



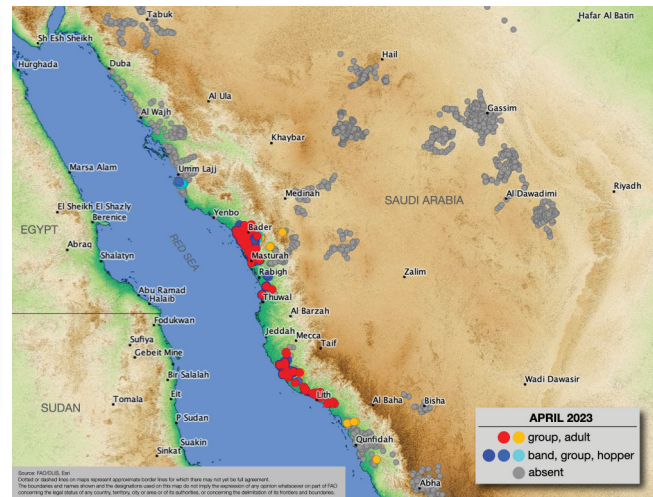
Desert Locust Bulletin

General situation during April 2023 Forecast until mid-June 2023

WESTERN REGION: CALM

SITUATION. Small groups, bands and adult groups south of the Atlas Mountains in **Morocco** and **Western Sahara**, with the total treated area (4 009 ha). Isolated adults in central **Algeria**.

FORECAST. Fledgling and immature adults with perhaps a few groups will be south of the Atlas Mountains in **Morocco** and **Western Sahara** during May. A few locusts will remain in central **Algeria** and may occur in southwest **Libya** if light rainfall occurs in May. No significant developments are likely.



OUTBREAK IN SAUDI ARABIA

The Desert Locust situation continued to remain calm during April. A small outbreak developed from spring breeding in two areas on the Red Sea coast of Saudi Arabia during March and increased in April. By the end of the month, there were late instar hopper groups, bands, and new immature adult groups as well as considerable air and ground control operations. During the forecast, immature adults and groups are expected to move into the interior of Saudi Arabia in early May where there was good rain in April. The adult groups will mature and lay eggs for another generation of breeding. Hatching could start in the second half of May. In Northwest Africa, small hopper groups and bands occurred south of the Atlas Mountains in Morocco as well as further south in Western Sahara, and control was carried out. During the forecast, vegetation will start to dry, and the new immature adults will form small groups and move south. Weather models suggest that the summer season rains may start in the Sahel during June this year. Elsewhere, low numbers of adults were present in Yemen, southeast Egypt, northwest Somalia, and southwest Pakistan. During the forecast period, small-scale breeding may occur in Yemen, southeast Iran, and southwest Pakistan.

CENTRAL REGION: CALM

SITUATION. Small hopper groups, bands and immature adult groups on the northern coast of the Red Sea in **Saudi Arabia** (21 620 ha treated). Isolated adults in southeast **Egypt**; scattered adults on the Red Sea coast and isolated adults in the Gulf of Aden and the interior of **Yemen**; isolated adults in northwest **Somalia**.

FORECAST. Small hopper groups, bands, and immature adult groups during May on the coast of **Saudi Arabia** where adults are likely to move to the interior, mature, and lay for another generation of breeding with hatching from the second half of May. Small-scale breeding may occur in **Yemen** and perhaps in the coastal and northern interior of **Oman**. Adults will decline in **Somalia**.

EASTERN REGION: CALM

SITUATION. Isolated adults in coastal and interior areas of southwest **Pakistan**.

FORECAST. A few locusts may occur and breed in the coastal and interior areas of southeast **Iran** and southwest **Pakistan**. No significant developments are likely.

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 2023

Good rains fell in the interior of Saudi Arabia.

WESTERN REGION

During the spring season in Northwest Africa, very little rain fell in April. In the central areas of the Western Sahara, light rains fell for a few days during the second week of the month. Elsewhere, a trace of rain fell in a few areas of the western part of the central Sahara in Algeria near Beni Abbas. Annual vegetation continued to dry out in most areas except in a few small areas in southern Western Sahara near the coast. Vegetation was green in the Wadi Draa valley south of the Atlas Mountains in Morocco. In Algeria, annual vegetation was green in parts of the irrigated areas near the Adrar in the central Sahara and in the south near Tamanrasset. Weather models suggest that the summer season rains may start in the Sahel during June this year.

CENTRAL REGION

During the spring season, some rains fell in April in parts of Saudi Arabia, Yemen, Somalia, Ethiopia, and Oman. In Saudi Arabia, light rains fell during the first dekad in parts of the northern and central Red Sea coastal areas and interior places, moderate and heavy rains fell during the second dekad in the interior, and light rains fell in the third dekad in the interior. In Yemen, some light rains occur for a few days in the first and third decades in the interior areas. A few rains fell during parts of the month in the coastal and interior of northwest Somalia and the Afar and Somali areas of Ethiopia. Light rains fell in parts of the coastal and northern interior of Oman during part of the month. As a result, annual vegetation was green in the interior of Saudi Arabia, the Red Sea coast and interior of Yemen, and northwest Somalia. On the other hand, annual vegetation was dry or drying along the Red Sea coast of Saudi Arabia and southeastern Egypt, the Yemen Gulf of Aden coastal areas, and in coastal and interior areas of northern Oman.

EASTERN REGION

During the spring season, only light rains fell in the second dekad of April in parts of southern and southeast areas of Iran and coastal and interior areas of Baluchistan in Pakistan. At the end of the month, some rains fell in parts of the coastal areas of southeast Iran and southwest Pakistan. Annual vegetation was green in Iran but was still mostly dry in Pakistan. Control operations were carried out during April:



Area Treated

Morocco / Western Sahara	4 009 ha
Saudi Arabia	21 620 ha



Desert Locust Situation and Forecast

WESTERN REGION

ALGERIA

• SITUATION

During April, isolated immature and mature solitarious adults were present in a few places in the central Sahara between Adrar (2753N/0017W) and Reggane (2643N/0010E). No locusts were seen west of Tamanrasset (2250N/0528E) in southern Sahara.

• FORECAST

A few locusts may occur in the central and southern Sahara if light rainfall occurs for spring breeding.

BURKINA FASO

• SITUATION

No locusts were reported during April.

• FORECAST

No significant developments are likely.

CHAD

• SITUATION

No locusts were reported during April.

• forecast

No significant developments are likely.

LIBYA

• SITUATION

No locusts were reported during April.

• FORECAST

A few locusts may occur in the southwest if light rainfall occurs for spring breeding.

MALI

• SITUATION

No locusts were reported during April.

• FORECAST

No significant developments are likely.

MAURITANIA

• SITUATION

No locusts were reported during April.

• FORECAST

No significant developments are likely.

MOROCCO

• SITUATION

During April, scattered mature solitarious adults were seen copulating south of the Atlas Mountains in Wadi Draa south of Tan-Tan (2826N/1106W) to southeast Tata (2944N/0758W). Hatching started in the first week and a few small hopper groups and bands occurred. By the end of the month, some of the hoppers had become fifth instar. Ground teams treated 2 017 ha.

• FORECAST

Fledgling will increase during May in the Draa and Ziz-Ghris valleys south of the Atlas Mountains. Once vegetation becomes dry, the immature adults will move south in June.

WESTERN SAHARA

• SITUATION

During April, mainly third to fifth instar hoppers and small groups and bands were seen in the Adrar Settouf of the southern part from Bir Gandouz (2136N/1628W) to east of Bir Anzarane (2353N/1431W) while immature adult groups were seen near Aousserd (2233N/1419W). Scattered immature adults were present near Bir Gandouz. In the central, mature solitary adults were present east of Bir Anzarane and southwest of Guelta Zemmur (2508N/1222W). Ground teams treated 1 992 ha.

• FORECAST

Scattered adults could remain in parts of the Adrar Settouf. Once vegetation becomes dry, the immature adults will move south in June.

NIGER

• SITUATION

No locusts were reported during April.

• FORECAST

No significant developments are likely.

SENEGAL

• SITUATION

No locusts were reported during April.

• FORECAST

No significant developments are likely.

TUNISIA

• SITUATION

No locusts were reported during April.

• 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.

CENTRAL REGION

DJIBOUTI

• SITUATION

No locusts were reported during April.

• FORECAST

No significant developments are likely.

EGYPT

• SITUATION

During April, isolated mature solitary adults were seen in a few places in Wadi Diib on the southeast coast west of Halaib

(2213N/3638E). No locusts were seen in the subcoastal area of Abraaq (2323N/3451E) and El Sheikh El Shazly (2412N/3438E), and the Nile Valley near Abu Simbel (2219N/3138E) and Tushka (2247N/3126E).

• FORECAST

Adults will decline in the southeast Red Sea coastal area. No significant developments are likely.

ERITREA

• SITUATION

No locusts were reported during April.

• FORECAST

No significant developments are likely.

ETHIOPIA

• SITUATION

During April, no locusts were seen in Somali region near Jijiga (0922N/4250E), Kebri Dehar (0644N/4416E) and Gode (0557N/4333E) and in Afar region west of Afrera (1312N/4051).

• FORECAST

No significant developments are likely.

OMAN

• SITUATION

During April, no locusts were seen on the northern Batinah coast near Sohar (2421N/5644E), near the coast of Sur (2234N/5930E), and in the interior near Adam (2223N/5731E).

• FORECAST

Spring breeding could occur on a small scale during May in a few places in the coastal and northern interior areas. No significant developments are likely.

SAUDI ARABIA

• SITUATION

During April, hoppers, groups and bands were seen on the northern coast of the Red Sea between Masturah (2309N/3851E) and Bader (2346N/3847E) and in the central coast near Lith (2008N/4016E). During the second half of the month, most of the hoppers were fourth and fifth instars, fledgling, and immature adults and groups. A few solitary hoppers were seen further north near Umm Lajj (2501N/3716E) while a few adults were seen further south near Qunfidah (1909N/4107E). Control operations treated 21 620 ha of which 9 550 ha were by air. Elsewhere, no locusts were seen on the coast and in the interior.

• FORECAST

Hopper groups, bands, and fledglings will continue during May on the coast. As good rains fell in the middle of April in the interior, immature adults and groups are likely to move there where they will mature and lay for another generation of breeding. Hatching should start in the second half of May in the interior from north of Hail to south of Riyadh.

SOMALIA

• SITUATION

During April, isolated immature and mature solitary adults were seen in a few places on the coast and escarpment in the northwest. No locusts were seen on the plateau as well as in the northeast near Las Anod (0828N/4721E) and east of Erigavo (1040N/4720E).

• FORECAST

Adults will decline on the coastal, escarpment and plateau areas. No significant developments are likely.

SUDAN

• SITUATION

No locust reports were received in April.

• FORECAST

Adults will decline in the Red Sea coastal and sub-coastal areas. No significant developments are likely.

YEMEN

• SITUATION

During April, a few scattered immature solitary adults were seen on the Red Sea coast from Bayt Al Faqih (1430N/4317E) in the central to Suq Abs (1600N/4312E) in the north. On the southwest coast of the Gulf of Aden, a few mature locusts were seen near Am Rijja (1302N/4434E). In the interior, one area of isolated immature solitary adults was seen in the Hadhramaut Valley near Sayun (1559N/4844E). No locusts were seen elsewhere in the Red Sea and Gulf of Aden coastal areas and in the interior near Bayhan (1452N/4545E), Ataq (1435N/4649E), the Hadhramaut Valley, and the eastern plateau near Hat (1719N/5205E) and Oman.

• FORECAST

Some rains may occur on parts of the Red Sea and Gulf of Aden coasts as well as in parts of the interior where breeding may occur on a small scale.

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

• FORECAST

No significant developments are likely.

EASTERN REGION

AFGHANISTAN

• SITUATION

No locusts were reported during April.

• FORECAST

No significant developments are likely.

INDIA

• SITUATION

No locusts were seen by surveys in Rajasthan and Gujarat during April.

• FORECAST

No significant developments are likely.

IRAN

• SITUATION

During April, no locusts were seen in the interior of the Fars region of the south and a few places in the coastal and interior areas of the southeast.

• FORECAST

A few locusts may occur on the southeast coast and interior areas where spring breeding should occur on a small scale near May. No significant developments are likely.

PAKISTAN

• SITUATION

During April, isolated immature solitary adults were seen in a few places in the southwest sub-coastal areas of Baluchistan south of Turbat (2600N/6303E). In the interior, scattered mature solitary adults were seen near Kharan (2832N/6526E), and isolated mature solitary adults were seen further north near Nushki (2933N/6601E).

• FORECAST

Spring breeding should occur on a small scale during May in a few places in the coastal and interior areas of Baluchistan. No significant developments are likely.



Announcements

Locust warning levels

A colour-coded scheme indicates the alert level, perceived risk, or threat of current Desert Locust infestations to crops, and appropriate response:

- **Green** – calm situation (low alert); no threat to crops (*maintain regular monitoring*)
- **Yellow** – cautious situation (moderate alert); potential threat to crops (*increased vigilance, control may be needed*)
- **Orange** – serious situation (high alert); threat to crops (*survey and control must be undertaken*)
- **Red** – dangerous situation (very high alert); significant threat to crops (*intensive survey and control operations must be conducted*)

The scheme is applied to the Locust Watch web page and to the monthly bulletins and updates.

Locust reporting

RAMSES data. Countries should connect to the Internet and backup the RAMSES database whenever data are added or changed; do not wait until the end of the month.

Bulletins. Affected countries are encouraged to prepare decadal, fortnightly, or monthly bulletins that summarize and analyze the situation, and share them with other countries.

Reporting. All information should be sent by e-mail to the FAO Desert Locust Information Service (eclo@fao.org and faodislocust@gmail.com). Reports received by the first day

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.

eLocust3 digital tools

In addition to the original eLocust3 tablet, FAO has three free tools for data collection in the field:

- eLocust3m – a smartphone app for survey and control data, developed with PlantVillage (download: <http://tiny.cc/eL3m>; how-to-use videos: <http://tiny.cc/eL3mVideos>)
- eLocust3g – a GPS app for emergencies, developed with Garmin (<http://tiny.cc/eLocust3g>)
- eLocust3w – an Internet form for emergencies, developed in Kobo (<http://tiny.cc/eLocust3w>)

The geo-referenced data collected by these tools feed into FAO's global early warning system and are critical for real-time monitoring, near instant analysis, and planning field operations in each country.

[\[http://www.fao.org/ag/locusts/en/activ/2573/eL3suite/index.html\]](http://www.fao.org/ag/locusts/en/activ/2573/eL3suite/index.html)

Standard Operating Procedures (SOPs)

FAO has developed pocket-sized SOPs for use in the field on Desert Locust biology, survey, and control, including instructions on how to use eLocust3 tools, that are available in different languages.

[\[http://www.fao.org/ag/locusts/en/publicat/gl/sops/index.html\]](http://www.fao.org/ag/locusts/en/publicat/gl/sops/index.html)

Community awareness

As communities have an important role to play in Desert Locust management, FAO has developed:

- Posters – six simple, easy to understand posters, providing basic messaging on pesticide containers, safety measures, pesticide exposure, farmer advice, Desert Locust, and following instructions, which can be edited (<http://www.fao.org/ag/locusts/en/publicat/2581/index.html>)
- Animation – a simple SWABO animation for all readers that clearly explains about the dangers of Desert Locust (<https://www.youtube.com/watch?v=3TOhuA-v1m4>)

Publicly available locust data

Desert Locust survey and control data are available for research and other non-commercial purposes:

- FAO Locust Hub (<https://locust-hub-hqfao.hub.arcgis.com>)
- FAO Hand-in-Hand (<https://data.apps.fao.org>)

2023 calendar

- **CLCPRO/CRC/SWAC.** Interregional Desert Locust Information Officer workshop, Sharm El Sheikh, Egypt (21–27 May)
- **CLCPRO.** Regional workshop to elaborate the 5th regional training plan (2023–2026), Oran, Algeria (5–9 June)
- **CLCPRO.** Validation of the prototype regional risk map model developed by CIRAD, Oran, Algeria (10 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 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*. Low alert. No threat to crops; maintain regular surveys and monitoring

Yellow

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

Orange

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

Red

- *Danger*. Very high alert. 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 upsurges and 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 upsurges and plagues only: Bahrain, D.R. Congo, 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/ESRI Locust Hub. Desert Locust maps and data download, and emergency response progress
<https://locust-hub-hqfao.hub.arcgis.com>

FAO 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 suite. Digital tools for data collection in the field (mobile app, web form, GPS)
<http://www.fao.org/ag/locusts/en/activ/DLIS/eL3suite/index.html>

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>

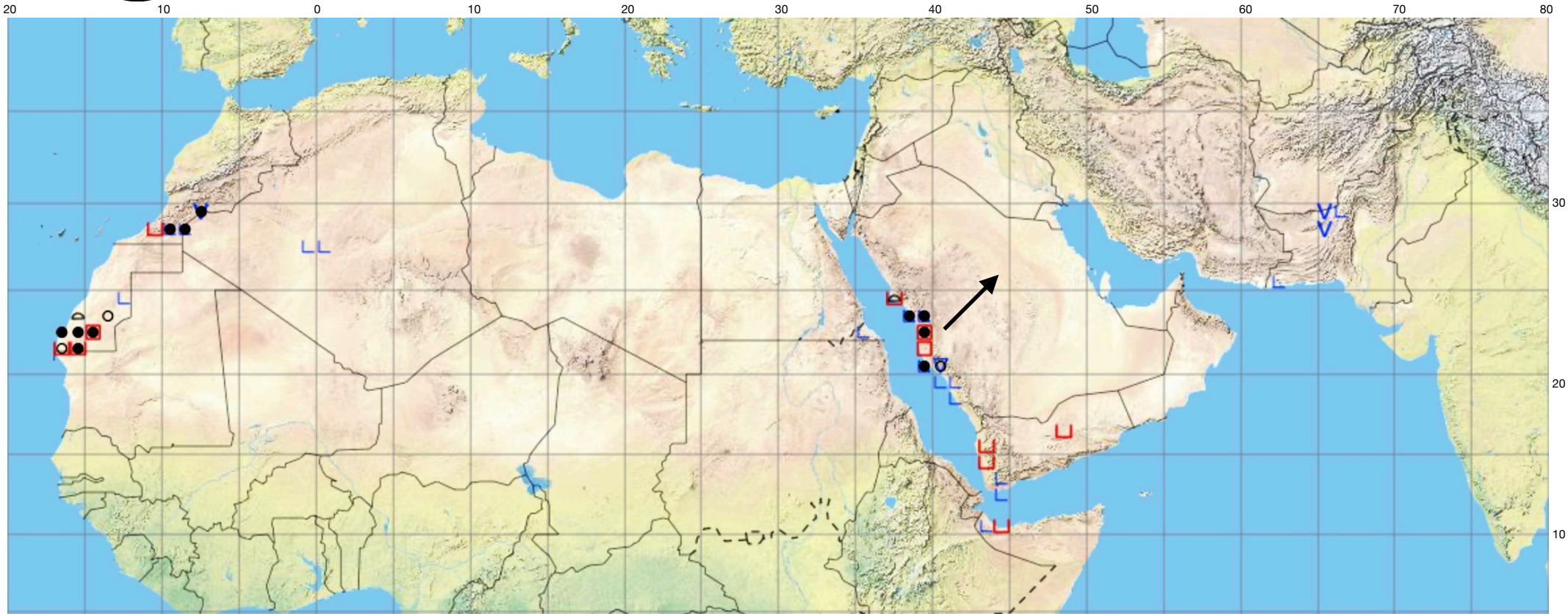
FAOLocust Slideshare. Locust presentations and photos
<http://www.slideshare.net/faolocust>

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 :	LIKELY PROBABLE	POSSIBLE POSSIBLE
15.06.23		
favourable breeding conditions conditions favorables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarms(s) essaim(s) limité(s)		
non swarming adults adults non essaimant		

SITUATION: Apr 2023 avr 2023	adults / hoppers adultes / larves	
	in groups en groupes	density low/unknown densité faible/inconnue

immature adults adultes immatures			
mature or partially 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 example) larves et adultes (symboles combinés)			