

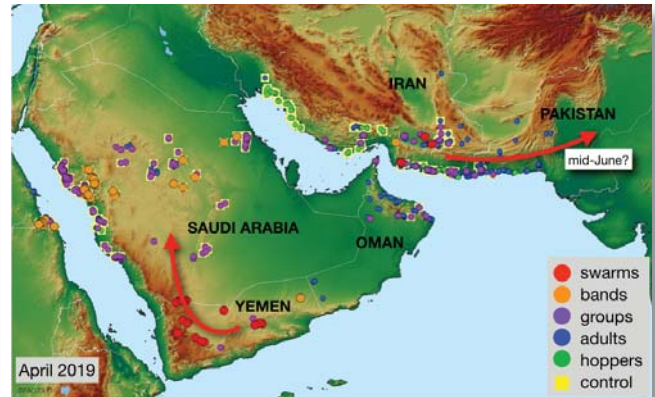
Desert Locust Bulletin

General situation during April 2019
Forecast until mid-June 2019

WESTERN REGION: CALM

SITUATION. Local breeding occurred in northwest **Mauritania**, where control was undertaken, and in eastern **Algeria**. Isolated adults were present in **Morocco**.

FORECAST. Small-scale breeding will occur south of the Atlas Mountains in **Morocco** and **Algeria**, but locust numbers will remain low. Scattered adults will persist in northwest **Mauritania**.



CENTRAL REGION: THREAT

SITUATION. Control operations declined in winter breeding areas on the Red Sea coast in **Egypt** and **Saudi Arabia** but increased in the interior of Saudi Arabia where spring breeding was underway and hopper groups and bands formed. Swarms formed in **Yemen** and moved throughout the interior. Control was undertaken against adult groups that moved to northern **Oman** and bred.

FORECAST. Breeding will continue in the interior of **Saudi Arabia** where hopper and adult groups, bands and perhaps small swarms could form. Breeding will cause hopper bands to form in the interior of **Yemen**. Hopper groups may form in northern **Oman**. Adults may appear and breed in the Nile Valley of northern **Sudan**.

Locust infestations increase in spring breeding areas

While the Desert Locust situation improved along both sides of the Red Sea during April, it intensified in spring breeding areas of Saudi Arabia and Iran. Substantial aerial and ground control operations treated more than 86 000 ha in Iran where breeding continued for a third consecutive month within a large portion of the south, giving rise to groups of hoppers and adults, hopper bands and a few swarms. Smaller-scale breeding occurred in adjacent areas of southwest Pakistan and control was undertaken. There is a moderate risk that adult groups and perhaps a few small swarms will move early towards the Indo-Pakistan summer breeding areas in about mid-June. Spring breeding commenced in the interior of Saudi Arabia where hoppers formed groups and bands. Aerial and ground teams treated more than 27 000 ha on the coast and in the interior. Swarms formed in Yemen from earlier breeding in the southern Empty Quarter and moved throughout the interior of the country where survey and control operations were not possible, so locals were catching and eating locusts. Several swarms moved to Najran, Saudi Arabia. A few small adult groups moved from eastern Yemen to northern Oman where they laid eggs and limited control operations were conducted. Nevertheless, small-scale breeding is expected. In Yemen, hatching will cause locust numbers to increase significantly in the interior where hopper bands are expected to form. Elsewhere local breeding occurred in northwest Mauritania where control was undertaken and in eastern Algeria, but the situation will remain calm.

EASTERN REGION: THREAT

SITUATION. Control operations were undertaken in southern **Iran** and southwest **Pakistan** where breeding by adult groups and a few swarms was in progress.

FORECAST. Any infestations that are not detected or controlled in the spring breeding areas are likely to form adult groups and a few small swarms that could move towards the **Indo-Pakistan** border summer breeding areas by mid-June.

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 April 2019

Good rains fell in the spring breeding areas of Saudi Arabia, Yemen, southern Iran and southwest Pakistan where conditions were favourable for breeding.

WESTERN REGION

Very little rain fell during April except for light to moderate showers in eastern Algeria and southwest Libya.

Consequently, ecological conditions remained generally dry and unfavourable for breeding except in Algeria near Illizi and along the edges of irrigated perimeters in the Adrar Valley, and in Morocco south of the Atlas Mountains in parts of the Draa and Ziz-Ghris valleys near the Algerian border.

CENTRAL REGION

Light to moderate rains fell in the spring breeding areas of the interior of Saudi Arabia and the western portion of the interior in Yemen. Consequently, ecological conditions were favourable for breeding in Saudi Arabia between Riyadh and Hail and along the western edge of the Empty Quarter near Wadi Dawasir and south of Riyadh. In Yemen, conditions were favourable between Al Hazm, Ataq and Shabwah, mainly along the western edge of Ramlat Sabatyn and in wadis that received run-off from the highlands. Good rains fell at times in the interior and coast of northern Oman where breeding conditions were favourable in some areas and improving in other places. In the winter breeding areas along both sides of the Red Sea, vegetation continued to dry out and ecological conditions were not favourable for further breeding.

EASTERN REGION

Light to moderate rains fell mainly during the second decade of April in the spring breeding areas of southeast Iran and southwest Pakistan. Showers were heaviest in coastal areas of both countries. Good rains also fell in southwest Iran during the first decade of the month, causing widespread flooding similar to the previous month. Ecological conditions remained favourable for breeding throughout coastal and interior areas of southern Iran and, to a lesser extent, in adjacent areas of Baluchistan, Pakistan.



Area Treated

Nearly 123 000 ha were treated during April.

Egypt	7 470 ha (April)
Iran	200 ha (27–30 March)
	86 570 ha (April)
Mauritania	88 ha (April)

Oman	12 ha (April)
Pakistan	540 ha (April)
Saudi Arabia	27 812 ha (April)



Desert Locust Situation and Forecast

WESTERN REGION

MAURITANIA

• SITUATION

During April, small-scale breeding occurred in the northwest where solitary and *transiens* hoppers of all instars and immature adults were present at a few places between Akjoujt (1945N/1421W) and Atar (2032N/1308W) and southwest of Chinguetti (2027N/1221W). Control teams treated 88 ha.

• FORECAST

Low numbers of locusts are likely to persist in a few places of southwest Adrar.

MALI

• SITUATION

No locust activity was reported during April.

• FORECAST

Low numbers of locusts are likely to be present and will persist in parts of the Adrar des Iforas. No significant developments are likely.

NIGER

• SITUATION

No locust activity was reported during April.

• FORECAST

Isolated adults may be present in parts of the Air Mountains. No significant developments are likely.

CHAD

• SITUATION

No locust activity was reported during April.

• FORECAST

No significant developments are likely.

SENEGAL

• SITUATION

No reports were received in April.

• 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 April, low numbers of mature solitary adults were present in the Adrar (2753N/0017W) valley, in the east near Illizi (2630N/0825E), and in the southern Sahara west of Tamanrasset (2250N/0528E). No locusts were seen in the northwest near Bechar (3135N/0217W). Breeding was reported near Illizi.

• FORECAST

Small-scale hatching will occur near Illizi and limited breeding is expected to occur in other areas of the central Sahara that received rainfall, causing locust numbers to increase slightly.

MOROCCO

• SITUATION

During the first half of April, isolated mature solitary adults were present at two places in the Draa Valley near the Algerian border to the south of Tata (2944N/0758W) and southwest of Erfoud (3128N/0410W). No locusts were seen elsewhere in the Draa Valley.

• FORECAST

Small-scale breeding will cause locust numbers to increase slightly in the Draa Valley and may occur in W. Sakia El Hamra, especially if further rains fall in these areas.

LIBYA

• SITUATION

No reports were received in April.

• FORECAST

Small-scale breeding is likely to occur between Ghat and Ghadames if rains fall.

TUNISIA

• SITUATION

No locust activity was reported during April.

• FORECAST

No significant developments are likely.

CENTRAL REGION

SUDAN

• SITUATION

No reports were received in April.

• FORECAST

Residual hoppers, adults and groups are almost certainly present along parts of the Red Sea coast between Suakin and the Eritrean border; however, infestations will decline as conditions dry out further and no significant developments are likely. Scattered adults and perhaps a few small groups could appear in the Nile Valley and breed near cropping areas.

ERITREA

• SITUATION

No surveys were carried out and no locusts were reported

in April.

• FORECAST

No significant developments are likely.

ETHIOPIA

• SITUATION

No reports were received in April.

• FORECAST

No significant developments are likely.

DJIBOUTI

• SITUATION

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

• FORECAST

No significant developments are likely.

SOMALIA

• SITUATION

No reports were received in April.

• FORECAST

No significant developments are likely.

EGYPT

• SITUATION

During April, hatching concluded by mid-month on the Red Sea coastal plains and subcoastal areas in the southeast between Abu Ramad (2224N/3624E) and Halaib (2213N/3638E). As a result, hopper groups and bands of second to fifth instar hoppers were present south of Halaib, near Abu Ramad and west of Abu Ramad in Wadi Boway (2217N/3546E). By the end of the month, many hoppers had fledged to form groups of immature adults, and the situation was improving. Ground teams treated 7 470 ha during April. Isolated immature and mature solitary adults were seen further north along the coast between Berenice (2359N/3524E) and Marsa Alam (2504N/3454E). No locusts were seen near Lake Nasser.

• FORECAST

Locust infestations will continue to decline on the Red Sea coastal plains while scattered adults and perhaps a few small groups could appear near Lake Nasser.

SAUDI ARABIA

• SITUATION

During April, mature adult groups finished laying by the second week on the northern Red Sea coast between Umm Lajj (2501N/3716E) and Al Wajh (2615N/3627E). Hopper groups and bands, and immature and mature adult groups persisted along the coast between Bader (2346N/3847E) and Al Wajh and, to a lesser extent, near Thuwal (2215N/3906E). Immature adult groups were present near Lith (2008N/4016E). In the spring breeding areas of the interior, hatching occurred between Riyadh (2439N/4642E) and Gassim (2621N/4358E) and west of

Jubail (2700N/4939E) in the east, and hoppers formed groups and bands. Mature adults and groups were scattered and laying between Gassim and Hail (2731N/4141E) as well as a few places along the western edge of the Empty Quarter between Wadi Dawasir (2028N/4747E) and Riyadh. On the 27–28th, an immature and several mature swarms were seen near Najran (1729N/4408E) flying northwards from Yemen. Control operations treated 27 812 ha during April of which 3 200 ha were by air.

• FORECAST

The situation on the Red Sea coast will continue to improve due to control operations, drying conditions and emigration to spring breeding areas. Spring hatching and band formation will continue in the interior between Gassim and Hail and near Jubail and commence along the western edge of the Empty Quarter. Immature groups and perhaps a few small swarms could form by the end of the forecast period. Current infestations may be supplemented by immature and mature swarms arriving from Yemen.

YEMEN

• SITUATION

During April, a late instar hopper band was reported in the east near the Oman border northwest of Hat (1719N/5205E) on the 3rd. There were increasing reports of immature and mature swarms moving progressively westwards in the interior after mid-month. On the 18th, swarms appeared in Wadi Hadhramaut near Sayun (1559N/4844E), Al Hazm (1610N/4446E) on the 22nd, Marib (1527N/4519E) on the 24th, Bayhan (1452N/4545E), Ataq (1435N/4649E) and the border of Saudi Arabia at Al Wadiyah (1656N/4700E) on the 25th, and Sana'a (1521N/4412E) on the 26th. Several immature and mature groups were seen on the plateau northeast of Wadi Hadhramaut. Egg-laying occurred between Marib and Bayhan. Swarms continued to be reported in the interior until the end of the month, originating from eastern Yemen and the edge of the Empty Quarter where at least two generations of breeding occurred in areas that received heavy rains from two cyclones in May and October 2018. Locust survey and control operations could not be undertaken; however, locals were collecting and eating the locusts.

• FORECAST

Locust numbers are expected to increase significantly in the interior as hatching commences by mid-May, causing hopper groups and bands to form in areas of recent rainfall between Al Hazm, Ataq and Wadi Hadhramaut.

OMAN

• SITUATION

During April, a low-density group of adults was seen in the south near the Yemen border and Maziuna (1750N/5239E) on the 19th. During the last decade of the month, a few small groups of immature and mature *transiens* adults appeared in the northern interior near Nizwa (2255N/5731E)

and Ibrī (2314N/5630E) and on the coast between Muscat (2337N/5833E) and Sur (2234N/5930E). Ground teams treated a total of 12 ha in four farms. Copulating was reported near Nizwa by adult groups on the 23rd and on the Batinah coast near Jamma (2333N/5733E) by scattered gregarious adults. On the 25th, groups of mature adults were seen flying on the Musandam Peninsula near Khasab (2610N/5615E) that flew to Iran on the following day. Scattered immature and mature solitary adults were present elsewhere along the Batinah coast and in the northern interior.

• FORECAST

Hatching will commence by mid-May in the northern interior and coastal areas, causing locust numbers to increase slightly with perhaps a few small groups of hoppers and adults forming. There is a low risk that a few additional groups may appear in the south from adjacent areas of eastern Yemen and move northwards.

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

• FORECAST

No significant developments are likely.

EASTERN REGION

IRAN

• SITUATION

During April, widespread laying by adult groups and hatching continued for a third consecutive month on the southern coastal plains between Bander-e Lengheh (2634N/5452E) and the Pakistan border, inland from Bandar Abbas (2711N/5619E), and in the Jaz Murian Basin of the interior between Kahnuj (2757N/5742E) and Iranshahr (2712N/6042E). Solitary adults were also laying eggs in these areas as well as unusually far north in South Khorasan province near Nehbandan (3133N/6002E). Hopper groups were present on the southeast coast between Jask (2540N/5746E) and Chabahar (2517N/6036E), in the Jaz Murian Basin and, to a lesser extent, on the coast west of Bander-e Lengheh while solitary hoppers were present on the coast near Bushehr (2854N/5050E). An early instar hopper band was seen at mid-month near Minab (2708N/5705E). By the end of the month, there was an increasing number of immature adults as hoppers fledged. Control operations treated 86 570 ha during April of which 15 920 ha were by air.

• FORECAST

Breeding will continue on the southern coastal plains from Bushehr to Chabahar where further hatching and the formation of hopper groups and bands is expected. As more hoppers fledge, immature adults will form groups and a few small swarms. There may be a risk of a second generation of breeding if conditions remain favourable; otherwise, any locusts escaping detection and control are likely to begin

moving towards the Indo-Pakistan summer breeding areas in June.

PAKISTAN

• SITUATION

During April, small groups of gregarious first to fourth instar hoppers were present in coastal areas from Pasni (2515N/6328E) to the Iranian border from breeding that occurred in late February and March. Scattered mature solitary adults were present mainly on the coast between Gwadar (2508N/6219E) and the Iran border and, to a lesser extent in the interior near Turbat (2600N/6303E), Panjgur (2658N/6406E), Kharan (2832N/6526E), Khuzdar (2749N/6639E), and in the Uthal (2548N/6637E) area west of Karachi. Breeding was still in progress at mid-month when a mature group was seen copulating at Gwadar while scattered solitary adults were copulating nearby and at a few places on the coast between Pasni and Ormara (2512N/6438E) and near Uthal. First to fourth instar solitary hoppers were seen near Ormara. A few immature groups were seen until mid-month in the southwest near Pasni and in the Shooli Valley south of Turbat that probably arrived from adjacent infestations in Iran. Ground teams treated 540 ha.

• FORECAST

Breeding will continue mainly in coastal areas of Baluchistan but will also extend on a smaller scale to the interior. As a result, further hatching will occur, and hoppers could form small groups in some areas. Fledging from earlier breeding will also take place that could give rise to a few small immature adult groups. There is a moderate to high risk of a few groups arriving from adjacent areas in Iran, some of which could move towards the summer breeding areas by the end of the forecast period.

INDIA

• SITUATION

No locusts were seen in Rajasthan and Gujarat during April.

• FORECAST

There is a moderate risk that adult groups and perhaps a few small swarms could arrive from spring breeding areas at the end of the forecast period in Rajasthan ahead of the monsoon.

AFGHANISTAN

• SITUATION

No locusts were reported during April.

• FORECAST

There is a low to moderate risk that a few small groups could appear in the south from adjacent spring breeding areas to the south and southwest.



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/ECLC Desert Locust Information Service (eclc@fao.org). Reports received by the first two days of the new month will be included in the FAO Desert Locust Bulletin for the current month; 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 or planned:

- **SWAC.** 25th Desert Locust joint survey in the spring breeding areas of Iran and Pakistan (5 April – 8 May)
- **CRC/SWAC.** 11th Interregional workshop for Desert Locust Information Officers, Addis Ababa, Ethiopia (24–28 June)
- **CLCPRO.** 14th Executive committee meeting, Agadir, Morocco (24–28 June)
- **DLCC.** 41st Session [tbc]



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>

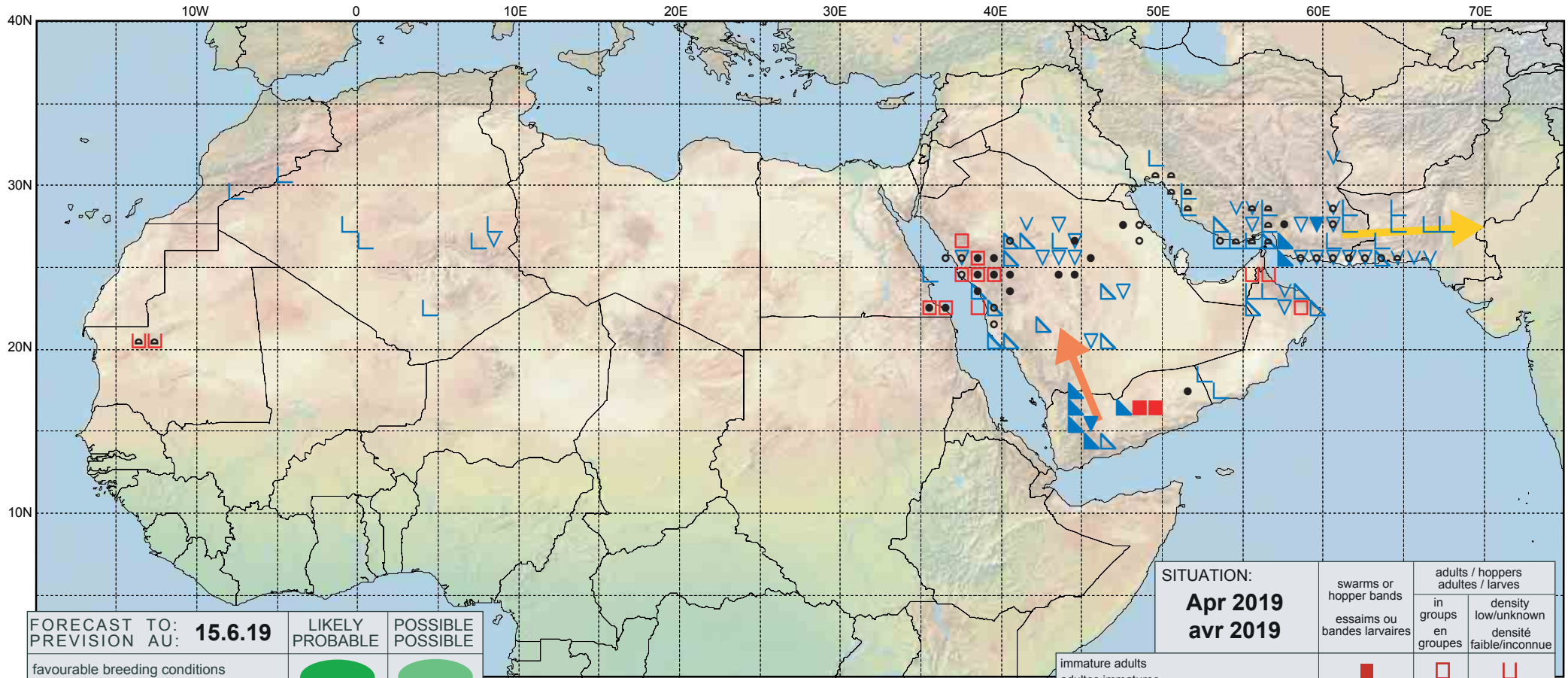
FAOLocust Slideshare. Locust presentations and photos
<http://www.slideshare.net/faolocust>

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



Desert Locust Summary

Criquet pèlerin - Situation résumée



FORECAST TO:
PREVISION AU: **15.6.19**

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:
Apr 2019
avr 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)		

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)			