

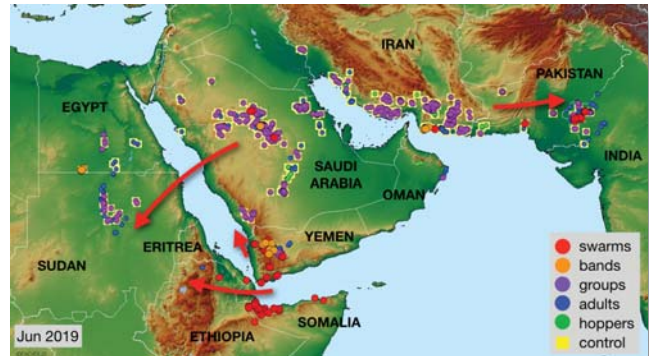
Desert Locust Bulletin

General situation during June 2019
Forecast until mid-August 2019

WESTERN REGION: CALM

SITUATION. Small-scale breeding occurred in **Algeria** (399 ha treated). There were unconfirmed reports of adults in northeast **Niger**.

FORECAST. Small-scale breeding will occur in **Mali**, **Niger** and **Chad** followed by **Mauritania**, causing locust numbers to increase slightly.



CENTRAL REGION: THREAT

SITUATION. Control operations continued in **Saudi Arabia** (39 270 ha) against declining spring-bred populations. Numerous swarms were in the **Yemen** highlands and some moved to northern **Somalia** and **Ethiopia**. Adult groups persisted in northern **Sudan** (3 700 ha treated). Hopper bands and adult groups were treated in **Egypt** (604 ha).

FORECAST. Breeding will continue in **Yemen**, giving rise to hopper bands. Breeding will start in the interior of **Sudan** and western **Eritrea** and may also occur in Ethiopia and along the coast of northern Somalia. A few small swarms may arrive in these areas from the spring breeding areas.

Spring breeding declines but swarms appear in the Horn of Africa

Spring-bred infestations in Iran, Saudi Arabia and Pakistan declined during June due to continued intensive control operations, drying conditions and increasing temperatures. However, locusts increased along the Indo-Pakistan border as breeding continued and several swarms arrived in Rajasthan to lay eggs. Control operations were undertaken in both countries. Numerous mature swarms were seen in Yemen where some remained to lay eggs while others crossed the sea to northern Somalia, southern Eritrea and eastern Ethiopia. Some of these swarms could continue moving to the interior of Sudan while others could breed on the northern Somalia coast, in eastern Ethiopia, and on the Red Sea coast in Yemen and adjacent areas in Saudi Arabia because all of these areas received good rainfall in June. There remains a moderate risk that small spring-bred swarms may have escaped detection and control in the Arabian Peninsula and could arrive in the summer breeding areas of Sudan to lay eggs. Groups of mature adults appeared in the Western Desert of Egypt at the end of June. This year's summer breeding is anticipated to be heavier than normal, resulting in hopper bands and perhaps small swarms along the Indo-Pakistan border where two generations may be possible, in Yemen where survey and control operations are limited, in Ethiopia and northern Somalia, and in the interior of Sudan. In comparison, only small-scale breeding is expected this summer in the Western Region.

EASTERN REGION: THREAT

SITUATION. Control operations continued in southern **Iran** (247 270 ha) and **Pakistan** (8 684 ha) against declining infestations of spring-bred hopper and adult groups. Swarms arrived and laid eggs in **India**, and control was undertaken (3 991 ha).

FORECAST. Remaining spring-bred adult groups and perhaps small swarms will move to the **Indo-Pakistan** border for summer breeding, giving rise to hopper groups and bands.

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: ecllo@fao.org / faodlislocust@gmail.com

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



Weather & Ecological Conditions in June 2019

Seasonal rains commenced in the southern portion of the summer breeding areas in the Sahel from Mali to Sudan. Good rains fell in the Horn of Africa and along the Red Sea coast in Yemen. Breeding conditions remain favourable along the Indo-Pakistan border from May rains.

WESTERN REGION

The Inter-Tropical Convergence Zone (ITCZ) continued to move northwards over the Sahel in West Africa, reaching Tamchekket (Mauritania), Kidal (Mali), the northern Tamesna Plains in Niger, and Iriba in eastern Chad by the end of the month. The seasonal position was some 175 km further north from Mali to Chad. Consequently, good rains fell in the southern Adrar des Iforas in Mali, in the pasture areas and southern Tamesna in Niger, and in parts of eastern Chad. Mauritania remained mostly dry during the month. As a result, breeding conditions were starting to improve in the southern portions of the summer breeding areas throughout the Sahel except for Mauritania.

CENTRAL REGION

The Inter-Tropical Convergence Zone (ITCZ) continued to move northwards over the interior of Sudan, reaching just south of Abu Uruq in North Kordofan by the end of the month. Consequently, good rains fell in West and North Darfur, North Kordofan as far north as about Sodiri, White Nile and near Kassala in the east. Breeding conditions are likely to be improving in most of these areas. In Saudi Arabia, temperatures increased and ecological conditions dried out in the spring breeding areas of the interior while good rains fell mainly during the first decade in the southern parts of the Asir Mountains in the southwest, extending to the highlands of Yemen and to adjacent areas on the Red Sea coastal plains in both countries. Good rains also fell along parts of the southern coast of Aden as well as in northern Somalia and eastern and northern Ethiopia. Consequently, breeding conditions may be favourable in coastal areas and in parts of eastern Ethiopia.

EASTERN REGION

Temperatures continued to increase, and ecological conditions dried out further in the spring breeding areas of southern Iran and southwest Pakistan. Pre-monsoon rains fell in parts of Cholistan, Pakistan at mid-month and scattered showers fell in some places of Rajasthan. Nevertheless, breeding conditions remained favourable in Nara and Cholistan Desert and adjacent areas of Jaisalmer district in West Rajasthan, India from earlier rains in May.



Area Treated

Some 300 000 ha were treated during June, compared to nearly 450 000 in May.

Algeria	399 ha (June)
Egypt	604 ha (June)
India	3 991 ha (June)
Iran	247 270 ha (June)
Pakistan	8 684 ha (June)
Saudi Arabia	39 270 ha (1–26 June)
Sudan	3 700 ha (1-18 June)
Yemen	5 ha (June)



Desert Locust Situation and Forecast

WESTERN REGION

MAURITANIA

• SITUATION

No reports were received in June.

• FORECAST

Scattered adults are likely to appear in the south and southeast where small-scale breeding will commence with the onset of the summer rains.

MALI

• SITUATION

No locust activity was reported during June.

• FORECAST

Small scale will commence with the onset of the summer rains, causing locust numbers to increase slightly.

NIGER

• SITUATION

No surveys were carried out and no locusts were reported in June. However, there were unconfirmed reports of a few locusts at three places in the Tenere Desert near Bilma (1846N/1304E) and one place southwest of Agadez (1658N/0759E) during the first half of the month.

• FORECAST

Scattered adults are likely present in southern Air and Tamesna where they will persist and breed on a small scale. Breeding may also be in progress between Tahoua and Tanout, and it is expected to extend to northern Tamesna in areas that receive rainfall.

CHAD

• SITUATION

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

• FORECAST

Scattered adults are likely to appear in areas of recent rainfall in the centre and northeast and breed on a small scale.

SENEGAL

• SITUATION

No locust activity was reported during June.

• FORECAST

No significant developments are likely.

BENIN, BURKINA FASO, 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 June, small-scale breeding occurred in the northern Sahara south of El Bayadh (3341N/0102E) and continued in the central Sahara near irrigated perimeters in the Adrar (2753N/0017W) Valley and In Salah (2712N/0229E) where solitary hoppers of all instars mixed with immature and mature solitary adults were present. Ground teams treated 399 ha. A few immature transiens adults were reported near In Salah. Isolated mature solitary adults were seen in the south to the west of Tamarrasset (2250N/0528E). No locusts were seen south of Bechar (3135N/0217W).

• FORECAST

Low numbers of locusts may persist near agricultural areas in the Central Sahara where small-scale breeding could continue. No significant developments are likely.

MOROCCO

• SITUATION

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

• FORECAST

No significant developments are likely.

LIBYA

• SITUATION

No reports were received in June.

• FORECAST

No significant developments are likely.

TUNISIA

• SITUATION

No locust activity was reported during June.

• FORECAST

No significant developments are likely.

CENTRAL REGION

SUDAN

• SITUATION

During the first two decades of June, groups of immature and mature adults persisted near irrigated schemes in the Nile Valley of River Nile and Northern states near Abu Hamed (1932N/3320E) and between Dongola (1910N/3027E) and at least one group was reported laying eggs near Dongola. Control teams treated 3 700 ha. Scattered immature and mature solitary adults appeared further south in the Baiyuda Desert north of Khartoum (1533N/3235E).

• FORECAST

Small-scale breeding is likely to continue in parts of the Nile Valley between Berber and Wadi Halfa. There is a moderate to high risk of small immature swarms arriving from the Arabian Peninsula, initially in the Nile Valley and then in the summer breeding areas of North Darfur, North Kordofan and White Nile states. A few small swarms may also arrive from northern Ethiopia. Breeding will commence with the onset of the summer rains.

ERITREA

• SITUATION

On 20–22 June, several mature swarms from Yemen arrived on the southern coastal plains between Assab (1301N/4247E) and the Djibouti border where they were seen flying from east to west.

• FORECAST

Low numbers of adults are expected to appear in the western lowlands and breed on a small scale in areas that receive rains. This could be supplemented by a few small swarms crossing the southern coast from Yemen and moving through adjacent areas of northern Ethiopia.

ETHIOPIA

• SITUATION

During June, scattered immature solitary adults were present in the northern Tigray region east of Axum (1407N/3843E) on the 6th and scattered mature adults were seen south of Mekele (1329N/3928E) and 10th. There were reports from the 21st onwards of several mature swarms arrived in the east and the north between Ayasha (1045N/4234E) and Dire Dawa (0935N/4150E), near Jijiga (0922N/4250E), in the Afar and Tigray regions, and west of Addis Ababa near Jarso (0908N/3731E) in Oromiya.

• FORECAST

Breeding will occur in areas of recent rainfall in northern and eastern regions, which could give rise to hopper groups and bands.

DJIBOUTI

• SITUATION

On 23 June, mature gregarious adults were seen west of Tadjourah (1147N/4253E) near Day (1146N/4238E).

• FORECAST

No significant developments are likely.

SOMALIA

• SITUATION

From 20 June onwards, there were reports of small mature swarms arriving from Yemen on the northern coast from Zeylac (1121N/4328E) near the Djibouti border to Lughaye (1041N/4356E), Berbera (1028N/4502E) and further east between Ceelaayo (1114N/4853E) and Lasqoray (1109N/4811E) as well as on the escarpment south of Berbera, north of Hargeisa (0931N/4402E) and northwest of Boroma (0956N/4313E).

• FORECAST

Breeding may occur along parts of the northern coast between Djibouti and Bossaso and perhaps on the plateau between Boroma and Hargeisa, and Burao and Erigavo where good rains fell in early June. This could cause small hopper groups and bands to form.

EGYPT

• SITUATION

During the first decade of June, scattered mature solitary adults persisted at a few places near Lake Nasser at Tushka (2247N/3126E), in the Nile Valley north of north of Aswan (2405N/3256E), and in the Western Desert near Baris (2448N/3035E). Breeding occurred at Sh.Uweinat, giving rise to hopper bands. Ground teams treated 604 ha. During the last week of the month, several mature adult groups were seen in the Western Desert near Darb Al-Arbain (2357N/3018E), Baris and Kharga (2525N/3034E).

• FORECAST

No significant developments are likely.

SAUDI ARABIA

• SITUATION

During June, spring breeding declined in the interior where limited late laying occurred by a swarm between Gassim and Hail and by adult groups east of Wadi Dawasir (2028N/4747E). Mainly scattered immature and mature adults, groups and a few small swarms mixed with a few late instar hoppers, groups and bands were present in the north near Al Jawf (2948N/3952E) and Tabuk (2823N/3635E), in the centre between Hail (2731N/4141E) and Riyadh (2439N/4642E), and on the western edge of the Empty Quarter near Wadi Dawasir. In the northeast, immature adult groups were present near farms south of Kuwait in the Qaryat Al Olaya (2733N/4742E) area while mature adult groups appeared in the southwest near Abha (1813N/4230E) in the Asir Mountains. Control operations treated 39 270 ha on 1–26 June of which 2 690 ha were by air.

• FORECAST

Spring breeding will end and any infestations that are not detected or cannot be treated in the interior will form

groups and a few small swarms that are expected to move to Sudan, Yemen and perhaps the Indo-Pakistan border. Breeding may occur on the southern Red Sea coast between Qunfidah and Jizan in areas of recent rainfall or runoff where a few small groups or swarms may appear from adjacent areas of Yemen.

YEMEN

• SITUATION

During June, there were numerous reports of mature swarms in the several highland areas near Sana'a (1521N/4412E) and Ibb (1358N/4411E), along the eastern side of the highlands near AlHazm (1609N/4446E) and Bayhan (1452N/4545E) mixed with mature adult groups, on the southern coast near Aden (1250N/4503E), and one swarm on the northern Red Sea coast near Suq Abs (1600N/4312E). Laying and hatching occurred in between Al Hazm and Bayhan, giving rise to hopper groups and bands. Laying also took place near Aden. Surveys and control remain limited throughout the country. Ground teams treated 5 ha near Al Hazm.

• FORECAST

Breeding will continue on the edges of Ramlat Sabatyn while hatching is expected on the Aden coast and most likely on the Red Sea coast. In all areas, hopper bands will almost certainly form and will start to fledge by the end of July, giving rise to an increasing number of immature adult groups and possibly small swarms during August.

OMAN

• SITUATION

During June, small-scale breeding occurred in the northern interior near Nizwa (2255N/5731E) and on the coast south of Sur (2234N/5930E). Immature adults and one group of hoppers and fledglings were also present in the latter area. No locusts were seen elsewhere in the northern interior, on the Batinah coast and in the south near Thumrait (1736N/5401E).

• FORECAST

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 June, spring breeding declined in the south. In the southeast, a few hopper bands were present on the coast near Jask (2540N/5746E) during the first half of the month and late instar hopper groups were present in Jaz Murian Basin in the last week. Throughout the month, immature

and mature adults formed groups in Sistan-Baluchistan, southern Kerman, Hormozgan, southern Fars and near the Iraq border in Ilam province south of Mousiyan (3231N/4722E). In the southwest, scattered immature adults were present in Bushehr province while small-scale breeding occurred in nearby areas of Khuzestan. Control operations treated 247 270 ha during June of which 19 800 ha were by air. Operations declined rapidly in the last week.

• FORECAST

As conditions continue to dry out, locust numbers will decline in all areas. A few small groups and swarms may form from any infestations that were not detected or could not be treated and move east to the Indo-Pakistan summer breeding areas. There is a moderate risk that a few small swarms from the Arabian Peninsula may move rapidly east along the southern coast to Pakistan and India.

PAKISTAN

• SITUATION

In early June, spring breeding came to an end in Baluchistan with the last report of swarm laying on the 1st near Lasbela (2614N/6619E) while hoppers and hopper groups persisted near Lasbela, Turbat (2600N/6303E), Gwadar (2508N/6219E) and in the northern interior near Dalbandin (2856N/6430E), and scattered immature and mature solitarious adults prevailed in a few places near Lasbela and Turbat. In the summer breeding areas, breeding occurred in Nara Desert south of Rohri (2739N/6857E) and in Cholistan near Islamgarh (2751N/7048E). Hopper groups formed in both areas but mainly in Nara where immature and mature adult groups were also present. Control operations treated 8 684 ha of which 800 ha were by air.

• FORECAST

Breeding will continue in Nara and Cholistan, causing locust numbers to increase with the possibility of hopper and adult groups forming. A second generation of breeding could commence in August, leading to the formation of bands and eventually small swarms. Breeding may also extend to Tharparkar Desert with the onset of the monsoon rains.

INDIA

• SITUATION

During June, hatching occurred from egg laying last month between Phalodi (2706N/7222E) and Sam (2649N/7030E), giving rise to groups of first to fourth instar hoppers. Groups of mature adults continued to lay during the first half of the month west of Phalodi, which was supplemented by additional swarm laying during the last week of June mainly south of Jaisalmer and Sam as well as adult group laying in Barmer district. Scattered mature adults were also seen in Jalor, Jodhpur and Bikaner districts, and in northern Gujarat. Ground teams treated 3 991 ha during June.

• FORECAST

Breeding will continue in Jaisalmer district where additional hatching is expected to cause hopper groups and bands to form. Breeding will extend to other areas of Rajasthan and Gujarat with the onset of the monsoon rains, giving rise to hopper groups. This may be supplemented by additional groups and a few small swarms arriving from spring breeding areas and laying eggs in July. In Jaisalmer district, fledging will commence by mid-July, causing immature adults to form groups that could mature for a second generation of breeding by about mid-August.

AFGHANISTAN

• SITUATION

No reports were received in June.

• FORECAST

No significant developments are likely.



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/ECLD 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.** High-level Emergency Consultation meeting on Desert Locust control in the Central Region, Cairo, Egypt (11 July)
- **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, Sierre Leone and Togo

Eastern

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

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



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.ideo.columbia.edu/maproom/.Food_Security/.Locusts/index.html

IRI Greenness maps. Dynamic maps of green vegetation evolution every decade
http://iridl.ideo.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>

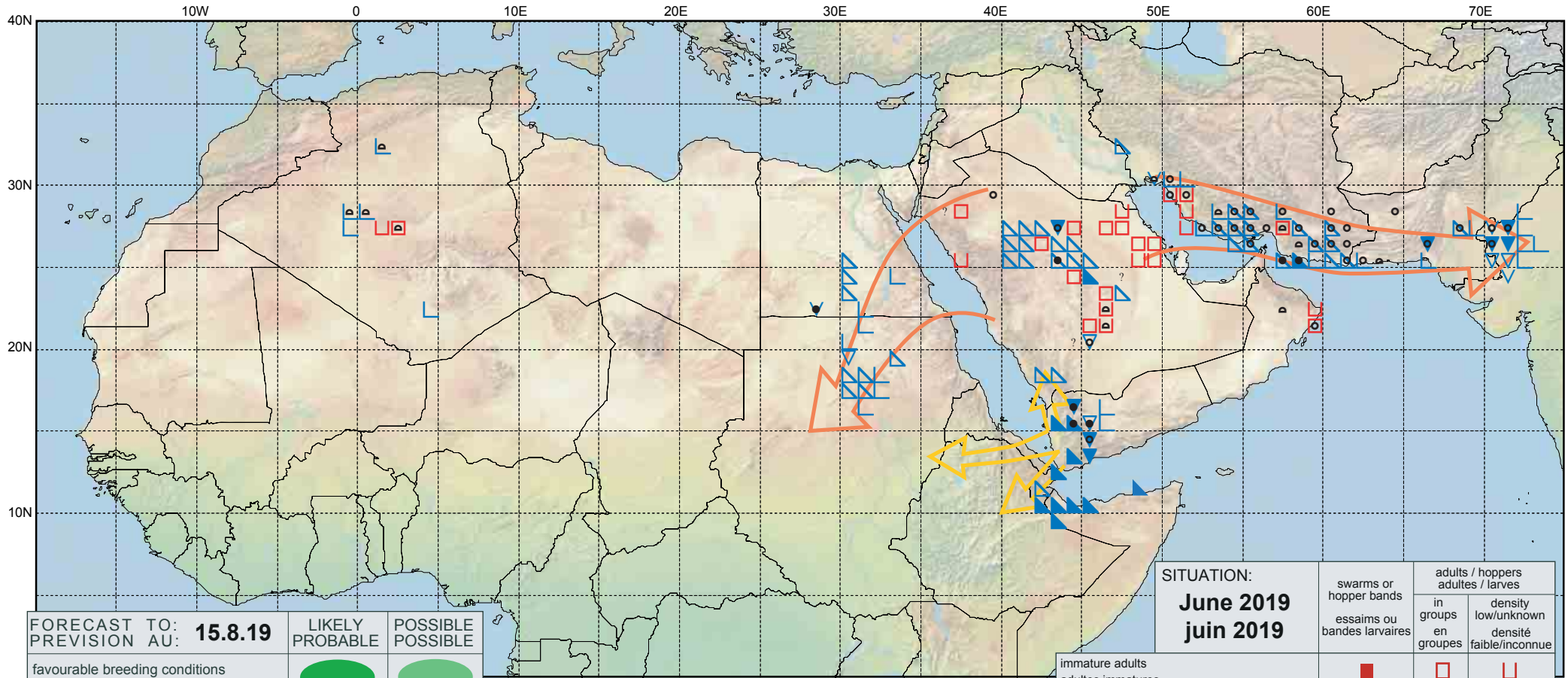
eLERT. Online database of resources and technical specifications for locust emergencies
<http://sites.google.com/site/elertsite>



Desert Locust Summary

Criquet pèlerin - Situation résumée

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FORECAST TO:
PREVISION AU: **15.8.19**

LIKELY
PROBABLE

POSSIBLE
POSSIBLE

favourable breeding conditions
conditions favorables à la reproduction



major swarm(s)
essaim(s) important(s)



minor swarm(s)
essaim(s) limité(s)



non swarming adults
adultes non essaimant



SITUATION:

June 2019
juin 2019

swarms or
hopper bands
essaims ou
bandes larvaires

adults / hoppers
adultes / larves
in
groups
en
groupes
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)	◼	◻	◻