Food and Agriculture Organization of the United Nations

No. 495 6 JANUARY 2020

Desert Locust Bulletin

General situation during December 2019
Forecast until mid-February 2020

WESTERN REGION: CALM

SITUATION. Limited breeding occurred in **Mauritania** (93 ha treated) and **Algeria** (25 ha treated), and small groups formed in northern **Mali**.

FORECAST. Small-scale breeding may continue in northwest **Mauritania**.

CENTRAL REGION: THREAT

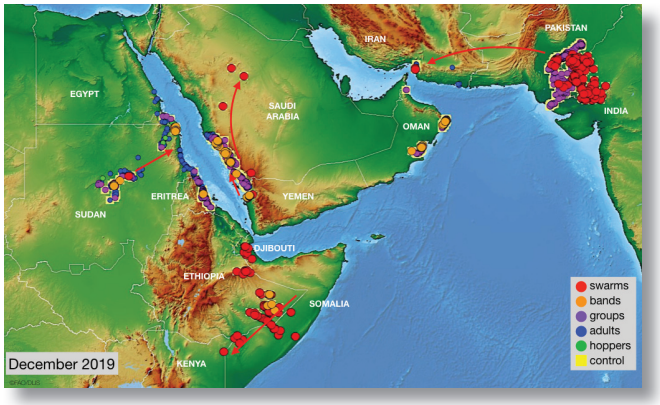
SITUATION. More swarms formed in **Ethiopia** (8 410 ha treated) and moved to Eritrea, **Djibouti** and south in the Ogaden and **Somalia** to **Kenya**. Breeding continued on the coast of **Eritrea** (11 078 ha treated), **Saudi Arabia** (43 798 ha treated) and **Yemen** (80 ha treated). Swarms moved to the interior of Saudi Arabia. Bands and a swarm were present in the interior of **Sudan** (26 846 ha treated) and bands formed on the northeast coast. Adult groups appeared and laid in southeast **Egypt** (30 ha treated). Groups and bands formed in northeast **Oman** (1 710 ha treated).

FORECAST. Swarms will continue to move in southern **Ethiopia**, **Somalia** and northern **Kenya**, and possibly threaten **South Sudan** and **Uganda**. Substantial breeding is likely in Ogaden, Ethiopia and Somalia and numerous bands will form. Breeding will cause bands and swarms to form along both sides of the Red Sea. More breeding is likely in **Oman**.

EASTERN REGION: THREAT

SITUATION. More swarms formed in **India** (22 113 ha treated) and **Pakistan** (71 388 ha treated). Swarms from Indo-Pakistan laid in **Iran** (2 372 ha treated).

FORECAST. The remaining swarms along the Indo-Pakistan border will migrate to southwest **Pakistan** and southern **Iran** and slowly mature and breed.



The worst situation in 25 years

The current situation remains extremely serious in the Horn of Africa where, despite control operations, an increasing number of swarms formed in eastern Ethiopia, including the Ogaden, and perhaps adjacent areas of northwest Somalia. Although some swarms moved to Eritrea and Djibouti, the majority moved south in the Ogaden and Somalia, and several large swarms reached Kenya at the end of the month. There is a risk that some swarms could possibly reach South Sudan and Uganda. The already threatening situation was further exacerbated by limited operational capacities in Somalia and by heavy rains and floods from cyclone Pawan that will allow at least one to two more generations of breeding, causing a substantial increase in locusts over the next six months. In South-West Asia, intensive control operations were in progress along both sides of the Indo-Pakistan border where numerous swarms continued to form. The remainder of these swarms should leave the area in the coming weeks as they migrate to southern Iran where unusually good rains fell and temperatures remained warm, allowing the possibility for early breeding. So far, several swarms moved through Baluchistan, Pakistan and mature swarms laid eggs on the Iranian coast. Hopper bands and swarms formed on the Red Sea coast in Yemen and Saudi Arabia while bands formed in northeast Sudan, groups in Eritrea, and bands in northeast Oman. Further breeding will cause locusts to increase and form bands and swarms along both sides of the Red Sea.

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.

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Weather & Ecological Conditions in December 2019

Cyclone Pawan caused flooding in the Horn of Africa and unusually heavy rains fell in southern Iran. Breeding conditions were favourable along both sides of the Red Sea, in the Horn of Africa and southern Iran.

WESTERN REGION

Although no significant rain fell in the region during December, ecological conditions were favourable for limited breeding in parts of northwest Mauritania (Inchiri and southwest Adrar), in some areas of central, eastern and southern Algeria (Adrar, Illizi, Djanet, Tamanrasset, Malian border), and in southwest Libya (near Ghat). However, low temperatures will delay locust maturation. Elsewhere, annual vegetation was sufficiently green for locust survival in parts of northern Mali (Timetrine and Adrar des Iforas), northern Niger (northern Air Mountains), eastern Chad (Kalait to Fada), and Morocco (Draa Valley) and the southern Western Sahara (Agwanit).

CENTRAL REGION

On 6 December, cyclone Pawan made landfall in northeast Somalia near Eyl to the east of Garowe and about 800 km north of Mogadishu, and then moved inland, bringing widespread, heavy rains of 75 mm or more and flooding to northeast and parts of central Somalia and to the Ogaden in eastern Ethiopia. As a result, breeding conditions are likely to be favourable in these areas for up to six months. In the winter breeding areas along both sides of the Red Sea, moderate rains fell on the Sudan coast and light rains fell on the coast of Yemen and parts of Eritrea. Ecological conditions were favourable for breeding mainly along the coast of Sudan, in Wadi Oko/Diib of northeast Sudan and adjacent areas of southeast Egypt, and along the eastern side of the Red Sea from Lith, Saudi Arabia to Hodeidah, Yemen. Ecological conditions were dry along the southern coast of Yemen. In Oman, moderate rains fell in northern interior and coastal areas during the first decade of the month, and conditions were favourable for breeding.

EASTERN REGION

Although no significant rain fell along both sides of the Indo-Pakistan border during December, annual vegetation was still green in many areas but dried out as the month progressed. Temperatures declined, causing reduced mobility of locust swarms and delayed maturity. In the spring breeding areas, unusually moderate to heavy rains fell in southern Iran extending from the Iraqi to the Pakistani borders during the first decade. These rains continued in the second decade in the southwest from Bander-e Lengheh to Iraq. Temperatures remained warmer than normal in many areas.

Area Treated

Control operations increased in December (187 943 ha) compared to November (154 520 ha).

Algeria	25 ha
Egypt	30 ha
Eritrea	11 078 ha
Ethiopia	8 410 ha
India	22 113 ha
Iran	2 372 ha
Mauritania	93 ha
Oman	1 710 ha
Pakistan	71 388 ha
Saudi Arabia	43 798 ha
Sudan	26 846 ha
Yemen	80 ha

Desert Locust Situation and Forecast

WESTERN REGION

Mauritania

• **SITUATION**

During December, hatching occurred in the first half of the month in the northwest between Bennichab (1928N/1525W) and Oujeft (2003N/1301W) where small-scale breeding started in mid-October. Consequently, scattered solitarious hoppers of all instars, fledglings, and immature and mature solitarious adults were present. Some hoppers and adults formed small groups at densities of up to 2 700 adults/ha in a few places. Ground teams treated 93 ha with biopesticides.

• **FORECAST**

Small-scale breeding is likely to continue in the northwest in areas that remain favourable, which could cause a few small groups to form; however, low temperatures will delay hatching and locust maturation.

Mali

• **SITUATION**

In early December, solitarious adults at densities of 200–400 adults/ha were maturing and forming immature groups in the north on the western side of the Adrar des Iforas west of Tessalit (2011N/0102E), in the Tilemsi Valley, and near Ti-n-kar (1926N/0022W). No locusts were seen in the west between Nara (1510N/0717W) and Kayes (1426N/1128W).

• **FORECAST**

Small-scale breeding may continue in areas that remain favourable in the Adrar des Iforas, Tilemsi Valley and Tamesna, however, low temperatures will delay hatching and locust maturation.

Niger

• **SITUATION**

No reports were received during December.

• **FORECAST**

Low numbers of locusts are likely to persist in parts of northern and central Tamesna and the Air Mountains.

Chad

• **SITUATION**

No locusts were reported during December.

• **FORECAST**

No significant developments are likely.

Burkina Faso

• **SITUATION**

No reports were received during December.

• **FORECAST**

No significant developments are likely.

Senegal

• **SITUATION**

No locusts were reported during December.

• **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 December, small-scale breeding continued west of Tamanrasset where a concentration of second to sixth instar solitarious hoppers were present mixed with immature solitarious adults. Immature solitarious adults were also present further south near the Niger border west of In Guezzam (1937N/0552E) from earlier breeding. No locusts were seen in the Adrar (2753N/0017W) valley and on the Mali border between Bordj Badji Mokhtar (2119N/0057E) and Tin Zaouatene (1957N/0258E). Ground teams treated 25 ha.

• **FORECAST**

Low numbers of locusts are likely to persist along the edge of the Hoggar Mountains near Illizi, Djanet and Tamanrasset, and near agricultural areas in the central Sahara. No significant developments are likely.

Morocco

• **SITUATION**

During the first week of December, no locusts were seen in the northern and southern Western Sahara except for mature solitarious adults on the southern coast north of Bir Gandouz (2136N/1628W) and the Mauritanian border.

• **FORECAST**

Low numbers of adults may appear in the Adrar Souttouf of the extreme south and breed if rainfall occurs.

Libya

• **SITUATION**

A late report indicated that mature solitarious adults were seen laying in the southwest during surveys carried out to the northwest and southeast of Ghat (2459N/1011E) in November. No surveys were carried out in December.

• **FORECAST**

Low numbers of hoppers and adults are likely to persist in the southwest near Ghat but low temperatures will delay maturation.

Tunisia

• **SITUATION**

No reports were received during December.

• **FORECAST**

No significant developments are likely.

CENTRAL REGION

Sudan

• **SITUATION**

During December, summer-bred late instar hopper groups and bands, and immature and mature adults formed groups and at least one immature swarm in the Baiyuda Desert between Abu Uruq (1554N/3027E) and Berber (1801N/3400E) early in the month. In the Red Sea winter breeding areas, laying and hatching were underway along Wadi Oko/Diib where immature and mature solitarious adults and at least one group were present. On the northern Red Sea coast, first to third instar hopper bands formed south of the Egyptian border between Fodukwan (2145N/3644E) and Mohamed Qol (2054N/3709E) where laying occurred last month. Scattered immature and mature solitarious adults were present along the coast further south from Port Sudan (1938N/3713E) to the Eritrean border, including one group of maturing adults. Control operations treated 26 846 ha of which 22 450 ha were by air.

• **FORECAST**

Hopper groups and bands are likely to form in subcoastal and coastal areas of the northeast with fledging from mid-January onwards that could give rise to adult groups and a few small swarms. A second generation of breeding could start at the end of the forecast period. Egg-laying and hatching will occur along the central and southern Red Sea coastal plains, and hoppers could form groups in some places.

Eritrea

• **SITUATION**

During December, groups of hoppers, immature and mature adults continued to form on the Red Sea coastal plains, which was supplemented by groups and swarms moving

northwards from adjacent areas of northeast Ethiopia. A second generation of breeding occurred on the coast from south of Foro (1515N/3937E) to as far north as Mehimet (1723N/3833E) where adult groups laid from the second week onwards, giving rise to substantial hatching and first instar hopper groups by the end of the month. Ground teams treated 11 078 ha.

• **FORECAST**

First-generation fledging will occur on the Red Sea coastal plains in January, causing an increase in immature adult groups that will mature and lay. Second-generation hatching will continue, giving rise to an increasing number of hopper groups and bands.

Ethiopia

• **SITUATION**

During December, late instar hopper bands fledged and formed an increasing number of immature groups and swarms in the railway area between Dire Dawa (0935N/4150E) and Ayasha (1045N/4234E), near Jijiga (0922N/4250E), and in the Ogaden between Degeh Bur (0813N/4333E), Warder (0658N/4520E) and Kebri Dehar (0644N/4416E). Some of the swarms moved further south in the Ogaden to south of Gode (0557N/4333E) and K'efalo (0537N/4408E), and to the Somali border. At least one swarm matured. Cross-border movements were reported in the railway, Somali and Ogaden areas. Control operations treated 8 410 ha of which 7 050 ha were by air.

• **FORECAST**

Adult groups and swarms are expected to mature and lay eggs in the Ogaden that will hatch and give rise to numerous hopper bands during the forecast period. Swarms are likely to move further south in the Ogaden and mature with cross-border movements in Somalia and northern Kenya. Some swarms may reach southern Oromiya and SNNP.

Djibouti

• **SITUATION**

On 1-2 December, several immature and mature swarms, most likely from adjacent areas of northwest Somalia and eastern Ethiopia, were seen flying in the southeast near the Ethiopian border and Ali Sabieh (1109N/4242E) and on the coast near Tadjourah (1147N/4253E) and Djibouti city.

• **FORECAST**

There is a low risk that a few groups and swarms may arrive in the south and east from adjacent areas of eastern Ethiopia and northwest Somalia.

Somalia

• **SITUATION**

During December, large numbers of hoppers and immature adults were reported on the plateau in the northwest near Boroma (0956N/4313E). During the second half of the month, immature swarms move south over central areas of Galgaduud and reached southern areas of Hirshabele and Jubaland. A large immature swarm was seen flying from north to south over Adado (0608N/4637E) on the 18th, over Beledweyne (0444N/4512E) on the 22nd, north of Garbahare (0320N/4213E) on the 25th, and north of Mogadishu (0202N/4520E) on the 26th.

• **FORECAST**

More groups and swarms are likely to appear in central and southern areas from the north and adjacent areas of eastern Ethiopia and mature. Egg-laying is likely to occur in areas that received previous rains, which will give rise to hopper bands. In the northwest, breeding will occur on the northwest coast if rains fall.

Kenya

• **SITUATION**

On 28 December, several large immature swarms first appeared in the northeast near the Somalia border at Mandera (0356N/4151E) and El Wak (0248N/4056E). There were reports that some swarms continued south to reach Wajir (0145N/4003E).

• **FORECAST**

There remains a high risk additional swarms will arrive in the northeast from adjacent areas of Ethiopia and Somalia. The swarms are likely to move west towards Moyale and perhaps further west as well as south towards Garissa where they may mature and lay during January.

South Sudan

• **FORECAST**

There is a low risk that a few small swarms may appear in the southeast from adjacent areas of southern Ethiopia and northern Kenya during periods of easterly winds.

Uganda

• **FORECAST**

There is a low risk that a few small swarms may appear in the northeast from adjacent areas of Kenya during periods of easterly winds.

Egypt

• **SITUATION**

During December, at least one mature adult group appeared in the southeast on the Red Sea coast south of Shalatyn (2308N/3535E) where it was laying. Scattered mature solitarious adults appeared between Shalatyn and the Sudanese border where small-scale breeding was in progress and first to fourth instar solitarious, *transiens*, and gregarious hoppers, and a few hopper groups were present. Scattered adults were also seen further north between Berenice (2359N/3524E) and Marsa Alam (2504N/3454E). No locusts were present near Lake Nasser and Tushka (2247N/3126E). Control teams treated 30 ha.

• **FORECAST**

Locust numbers will increase further on the Red Sea coastal plains in the southeast as breeding continues, giving rise to hopper and adult groups. A second generation of laying could start in February if conditions remain favourable that would lead to a further increase in locusts.

Saudi Arabia

• **SITUATION**

During December, first-generation late instar hoppers and fledglings gave rise to groups of immature and mature adults along the Red Sea coastal plains from Jizan (1656N/4233E) to north of Lith (2008N/4016E). An immature swarm was seen near Qunfidah (1909N/4107E) on the 4th and another one was seen the next day in the southern Asir Mountains between Abha (1813N/4230E) and Najran (1729N/4408E). Some of the groups and swarms may have arrived from adjacent coastal areas in Yemen. Widespread second-generation laying by adult groups occurred throughout the month and, from mid-month onwards, substantial hatching and the formation of numerous early instar hopper groups and bands took place. During the last week, a few immature swarms moved from the Red Sea coast and were maturing in the interior west of Gassim (2621N/4358E) and south of Hail (2731N/4141E). Control teams treated 43 798 ha of which 11 200 ha were by air. No locusts were seen on the northern Red Sea coast between Jeddah and Umm Lajj (2501N/3716E).

• **FORECAST**

A substantial increase in second-generation hopper groups and bands is likely on the Red Sea coast south of Jeddah that will start to fledge by the end of January, giving rise to numerous immature adult groups and swarms. Infestations may extend to the northern coast and perhaps to parts of the interior where low temperatures are likely to delay maturation.

Yemen

• **SITUATION**

During December, breeding continued on the northern Red Sea coast between Al Zuhrah (1541N/4300E) and Suq Abs (1600N/4312E) where at least one swarm was laying and new hatching occurred, causing numerous first to third instar hopper bands to form. Mature solitarious adults were also present. A maturing swarm was seen northeast of Suq Abs on the 13th. Ground teams treated 80 ha. At the end of the month, mature gregarious adults were seen laying on the central Tihama near Al Qutai (1454N/4312E). On the southern coast, no locusts were seen from west of Bir Ali (1401N/4820E) to Al Ghaydah (1612N/5210E).

• **FORECAST**

Breeding will continue on the Red Sea coast and cause a further increase in locust numbers that will give rise to hopper groups, bands, adult groups and swarms.

Oman

• **SITUATION**

During December, breeding continued on the eastern coast in two areas – south of Ras Al Hadd (2232N/5948E) and to the north and west of Duqm (1939N/5743E). Hopper groups and bands formed in both areas while immature adult groups formed near Duqm where breeding had commenced earlier than further north. Scattered immature and mature solitarious adults were present in both areas. First instar hoppers were present at one place on the northern Batinah coast where a swarm had previously been reported. Ground teams treated 1 710 ha. No locusts were seen elsewhere in the north.

• **FORECAST**

Another generation of breeding could commence along the eastern coast by the end of the forecast period if temperatures remain warm and ecological conditions are favourable. There is a low risk that a few summer-bred Indo-Pakistan swarms could appear in the north.

Bahrain, Iraq, Israel, Jordan, Kuwait, Lebanon, Palestine, Qatar, Syria, Tanzania, Turkey, and UAE

• **FORECAST**

No significant developments are likely.

EASTERN REGION

Iran

• **SITUATION**

During December, scattered immature and mature solitarious adults were present near the coast south of Minab (2708N/5705E) in Hormozgan province and scattered mature solitarious adults were seen on the southeast coast near Chabahar (2517N/6036E) and in the interior on the edge of the Jaz Murian Basin south of Bampur (2711N/6028E). During the last week, several mature swarms were seen laying south of Minab. No locusts were seen elsewhere along the southern coast and in the interior of Hormozgan and Sistan-Baluchistan. Ground teams treated 2 372 ha.

• **FORECAST**

Hatching and band formation is likely to occur near Minab. There remains a high risk that numerous adult groups and swarms from the Indo-Pakistan summer breeding areas will arrive in areas of recent rainfall in Sistan-Baluchistan and Hormozgan provinces and continue to southern and southwest coastal areas where breeding may occur, but low temperatures could limit movement and delay maturation.

Pakistan

• **SITUATION**

During December, late instar hopper groups and substantial third-generation fledging gave rise to numerous immature adult groups and swarms in Tharparkar, Nara and Cholistan deserts. Some of the immature groups had matured by the

end of the month. The infestations were supplemented by cross-border movements during the first and last weeks of the month. Control operations treated 71 388 ha of which 10 300 ha were by air. In Baluchistan, immature swarms from the summer breeding areas arrived in Quetta (3015N/6700E) and nearby areas to the south on 4-6 December.

• **FORECAST**

The remaining summer-bred adult groups and swarms will move from Tharparkar, Nara and Cholistan deserts west towards areas of recent rainfall in Baluchistan. Low temperatures will reduce locust mobility and delay maturation. The migration will be supplemented by similar populations from adjacent areas of India that will transit the summer breeding areas and continue to Baluchistan.

India

• **SITUATION**

During December, numerous immature swarms continued to form in West Rajasthan between Phalodi (2706N/7222E) and Barmer (2543N/7125E), and in Gujarat west of Palanpur (2410N/7226E). A few late instar hopper groups persisted in Rajasthan between Barmer and the Pakistani border while a third generation of breeding occurred in the Rann of Kutch northwest of Bhuj (2312N/6954E) in Gujarat where hatchlings and first to third instar hopper groups were present. Residual populations of immature and mature solitarious adults and groups were present in some areas. Ground teams treated 22 113 ha.

• **FORECAST**

The remaining summer-bred adult groups and swarms will move from Rajasthan and Gujarat west towards Baluchistan, Pakistan. Low temperatures are likely to reduce their mobility and delay maturation. Consequently, a sharp decline in locust numbers is expected in January.

Afghanistan

• **SITUATION**

No reports were received during December.

• **FORECAST**

There is a low risk that a few groups or small swarms from the Indo-Pakistan border may appear in southern areas if temperatures remain warm.

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:

- **CRC.** ULV sprayer maintenance workshop, Muscat, Oman (20–23 January)
- **CLCPRO/CRC/DLIS.** Drone field trial, Mauritania (27–31 January)
- **CLCPRO/DLIS.** Western Region Desert Locust Information Officer workshop, Dakar, Senegal (6–10 April)
- **CRC/SWAC/DLIS.** Central Region and SWAC Desert Locust Information Officer workshop, Cairo, Egypt (7–11 June)

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 km^2 • band: 1–25 m^2

Small

- swarm: 1–10 km^2 • band: 25–2,500 m^2

Medium

- swarm: 10–100 km^2 • band: 2,500 m^2 – 10 ha

Large

- swarm: 100–500 km^2 • band: 10–50 ha

Very large

- swarm: 500+ km^2 • 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, Sierre 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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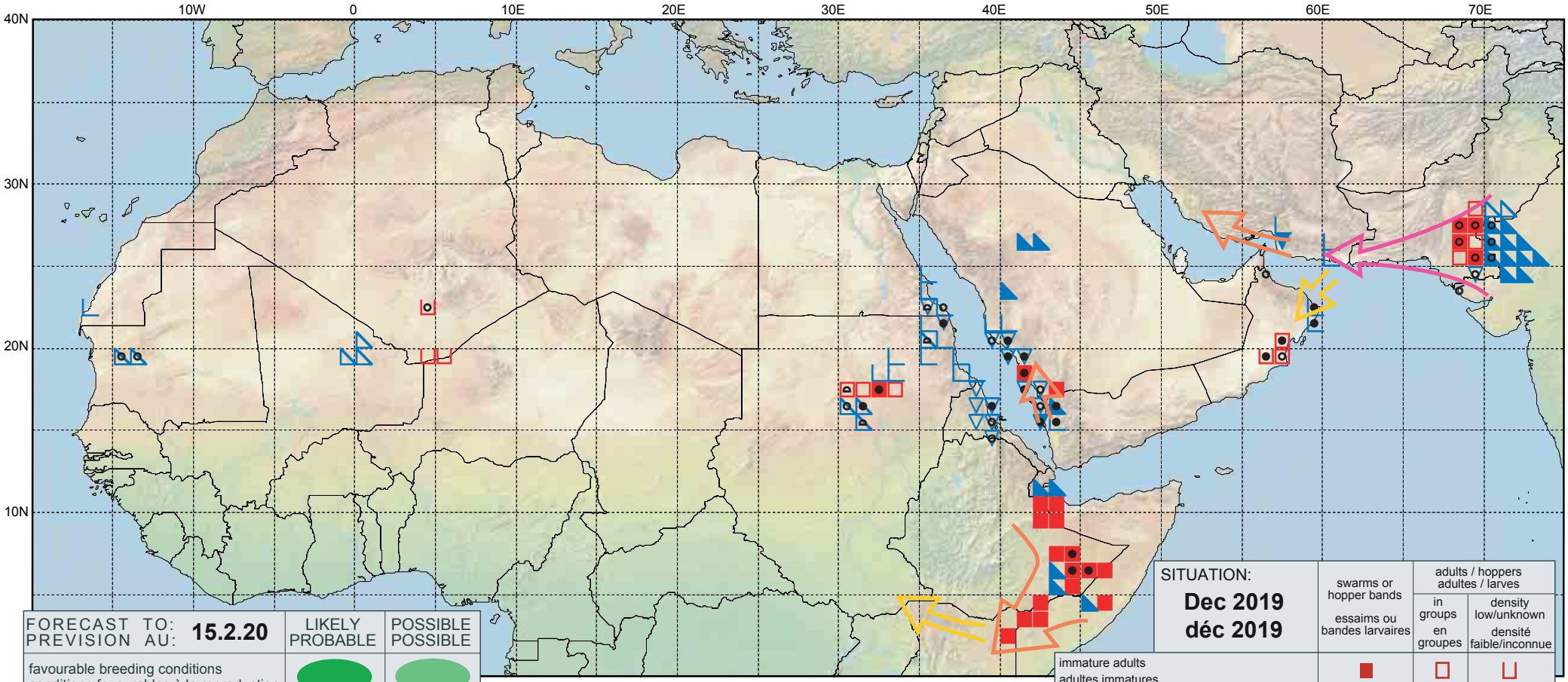

FORECAST TO: / PREVISION AU: **15.2.20**	LIKELY / PROBABLE	POSSIBLE / POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **Dec 2019** / **déc 2019**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves: in groups en groupes	adults / hoppers adultes / larves: density low/unknown densité faible/inconnue
immature adults adultes immatures	■	□	⊔
mature or partly mature adults adultes matures ou partiellement matures	◣	◺	∟
adults, maturity unknown adultes, maturité inconnue	▲	△	∧
egg laying or eggs pontes ou œufs	▼	▽	∨
hoppers larves	●	○	◡
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)	◘	◙	⊟