly.

MALI

• SITUATION

A late report indicated that scattered mature solitary adults were present at one location in the Adrar des Iforas south of Aguelhoc (1927N/0052E) in late July. During August, adults were copulating south of Aguelhoc. Ground teams treated 40 ha of low densities of solitary adults

mixed with higher densities of African Migratory Locusts west of Tombouctou (1649N/0259W).

• **FORECAST**

Small-scale breeding will occur in areas of recent rainfall in the Adrar des Iforas, Tilemsi Valley and Tamesna where limited hatching will take place, causing locust numbers to increase slightly.

NIGER

• **SITUATION**

No reports were received during August.

• **FORECAST**

Small-scale breeding will cause locust numbers to increase slightly on the Tamesna Plains and in the southeast Air Mountains as well as between Tahoua and Tanout where breeding is likely to be already in progress from earlier rains.

CHAD

• **SITUATION**

During August, small-scale breeding was underway in the east near the Sudanese border between Goz Beida (1242N/2125E) and Iriba (1507N/2215E) and further west near Arada (1501N/2040E) where isolated solitarious hoppers of all instars were present from egg-laying that started in early July. Isolated solitarious adults were maturing further north between Kalait (1550N/2054E) and Fada (1714N/2132E). No locusts were seen in northern Batha.

• **FORECAST**

Small-scale breeding will continue in the east and northeast where increased fledging will take place. Similar breeding will occur in western and central areas that received good rains, causing locust numbers to increase slightly but remain below threatening levels.

BURKINA FASO

• **SITUATION**

No reports were received during August.

• **FORECAST**

No significant developments are likely.

SENEGAL

• **SITUATION**

No locust activity was reported during August.

• **FORECAST**

No significant developments are likely.

BENIN, CAMEROON, CAPE VERDE, CÔTE D'IVOIRE, GAMBIA, GHANA, GUINEA, GUINEA BISSAU, LIBERIA, NIGERIA, SIERRA LEONE AND TOGO

• **FORECAST**

No significant developments are likely.

ALGERIA

• **SITUATION**

During August, isolated mature solitarious adults were present near a few irrigated areas south of Adrar (2753N/0017W) in the central Sahara and west of Tamanrasset (2250N/0528E) in the southern Sahara.

• **FORECAST**

Low numbers of locusts may persist near agricultural areas in the central Sahara where small-scale breeding could continue. Breeding will occur in the south in those areas that receive rainfall. No significant developments are likely.

MOROCCO

• **SITUATION**

No locust activity was reported during August.

• **FORECAST**

No significant developments are likely.

LIBYA

• **SITUATION**

In late August, ground teams treated 70 ha of fifth instar hoppers and immature and mature adults in the southwest near Ghat (2459N/1011E).

• **FORECAST**

Low numbers of adults are likely to persist in those areas that remain green from recent flooding near Ghat and could breed, causing locust numbers to increase and groups to form.

TUNISIA

• **SITUATION**

No locust activity was reported during August.

• **FORECAST**

No significant developments are likely.

CENTRAL REGION

SUDAN

• **SITUATION**

During August, mainly scattered mature adults were present in North Kordofan between Sodiri (1423N/2906E), Abu Uruq (1554N/3027E) and Umm Saiyala (1426N/3112E), in White Nile and Khartoum states, along the Nile between Ed Debba (1803N/3057E) and Dongola (1910N/3027E), and in the east between Kassala (1527N/3623E) and Haiya (1820N/3621E). Ground teams treated 200 ha of mature adult groups in the Nile Valley near Abu Hamed (1932N/3320E), and scattered adults and groups were laying eggs near Kassala.

• **FORECAST**

Small-scale breeding will cause locust numbers to increase in Darfur, North Kordofan, White Nile, Khartoum and Kassala states. Hatching is expected in all of these areas and small groups may form near Kassala. Fledging will commence after mid-September.

ERITREA

• SITUATION

During the last week of August, scattered mature solitary and *transiens* adults were copulating on the Red Sea coast between Sheib (1551N/3903E) and Ghelaelo (1507N/4004E). Adult groups were seen at one place on the coast south of Mersa Cuba (1616N/3911E). On the northern coast, immature solitary adults were present along the foothills between Mehimet (1723N/3833E) and the Sudan border. Scattered solitary mature adults were seen copulating at one place. The current breeding most likely originated from remnants of the swarms that flew over the southern Red Sea coast from Yemen in July. No information was received about the situation in the summer breeding areas of the western lowlands.

• FORECAST

Locust numbers will increase on Red Sea coast between Mersa Cuba and Mersa Fatma as hatching occurs. A few small hopper groups could form in some areas. Smaller-scale breeding will occur on the northern coast where hatching will also take place. Breeding is almost certainly in progress and will continue in the western lowlands, which could give rise to hopper and adult groups.

ETHIOPIA

• SITUATION

During August, hatching continued on the western edge of the Awash Valley north of Bati (1111N/4001E) in the Afar region and along the railway area north of Dire Dawa (0935N/4150E). First to fourth instar hoppers, groups and a few bands were seen in both areas. Scattered immature and mature solitary adults were present between Dire Dawa and Djibouti and a few immature groups were seen near the border of northwest Somalia on 23–24 August that may have originated from earlier breeding on the northwest coast of Somalia. In the following days, several very small immature swarms were seen moving west in Afar from Djibouti towards Weldiya (1150N/3936E) that may have come from Yemen. By the end of the month, mature swarms were seen copulating north of Bati. Ground teams treated 11 ha in August.

• FORECAST

Breeding will continue in Afar and along the railway area where additional hatching will cause an increasing number of hopper groups and small bands to form.

DJIBOUTI

• SITUATION

On 24–25 August, groups of immature and mature *transiens* adults were seen during surveys in the northwest interior between Tadjourah (1147N/4253E) and Moudo (1218N/4226E) and in the south near Ali Sabieh (1109N/4242E). These may be remnants of swarms from Yemen.

• FORECAST

There remains a risk of additional small groups and swarms from Yemen transiting through the country towards Ethiopia.

SOMALIA

• SITUATION

A late report indicated that adult groups in the northeast had reportedly moved to the Golis Mountains by the end of July and only scattered adults remained in a few places near Iskushuban (1017N/5014E) and on the northeast coast near Bosaso (1118N/4910E). During the first week of August, fifth instar hopper groups and bands were present on the northwest coast near Silil (1058N/4326E). Most of the hoppers had fledged and formed immature adults and groups that left the coastal plains because of dry conditions and moved towards eastern Ethiopia.

• FORECAST

Low numbers of locusts may persist in a few places of recent rainfall on the northwest plateau near Hargeisa.

EGYPT

• SITUATION

No surveys were carried out and no locusts were reported in August.

• FORECAST

No significant developments are likely.

SAUDI ARABIA

• SITUATION

During August, groups of immature adults were seen in the Asir Mountains between Al Baha (2001N/4129E) and the Yemen border, near Najran (1729N/4408E) in the southwest interior and Jizan (1656N/4233E) on the southern Red Sea coast. By the end of the month, some of the groups had matured and were copulating near Jizan. Ground teams treated 3 900 ha in August.

• FORECAST

Locust numbers will increase on the southern coastal plains of the Red Sea between Qunfidah and Jizan as a result of breeding in areas of recent rainfall. Hatching will occur during September and hopper groups and perhaps small bands are likely to form.

YEMEN

• SITUATION

During August, numerous immature adult groups and swarms were seen flying throughout the central highlands between Sana'a (1521N/4412E) and Taiz (1335N/4401E), in the interior between Marib (1527N/4519E) and Bayhan (1452N/4545E), in the south near Aden (1250N/4503E) and Al Baydha (1405N/4542E), and on the Red Sea coast near Hodeidah (1450N/4258E) and Suq Abs (1600N/4312E). Mature adult groups and swarms were also present and laying in some of these areas, including the northern Red Sea coast at mid-month. Hopper bands

from earlier breeding persisted near Marib, Bayhan and Lahij (1303N/4453E). On the 25th, an immature and mature swarm appeared on the coast west of Aden near Bab El Mandeb where some swarms may have crossed to Djibouti and Ethiopia. Ground teams treated 110 ha during August.

• **FORECAST**

More swarms are likely to form from current breeding in the interior. A substantial increase in locust numbers is expected to occur as a result of swarm laying and subsequent hatching in areas of recent rainfall on the Red Sea coastal plains and on the southern coast near Aden that will give rise to hopper groups and bands. Breeding may also continue along parts of the western edge of Ramlat Sabatyn between Marib and Ataq.

OMAN

• **SITUATION**

During August, low numbers of immature adults were present on the Batinah coast near Jamma (2333N/5733E) while a mixture of immature and mature adults was seen on the Musandam Peninsula. No locusts were seen elsewhere on the Batinah coast or in the northern interior between Nizwa (2255N/5731E) and Buraimi (2415N/5547E) and near Sur (2234N/5930E).

• **FORECAST**

Scattered adults may persist in parts of the north, but no significant developments are likely.

BAHRAIN, IRAQ, ISRAEL, JORDAN, KENYA, KUWAIT, LEBANON, PALESTINE, QATAR, SOUTH SUDAN, SYRIA, TANZANIA, TURKEY, UAE AND UGANDA

• **FORECAST**

No significant developments are likely.

EASTERN REGION

IRAN

• **SITUATION**

During August, isolated mature solitarious adults persisted in a few places in the southern provinces of Ilam near the Iraqi border, Bushehr, southern Fars, Hormozgan and southern Sistan-Baluchistan.

• **FORECAST**

No significant developments are likely.

PAKISTAN

• **SITUATION**

During August, adults continued to lay eggs primarily in Cholistan and, to a lesser extent, in Nara and Tharparkar deserts where groups of hoppers and immature and mature adults formed near the Indian border. From mid-month onwards, second-generation hatching caused locust numbers to increase further. Adults were also laying eggs and hoppers were forming groups in the Las Bela area west of Karachi (2450N/6702E). Ground teams treated 16 455 ha during August.

• **FORECAST**

Breeding will continue in Cholistan and Tharparkar deserts with another generation of hatching and the formation of hopper groups and bands with new immature adult groups and perhaps a few small swarms forming by late September.

INDIA

• **SITUATION**

During the first half of August, numerous mature groups and swarms laid eggs along the Pakistani border west of Barmer (2543N/7125E), between Jaisalmer (2652N/7055E) and Phalodi (2706N/7222E), and between Bikaner (2801N/7322E) and Suratgarh (2919N/7354E) that caused widespread hatching at mid-month, giving rise to large numbers of hopper groups but only a few small bands due to control operations. Immature and mature solitarious and transiens adults were also scattered within these areas. Ground teams treated 65 089 ha in August.

• **FORECAST**

Breeding will continue in Rajasthan, causing an increasing number of hopper groups to form and fledge during the forecast period. Consequently, immature groups and small swarms are expected to form from late September onwards.

AFGHANISTAN

• **SITUATION**

No reports were received during August.

• **FORECAST**

Limited breeding may be in progress in parts of Helmand and Nimroz provinces where small groups could form.



Announcements

Locust warning levels

A colour-coded scheme indicates the seriousness of the current Desert Locust situation: **green** for *calm*, **yellow** for *caution*, **orange** for *threat* and **red** for *danger*. The scheme is applied to the Locust Watch web page and to the monthly bulletins. The levels indicate the perceived risk or threat of current Desert Locust infestations to crops and appropriate actions are suggested for each level.

Locust reporting

Calm (green). Countries should report at least once/month and send RAMSES data with a brief interpretation.

Caution (yellow), threat (orange) and danger (red).

During locust outbreaks, upsurges and plagues, RAMSES output files with a brief interpretation should be sent at least twice/week within 48 hours of the latest survey.

Bulletins. Affected countries are encouraged to prepare

decadal and monthly bulletins summarizing the situation.

Reporting. All information should be sent by e-mail to the FAO/ECLO Desert Locust Information Service (eclo@fao.org and faodlislocust@gmail.com). Reports received by the first two days of the new month will be included in the FAO Desert Locust Bulletin; otherwise, they will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Calendar

The following activities are scheduled:

- **DLCC.** 41st Session, Addis Ababa, Ethiopia (10–13 December)



Glossary of terms

The following special terms are used in the Desert Locust Bulletin when reporting locusts:

Non-gregarious adults and hoppers

Isolated (few)

- very few present and no mutual reaction occurring
- 0–1 adult/400 m foot transect (or less than 25/ha)

Scattered (some, low numbers)

- enough present for mutual reaction to be possible but no ground or basking groups seen
- 1–20 adults/400 m foot transect (or 25–500/ha)

Group

- forming ground or basking groups
- 20+ adults/400 m foot transect (or 500+/ha)

Adult swarm and hopper band sizes

Very small

- swarm: less than 1 km²
- band: 1–25 m²

Small

- swarm: 1–10 km²
- band: 25–2,500 m²

Medium

- swarm: 10–100 km²
- band: 2,500 m² – 10 ha

Large

- swarm: 100–500 km²
- band: 10–50 ha

Very large

- swarm: 500+ km²
- band: 50+ ha

Rainfall

Light

- 1–20 mm

Moderate

- 21–50 mm

Heavy

- more than 50 mm

Summer rains and breeding areas

- July–September/October

- Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border

Winter rains and breeding areas

- October–January/February
- Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara

Spring rains and breeding areas

- February–June/July
- Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border

Other reporting terms

Breeding

- The process of reproduction from copulation to fledging

Recession

- Period without widespread and heavy infestations by swarms

Remission

- Period of deep recession marked by the complete absence of gregarious populations

Outbreak

- A marked increase in locust numbers due to concentration, multiplication and gregarisation which, unless checked, can lead to the formation of hopper bands and swarms

Upsurge

- A period following a recession marked initially by a very large increase in locust numbers and contemporaneous outbreaks followed by the production of two or more successive seasons of transient-to- gregarious breeding in complimentary seasonal breeding areas in the same or neighbouring Desert Locust regions

Plague

- A period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously

Decline

- A period characterised by breeding failure and/or successful control leading to the dissociation of swarming populations and the onset of recessions; can be regional or major

Warning levels

Green

- *Calm.* No threat to crops; maintain regular surveys and monitoring

Yellow

- *Caution.* Potential threat to crops; increased vigilance is required; control operations may be needed

Orange

- *Threat.* Threat to crops; survey and control operations must be undertaken

Red

- *Danger*. Significant threat to crops; intensive survey and control operations must be undertaken

Regions

Western

- Locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Niger, Senegal, Tunisia; during plagues only: Benin, Burkina Faso, Cameroon, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Nigeria, Sierra Leone and Togo

Central

- Locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syria, Tanzania, Turkey, UAE and Uganda

Eastern

- Locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.



Useful tools and resources

FAO Locust Watch. Information, maps, activities, publications, archives, FAQs, links
<http://www.fao.org/ag/locusts>

FAO Desert Locust regional commissions. Western Region (CLCPRO), Central Region (CRC), South-West Asia (SWAC)
<http://www.fao.org/ag/locusts>

IRI RFE. Rainfall estimates every day, decade and month
http://iridl.ldeo.columbia.edu/maproom/.Food_Security/Locusts/index.html

IRI Greenness maps. Dynamic maps of green vegetation evolution every decade
http://iridl.ldeo.columbia.edu/maproom/Food_Security/Locusts/Regional/greenness.html

NASA WORLDVIEW. Satellite imagery in real time
<https://worldview.earthdata.nasa.gov>

Windy. Real time rainfall, winds and temperatures for locust migration
<http://www.windy.com>

eLocust3 training videos. A set of 15 introductory training videos are available on YouTube
<https://www.youtube.com/playlist?list=PLf7Fc-oGpFHEDv1jAPaF02TCfpcnYoFQT>

RAMSESV4 training videos. A set of basic training videos are available on YouTube
<https://www.youtube.com/playlist?list=PLf7Fc-oGpFHGyzXqE22j8-mPDhhGNq5So>

RAMSESV4 and eLocust3. Installer, updates, videos, inventory and support
<https://sites.google.com/site/rv4elocust3updates/home>

FAOLocust Twitter. The very latest updates posted as tweets
<http://www.twitter.com/faolocust>

FAOLocust Facebook. Information exchange using social media
<http://www.facebook.com/faolocust>

FAOLocust Slideshare. Locust presentations and photos
<http://www.slideshare.net/faolocust>

eLERT. Online database of resources and technical specifications for locust emergencies
<http://sites.google.com/site/elertsite>



Desert Locust Summary

Criquet pèlerin - Situation résumée

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