Food and Agriculture Organization of the United Nations

No. 545 2 March 2024

Desert Locust Bulletin

General situation during February 2024
Forecast until mid-April 2024

WESTERN REGION: CALM

SITUATION. Isolated adults in central and southern **Algeria**; no locusts were seen in **Morocco**.

FORECAST. Light rainfall may allow spring breeding to start on a small scale south of the Atlas Mountains in **Algeria** and **Morocco**. No significant developments are likely.

CENTRAL REGION: CAUTION

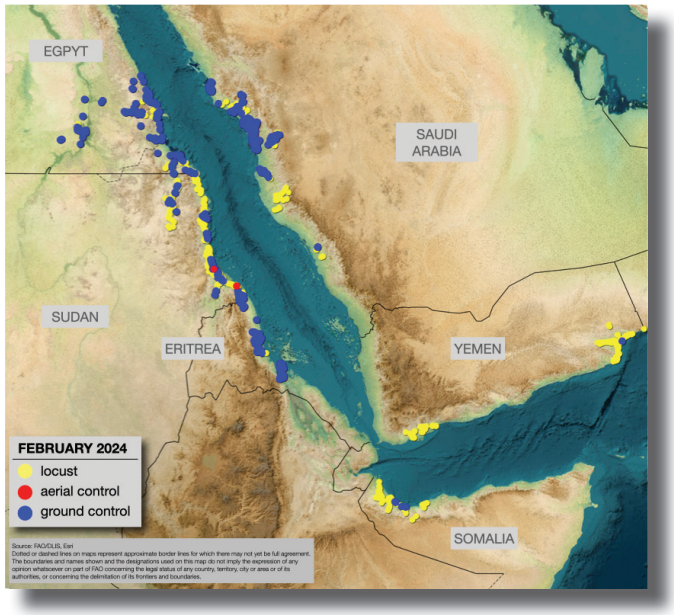
SITUATION. The second generation continued on the Red Sea coast with hatching, hopper groups, bands, and new immature adult groups in **Sudan** (4 316 ha treated), **Eritrea** (4 975 ha), **Saudi Arabia** (15 239 ha), and **Somalia** (160 ha). Some first-generation swarms moved from the southeast coast of **Egypt** (12 518 ha) to the Nile Valley while a few second-generation hatching and first-instar hopper groups occurred on the coast. In **Yemen** (4 ha), mature adults and groups of hatching on the southeast coast.

FORECAST. The second generation will continue with hopper groups, bands and more immature adults and groups that can become mature about mid-March along the Red Sea and the southern Gulf of Aden coasts. Locusts are expected to decrease because of control operations, diminished rainfall, and drying vegetation. As a result, only small groups will remain that could move to the interior along the Nile River in **Egypt** and **Sudan**, the coast and interior of **Saudi Arabia**, and the plateau of northwest **Somalia**, where limited spring breeding is likely to occur as well as in parts of the Gulf of Aden coast in **Yemen**.

EASTERN REGION: CALM

SITUATION. No locusts present.

FORECAST. As temperature increase, rainfall is expected to start in the spring areas where small-scale breeding is likely to occur in parts of the coast and interior areas of southeast **Iran** and southwest **Pakistan**.



SECOND-GENERATION BREEDING

The Desert Locust outbreaks along the Red Sea and Gulf of Aden coast in the Central Region continued during February. The second-generation breeding occurred with hatching and hopper groups and bands, followed by groups of immature adults during the second half of the month. The vegetation remained green in most places despite the scarcity of rain. However, the Red Sea coast between northeast Sudan and southeast Egypt, and the central coast of Eritrea, were starting to dry out. The coast of southeast Egypt saw the migration of a few first-generation swarms to the Nile Valley, with a few heading south to Sudan. Control operation continued but decreased compared to January. The forecast indicates that locust numbers will decrease along the Red Sea and Gulf of Aden coast as a result of control efforts, decreased rainfall, and drying vegetation. As a result, only small groups will remain that could move to the interior along the Nile River in Egypt and Sudan, the coast and interior of Saudi Arabia, and the plateau of northwest Somalia, where limited spring breeding is likely to occur. Weather models indicate rain in parts of southern Yemen, southeast Iran, and southwest Pakistan, where limited small-scale breeding could occur in the spring.

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 February 2024

Rainfall has been scarce along the coasts of the Red Sea and Gulf of Aden since the beginning of December.

WESTERN REGION

During February, there was no rain in the northern Sahel of West Africa, throughout the Sahara, and south of the Atlas Mountains from Morocco to Tunisia. Annual vegetation was dry except for a few irrigated areas in the central and southern Sahara of Algeria.

CENTRAL REGION

During February, only a few small drizzles occurred along part of the Red Sea coast of Yemen, Gulf of Aden coast of northwest Somalia, and in the plateau near Dire Dawa and Jijiga of Ethiopia around mid-month. Vegetation was still green in most areas of the winter breeding areas except in the Red Sea coastal areas from northeast Sudan to southeast Egypt as well as in the central coast of Eritrea where it was becoming dry.

EASTERN REGION

During February, light and moderate rain fell during the first dekad in the coast and central interior of Baluchistan in southwest Pakistan while light rain fell along the southwest interior of Iran. During the second dekad, small rain fell along parts of the coast from southwest Iran to southwest Pakistan. Nevertheless, vegetation remained dry.

Area Treated

Control operations decreased during February to 37 212 ha compared from 78 097 ha in January.

Egypt	12 518 ha
Eritrea	4 975 ha
Saudi Arabia	15 239 ha
Somalia	160 ha
Sudan	4 316 ha
Yemen	4 ha

Desert Locust Situation and Forecast

WESTERN REGION

Light rainfall could occur in Northwest Africa followed by small-scale breeding during the spring.

ALGERIA

• **SITUATION**

During February, a few isolated immature solitarious adults were seen in the central Sahara near Adrar (2753N/0017W) and west of In Salah (2712N/0229E) as well as the southern Sahara west of Tamanrasset (2250N/0528E) near Oued Amded (2249N/0427E).

• **FORECAST**

Light rainfall may allow spring breeding to start on a small scale in the central Sahara. No significant developments are likely.

BURKINA FASO

• **SITUATION**

No locusts were reported during February.

• **FORECAST**

No significant developments are likely.

CHAD

• **SITUATION**

No locust reports were received in February.

• **FORECAST**

No significant developments are likely.

LIBYA

• **SITUATION**

No locusts were reported during February.

• **FORECAST**

No significant developments are likely.

MALI

• **SITUATION**

No locusts were reported during February.

• **FORECAST**

No significant developments are likely.

MAURITANIA

• **SITUATION**

No locusts were reported during February.

• **FORECAST**

No significant developments are likely.

MOROCCO

• **SITUATION**

During February, no locusts were seen south of the Atlas Mountains in Wadi Draa as well as further south.

• **FORECAST**

Light rainfall may allow spring breeding to start on a small scale south of the Atlas Mountains. No significant developments are likely.

NIGER

• **SITUATION**

No locusts were reported during February.

• **FORECAST**

No significant developments are likely.

Senegal

• **SITUATION**

No locusts were reported during February.

• **FORECAST**

No significant developments are likely.

Tunisia

• **SITUATION**

No locusts were reported during February.

• **FORECAST**

No significant developments are likely.

Benin, Cabo Verde, Cameroon, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Nigeria, Sierra Leone, and Togo

• **FORECAST**

No significant developments are likely.

CENTRAL REGION

Due to control operations, diminished rainfall, and drying vegetation on the Red Sea and Gulf of Aden, the second-generation immature adults will eventually move to the interior of Saudi Arabia, Sudan, and Somalia for limited spring breeding. All countries must maintain survey and control efforts.

Djibouti

• **SITUATION**

No locust reports were received in February.

• **FORECAST**

No significant developments are likely.

Egypt

• **SITUATION**

During February, some of the first-generation immature groups and swarms moved from the southeast Red Sea coast to the Nile Valley between Aswan (2405N/3256E) and Tushka (2247N/3126E) during mid-month while mature groups and swarms continue along the coast from Halaib (2213N/3638E) to Marsa Alam (2504N/3454E) as well as subcoastal areas near El Sheikh El Shazly (2412N/3438E). Hatching and first instar hopper groups of the second generation were seen in a few places on the coast near Abu Ramad (2224N/3624E) and subcoastal areas near Wadi Diib and the Sudan border. Control operations treated 12 518 ha.

• **FORECAST**

The second generation will decrease along the southeastern Red Sea coastal areas due to control operations and drying vegetation. In the southern Nile Valley, some adult groups and swarms may lay and hatch in a few irrigated areas, while other are likely to head south to the Nile Valley in northern Sudan.

Eritrea

• **SITUATION**

During February, the second-generation breeding continued on the central and northern Red Sea coast with hopper groups from Wekiro (1548N/3918E) to Karora (1745N/3820E) and the Sudan border as well as further south near Zula Gulf and Ghelaelo (1507N/4004E). During the third dekad, several immature adults and groups were in the north close to Sudan, while a few 3rd instar hopper groups were in the central near Sheib (1551N/3903E) and along the Zula Gulf. Control operations treated 4 975 ha.

• **FORECAST**

Although there is a possibility that some rain may appear on the coast during the first dekad of March, in general, locusts will decrease as some immature adults and groups will stay and mature while others will move to the Red Sea coast of Sudan. Further south, the second-generation fledgling and immature adults and groups will occur by mid-month near Zula Gulf.

Ethiopia

• **SITUATION**

During February, no locusts were seen on the plateau from Ayasha (1045N/4234E), Dire Dawa (0935N/4150E), Jijiga (0922N/4250E) to north of Warder (0658N/4520E) in the Somali region.

• **FORECAST**

Some adults and a few groups may perhaps arrive in the Somali region plateau between Jijiga and Warder where they could mature and possibly breed on a small-scale after the end of March.

Oman

• **SITUATION**

During February, no locusts were seen in a few places along the Batinah coast and in the northern interior near Buraimi (2415N/5547E).

• **FORECAST**

There is a possibility that a few locusts may perhaps appear in the northern interior and the Batinah coast from southeast Yemen and breed during the spring if there is rainfall.

Saudi Arabia

• **SITUATION**

During February, the second-generation hatching of groups and bands was completed on the northern Red Sea coast near Masturah (2309N/3851E) on about 7th and near Bader (2346N/3847E) the week after. As a result, some groups and bands that hatched in January were fledgling by the end of February. Further north, second-generation laying and hatching started near Yenbo (2405N/3802E) about the 18th and Umm Lajj (2501N/3716E) on the 24th. Elsewhere, scattered immature solitarious adults were seen at mid-month in the central coast south of Mecca (2125N/3949E) and a few near Qunfidah (1909N/4107E). Control operations treated 15 239 ha.

• **FORECAST**

The northern Red Sea coast will still see hopper groups and a few bands in the second generation. Expect hatching to continue in early March, along with the appearance of fledglings, new immature adults, and groups. Nonetheless, locust numbers are predicted to decline. Some rain may occur in the first half of March along the coast from Masturah to Jizan and in the interior. Therefore, a few of the locusts could choose to stay near the coast, while others would migrate inland to complete their maturation and breeding in a limited spring generation.

Somalia

• **SITUATION**

During February, some second-generation locusts continue on the northwest coast from Berbera (1028N/4502E) to Zeylac (1121N/4328E). A few small groups and bands of third to fifth instar and fledglings were present near Lughaye (1041N/4356E), while some mature adult groups were near Berbera. Elsewhere, only isolated and scattered immature and mature adults were present. No locusts were seen in the northeast of Puntland from north of Gardo (0930N/4905E) to east of Las Anod (0828N/4721E) as well as further south in the central area near Galkayo (0646N/4725E). Control operations treated 160 ha using biopesticides.

• **FORECAST**

The second-generation hopper and fledgling will finish in early March. Some of the immature and mature adults and a few small groups will stay along the northwest coast while others are likely to move into the northwest plateau. There is a small possibility that some rainfall may occur at the end of March and early April which could allow limited spring breeding to start in the plateau.

Sudan

• **SITUATION**

During February, laying of the second-generation continued in the Red Sea coast during the first two dekads on the central, southern, and the northern subcoastal areas from north of Tomala (2002N/3551E) to the Egypt border. As a result, there were hatching, hopper groups, and bands. Fledgling and immature adults started after mid-month in Tokar (1827N/3741E) and groups of immature adults were seen in the south from Aqiq (1813/N3811E) to Karora (1745N/3820E) during the last week. Control operations treated 4 316 ha of which 700 ha were by air. In the northern interior, they may have been an unconfirmed report of a swarm north of Dongola (1910N/3027E) coming from the north at the end of the month.

• **FORECAST**

The second generation will continue with hopper groups, bands and more immature adults and groups that can become mature about mid-March. The combination of control operations, diminished rainfall, and drying vegetation will likely result in a decrease in locusts, leaving behind small groups that may migrate along the Nile Valley for spring breeding near irrigated areas. The addition of a few small groups or swarms from the southern interior of Egypt could supplement this.

Yemen

• **SITUATION**

During February, scattered mature adults were present along the southeast coast of the Al Maharah province near Al Ghaydah (1612N/5210E) and some hatching groups occurred during the first week. In the southwest, isolated and scattered immature and mature adults were seen between Am Rija (1302N/4434E) and Zinjibar (1306N/4523E). Control operations treated 4 ha using biopesticides. The situation along the Red Sea coast is unknown due to no surveys.

• **FORECAST**

Scattered locusts will continue along the Gulf of Aden and perhaps parts of the Red Sea coast. There is a possibility that some rain may fall along the southeast coast and in the interior, which could allow small-scale breeding to occur during the spring.

Bahrain, Democratic Republic of the Congo, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syrian Arab Republic, Türkiye, Uganda, United Arab Emirates, and United Republic of Tanzania

• **FORECAST**

No significant developments are likely.

EASTERN REGION

During the spring, seasonal models suggest increase temperature and slightly wetter rains may allow breeding on a small scale in southeast Iran and southwest Pakistan.

Afghanistan

• **SITUATION**

No locust reports were received in February.

• **FORECAST**

No significant developments are likely.

India

• **SITUATION**

During February, no locusts were seen in Rajasthan and Gujarat.

• **FORECAST**

No significant developments are likely.

Islamic Republic of Iran

• **SITUATION**

During February, no locusts were seen in the interior of the southeast near Pishin (2605N/6145E) and Jaz Murian Basis, northeast near Birjand (3252N/5913E), and east of Shiraz (2936N/5234E) as well as the southwest coast near Abadan (3021N/4817E).

• **FORECAST**

Rainfalls are likely to start in the spring areas where small-scale breeding is likely to occur in parts of the coast and interior areas of the southeast.

Pakistan

• **SITUATION**

No locusts were reported during February.

• **FORECAST**

Rainfalls are likely to start in the spring areas of southwest Baluchistan where small-scale breeding is likely to start first in the coast and then in the interior.

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 faodlislocust@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 (Android: play.google.com; iOS: appl.apple.com; how-to-use videos: tiny.cc/eL3mVideos)
- eLocust3g – a GPS app for emergencies, developed with Garmin (tiny.cc/eLocust3g)
- eLocust3w – an Internet form for emergencies, developed in Kobo (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.
[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.
[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 (www.fao.org/ag/locusts/en/publicat/2581/index.html)
- Animation – a simple SWABO animation for all readers to learn about the world's most dangerous migratory pest (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 (locust-hub-hqfao.hub.arcgis.com/)
- FAO Hand-in-Hand (data.apps.fao.org/)

2024 calendar

- **CRC/CLCPRO.** Drone for control field trial, Jeddah, Saudi Arabia (tpc)

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.

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 and Gulf of Aden: 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/DLIS Locust Watch. Information, maps, activities, publications, archives, FAQs, links
http://www.fao.org/ag/locusts

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

JRC Greenness maps. Dynamic maps of green vegetation evolution every dekad
https://locust.cgls.dev/s/6ddC96njJcRxZy7

Lobelia Soil moisture maps. Dynamic maps of soil moisture detected every dekad
https://fao-locust.lobelia.earth

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

NOAA. HYSPLIT locust forecast trajectory model
https://locusts.arl.noaa.gov

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

Zoom Earth. Real time rainfall, winds and temperatures for locust migration
https://zoom.earth

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

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

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

FAO/ESRI Locust Hub. Desert Locust maps and data download, and emergency response progress
https://locust-hub-hqfao.hub.arcgis.com

Desert Locust Summary
Criquet pèlerin – Situation résumée

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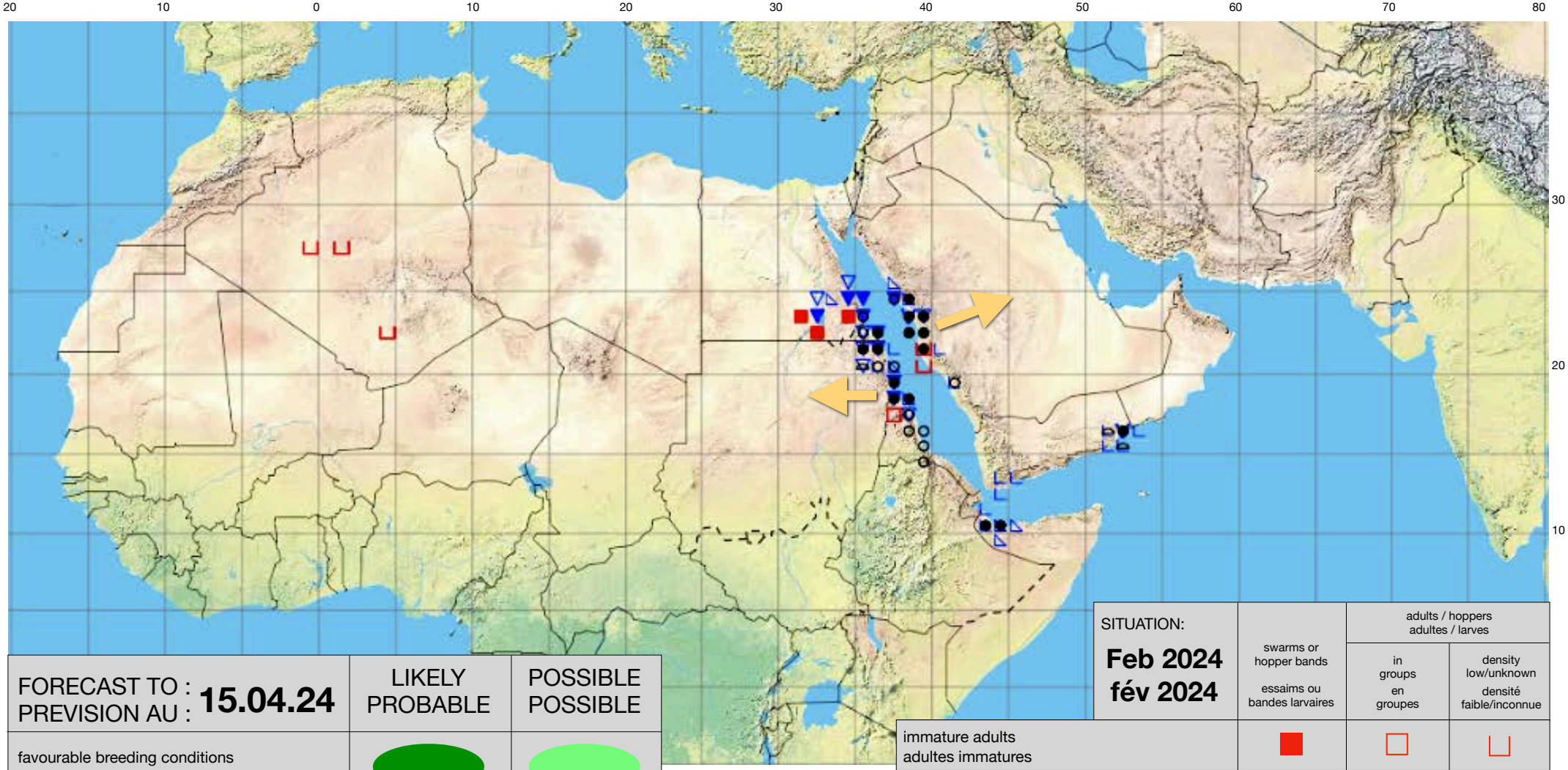

FORECAST TO : PREVISION AU : **15.04.24**	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarms(s) essaim(s) limité(s)		
non swarming adults adults non essaimant		

SITUATION: **Feb 2024 fév 2024**	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 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)	●	○	◡