Food and Agriculture Organization of the United Nations

No. 520 1 FEBRUARY 2022

Desert Locust Bulletin

General situation during January 2022
Forecast until mid-March 2022

WESTERN REGION: CALM

SITUATION. Isolated adults in **Morocco**.

FORECAST. Small-scale breeding could commence in **Morocco** during March; no significant developments.

CENTRAL REGION: CAUTION

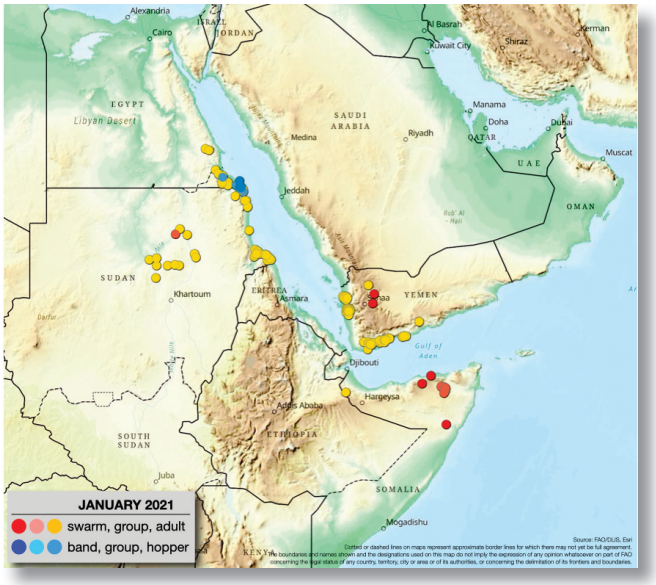
SITUATION. Control operations against small immature swarms ended in northeast **Somalia** (2 741 ha treated); no southward movement or locusts detected in **Ethiopia** and **Kenya**. Small-scale breeding on southern Red Sea coast of **Sudan** and along the Egypt/Sudan border with a few hopper groups forming in **Egypt** (480 ha); scattered adults along the Red Sea and Gulf of Aden coasts in **Yemen**.

FORECAST. Limited small-scale breeding likely in a few areas along the Red Sea coast in southeast **Egypt**, **Sudan**, northern **Eritrea**, **Saudi Arabia**, and **Yemen** as well as the Gulf of Aden coast of Yemen and northwest **Somalia**. No significant developments expected.

EASTERN REGION: CALM

SITUATION. No locusts present.

FORECAST. Isolated adults are likely to appear and breed on a small scale in southeast **Iran** and southwest **Pakistan**; no significant developments.



Upsurge declines in the Horn of Africa

After more than two years, the current Desert Locust upsurge has finally declined. Aerial control operations against the few small immature swarms that remained in northeast Somalia ended on 4 January. During the remainder of the month, no locusts were seen in Ethiopia and Kenya, and southerly migration was not detected. As ecological conditions are dry due to a lack of rainfall in the Horn of Africa, the likelihood of any further developments in the region is low but vigilance is suggested during February. Adding to the collapse of the upsurge, poor rains have limited winter breeding to a small area along both sides of the Egypt/Sudan border on the Red Sea coast. While small-scale breeding may occur during February on the coastal plains near the Sudan/Eritrea border and in a few places on the Saudi Arabia and Yemen coast, it is likely to be limited and should not cause a significant increase in locusts. Elsewhere, the situation remains calm. Small-scale breeding is likely to commence during February and March in the spring breeding areas of southeast Iran and southwest Pakistan where early rains fell in January, and south of the Atlas Mountains in Morocco where isolated adults are currently present. No significant developments are expected, and the situation should continue to remain calm and return to normal.

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: eclo@fao.org / faodlislocust@gmail.com
Internet: www.fao.org/ag/locusts
Facebook/Twitter: faolocust

Weather & Ecological Conditions in January 2022

Good rains fell in spring breeding areas of Iran and Pakistan that may cause breeding conditions to become favourable earlier than normal. Poor rains fell in winter breeding areas along both sides of the Red Sea.

WESTERN REGION

Light rain fell during the second decade in Western Sahara where vegetation was drying out in most areas except for central parts. Vegetation was also green, and soil was moist in the Draa Valley south of the Atlas Mountains in Morocco and near irrigated perimeters in the Adrar Valley of the central Sahara in Algeria. Small patches of green vegetation were present in the southern Sahara of Algeria to the west of Tamanrasset. Elsewhere, conditions remained dry.

CENTRAL REGION

Light rains fell in northwest Saudi Arabia along the Red Sea coast and along central and southern coasts of Sudan during the first decade. Very little rain fell thereafter in the winter breeding areas along both sides of the Red Sea and Gulf of Aden. Nevertheless, ecological conditions were favourable for breeding in coastal areas of southeast Egypt and northeast Sudan as well as further south in Tokar Delta and on the southern coastal plains to the Eritrea border. Favourable conditions were limited on the eastern side of the Red Sea to only small areas on the coast north of Jeddah near Rabigh and south near Qunfidah and Jizan in Saudi Arabia and along parts of the northern Tihama near Al Zuhrah in Yemen as vegetation was drying out in many areas. Breeding conditions were somewhat better along the Gulf of Aden coast in southern Yemen where green vegetation and moist soil were present from west of Aden to Ahwar. Mainly dry conditions prevailed in northern Oman. In the Horn of Africa, no significant rain and vegetation continued to dry out.

EASTERN REGION

Successive eastward-moving depressions from late December brough light to moderate rains to southwest Iran that reached southwest Pakistan until 5 January. Rain continued during the second decade in Iran from the southwest to Jask. The rains fell in coastal areas as well as in the interior, reaching the Jaz Murian basin in southeast Iran and the Panjgur Valley in Baluchistan, Pakistan. This may cause ecological conditions to become favourable for spring breeding earlier than in most years, especially if more rains fall in the coming month. Ground surveys in Pakistan confirmed the presence of green vegetation and wet soil moisture along the coast and in the Turbat Valley of the interior.

Area Treated

Control operations declined dramatically to 3 221 ha in January compared to 27 868 ha in December. The last operations in the Horn of Africa were conducted on 5 January.

Egypt	480 ha
Somalia	2 741 ha

Desert Locust Situation and Forecast

WESTERN REGION

Algeria

• **SITUATION**

During January, no locusts were seen in the Adrar Valley (2753N/0017W) of the central Sahara and in the south near Tamanrasset (2250N/0528E).

• **FORECAST**

No significant developments are likely.

Chad

• **SITUATION**

No locusts were reported during January.

• forecast

No significant developments are likely.

Libya

• **SITUATION**

No locusts were reported during January.

• **FORECAST**

No significant developments are likely.

Mali

• **SITUATION**

No locusts were reported during January.

• **FORECAST**

Low numbers of locusts are likely to persist in parts of Timetrine and the Adrar des Iforas.

Mauritania

• **SITUATION**

No locusts were reported during January.

• **FORECAST**

No significant developments are likely.

Morocco

• **SITUATION**

During January, low numbers of mature solitarious adults were present in the southern portion of the Western Sahara between Aousserd (2233N/1419W) and the Mauritania border while

isolated adults were seen in the Sakia El Hamra valley near Haouza (2707N/1112W) and south of the Atlas Mountains in the Draa Valley between Foum El Hassan (2901N/0853W) and Foum Zguid (3005N/0652W). No locusts were seen elsewhere in the Western Sahara.

• **FORECAST**

As temperatures warm up and if rains fall, small-scale breeding could commence towards the end of the forecast period in the Draa and Sakia El Hamra valleys as well as in the Adrar Settouf of Western Sahara.

Niger

• **SITUATION**

No locusts were reported during January.

• **FORECAST**

Low numbers of adults are likely to persist in parts of the Air Mountains. No significant developments are likely.

Senegal

• **SITUATION**

No locusts were reported during January.

• **FORECAST**

No significant developments are likely.

Tunisia

• **SITUATION**

No locusts were reported during January.

• **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.

CENTRAL REGION

Djibouti

• **SITUATION**

During January, no locusts were seen during surveys in the northern interior near Tadjourah (1147N/4253E) and Obock (1158N/4317E).

• **FORECAST**

No significant developments are likely.

Egypt

• **SITUATION**

During January, small-scale breeding occurred in the southeast along the Red Sea coastal plains between Shalatyn and the Sudan border where low numbers of solitarious hoppers developed, reaching fifth instar by the end of the month when a few small hopper groups formed. Isolated mature solitarious adults were seen in the same area while a few isolated immature solitarious adults were present further north near El Sheikh El Shazly (2412N/3438E). No locusts were seen in the southern interior near Lake Nasser and in the northwest near Siwa (2912N/2531E) and Salum (3131N/2509E). Ground teams treated 480 ha.

• **FORECAST**

Low numbers of hoppers and adults are likely to persist in the southeast along the Red Sea coast but will decline as vegetation dries out.

Eritrea

• **SITUATION**

During January, no locusts were seen on the Red Sea coastal plains west of Mersa Cuba (1616N/3911E) on the 26th.

• **FORECAST**

Low numbers of locusts may be present in a few places along the northern coastal plains of the Red Sea where small-scale breeding may occur in any areas that receive rainfall.

Ethiopia

• **SITUATION**

During January, no locusts were seen during ground and aerial surveys north of the Kenya border in the southern portion of Oromia and SNNPR, including the Rift Valley to Arba Minch (0602N/3733E), and in the eastern portion of the Somali region to the north of the Shebelle River, in the highlands near Harar (0919N/4206E), and along the railway between Ayasha (1045N/4234E) and the Djibouti border.

• **FORECAST**

Low numbers of adults may be present in parts of southern Oromia and SNNPR to the north of the Kenya border. No significant developments are likely.

Kenya

• **SITUATION**

No locusts were seen or reported during January.

• **FORECAST**

Low numbers of adults may be present south of the Ethiopia border in northern Mandera, Marsabit, and northeast Turkana counties. No significant developments are likely.

Oman

• **SITUATION**

During January, no locusts were seen in the northern interior near Buraimi (2415N/5547E) and Nizwa (2255N/5731E), and on the Batinah coast.

• **FORECAST**

No significant developments are likely.

Saudi Arabia

• **SITUATION**

During January, no locusts were seen along the Red Sea coastal plains near Jizan (1656N/4233E), Qunfidah (1909N/4107E), and from Jeddah (2130N/3910E) to Masturah (2309N/3851E).

• **FORECAST**

Low numbers of locusts may be present in a few areas along the Red Sea coast where small-scale breeding may occur near Jizan, Qunfidah, and Rabigh.

Somalia

• **SITUATION**

During January, aerial control operations finished on the 4th in the northeast (Puntland) having treated 2 741 ha of small immature adult groups and swarms north of Gardo (0930N/4905E). During the first week, there were a few reports of a small immature swarm further north near Erigavo (1040N/4720E) and on the Gulf of Aden coast near Lasqoray (1109N/4811E), and further south to the east of Garowe (0824N/4829E) that were not treated. In the northwest (Somaliland), scattered adults were seen maturing at one place northwest of Boroma (0956N/4313E). No locusts were seen elsewhere during intensive surveys on the coast, escarpment, and plateau of Somaliland. No locusts were reported in central and southern Somalia.

• **FORECAST**

Small-scale breeding may occur on the northwest coast, causing a slight increase in locust numbers.

Sudan

• **SITUATION**

During January, small-scale breeding occurred on the Red Sea coast in the extreme northeast adjacent to the Egypt border where scattered solitarious hoppers and isolated mature solitarious adults were present north of Oseif (2146N/3651E). One group of third instar transiens hoppers were present on the 10th. Scattered mature solitarious adults were present further south in the Red Sea Hills north of Sufiya (2119N/3613E) and along the coast further south near Mohamed Qol (2054N/3709E), in Tokar Delta (1827N/3741E) and Khor Baraka, and on the southern coastal plains from Aqiq (1813/N3811E) to the Eritrea border. Some adults were seen copulating in the latter area at mid-month. No locusts were seen elsewhere along the coast and in subcoastal areas. In the interior during the first half of the month, scattered mature solitarious adults persisted in the Bayuda Desert from Wadi Muqaddam to Abu Hamed (1932N/3320E) and a few small groups of *transiens* immature and mature adults, including copulating, were seen near irrigated schemes.

• **FORECAST**

Small-scale breeding is likely to occur in the Tokar Delta and along the southern coastal plains, causing a slight increase in locust numbers.

Yemen

• **SITUATION**

During January, an immature swarm from earlier breeding was seen in the interior south of Al Hazm (1610N/4446E) on the 3rd and another swarm was reported on the 8th in the highlands east of Sana'a (1521N/4412E). Scattered immature and mature solitarious adults were present on the Red Sea coastal plains near Hodeidah (1450N/4258E) and Al Zuhrah (1541N/4300E) and on the Gulf of Aden coast from west of Aden (1250N/4503E) to Ahwar (1333N/4644E) and Mayfa'a (1416N/4735E).

• **FORECAST**

Small-scale breeding is likely to occur on the Red Sea and Gulf of Aden coastal plains, causing locusts to increase slightly.

Bahrain, D.R. Congo, Iraq, Israel, Jordan, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syria, Tanzania, Turkey, Uganda, and UAE

• **FORECAST**

No significant developments are likely.

EASTERN REGION

Afghanistan

• **SITUATION**

No locust reports were received during January.

• **FORECAST**

No significant developments are likely.

India

• **SITUATION**

During January, no locusts were seen by surveys in Rajasthan and Gujarat.

• **FORECAST**

No significant developments are likely.

Iran

• **SITUATION**

During January, no locusts were seen or reported in coastal and interior areas of the south, and in the northeast.

• **FORECAST**

Isolated adults are likely to appear and breed on a small scale in coastal areas of the southeast.

Pakistan

• **SITUATION**

During January, no locusts were seen along the southwest coast in Baluchistan from Uthal (2548N/6637E) to Gwadar (2508N/6219E), and in the interior near Turbat (2600N/6303E).

• **FORECAST**

Isolated adults are likely to appear and breed on a small scale in coastal and subcoastal areas of Baluchistan.

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

RAMSES data. Countries should connect to the Internet and backup the RAMSES database whenever data are added or changed. There is no longer the need to send data directly to DLIS.

Bulletins. Affected countries are encouraged to prepare decadal, fortnightly, or monthly bulletins that summarize 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 tools

In addition to the original eLocust3 tablet, FAO has developed three new free tools – a smartphone app (eLocust3m), a GPS app (eLocust3g), and an Internet form (eLocust3w) – for improving survey and control reporting by field teams and communities. The data are critical for monitoring the situation and organizing control operations in each country, and feeds into FAO's global early warning system in near real time.
[http://www.fao.org/ag/locusts/en/activ/2573/eL3suite/index.html]

eLocust3mPRO

The eLocust3m mobile app now includes a PRO module to be used by well-trained locust teams for entering complete data on ecology, weather, locust, control, and safety. Teams that return to network coverage at the end of the day can use eLocust3mPRO while those teams that remain for several days in areas without coverage should continue to use the original eLocust3 tablet that sends data via satellite. The updated eLocust3m app is available for Android smartphones on the Google Play Store.
[https://play.google.com/store/apps/details?id=plantvillage.locustsurvey&hl=en&gl=US]

Desert Locust Standard Operating Procedures (SOPs)

A new SOP on Biology as well as an updated Ground Survey SOP, including instructions on how to use eLocust3, eLocust3g and eLocust3m, are available on Locust Watch. Amharic and Somali versions are available for Biology, Survey, and Control. The SOPs are pocket-sized and meant to be used in the field.
[http://www.fao.org/ag/locusts/en/publicat/gl/sops/index.html]

Desert Locust posters

FAO in collaboration with OCHA has developed six simple, easy to understand posters for communities that may be affected by locusts. The purpose is to provide basic messaging on pesticide containers, safety measures, pesticide exposure, farmer advice, Desert Locust, and following instructions. The posters can be edited.
[http://www.fao.org/ag/locusts/en/publicat/2581/index.html]

Desert Locust animation

FAO in collaboration with SWABO has produced a simple animation that explains the danger of Desert Locust.
[https://www.youtube.com/watch?v=3TOhuA-v1m4]

Locust Hub

Desert Locust survey and control data are available for research and other non-commercial purposes and can be downloaded from the FAO Locust Hub in partnership with ESRI.
[https://locust-hub-hqfao.hub.arcgis.com]

Hand-in-Hand geospatial platform

FAO has developed the Hand-in-Hand geospatial platform that also integrates Desert Locust data from the Locust Hub.
[https://data.apps.fao.org]

2022 calendar

- **CRC.** 32nd session, Jeddah, Saudi Arabia (27 February – 3 March, tbc)
- **CLCPRO.** 10th session, Algiers, Algeria (22–26 May, tbc)
- **DLCC.** 42nd session, Nairobi, Kenya (postponed to October–November)
- **SWAC.** 33rd session, Tehran, Iran (13–15 December, 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 km^2
- band: 1–25 m^2

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

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

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

Very large
- swarm: 500+ km^2
- band: 50+ ha

Rainfall

Light
- 1–20 mm

Moderate
- 21–50 mm

Heavy
- more than 50 mm

Summer rains and breeding areas
- July–September/October
- Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border

Winter rains and breeding areas
- October–January/February
- Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara

Spring rains and breeding areas
- February–June/July
- Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border

Other reporting terms

Breeding
- The process of reproduction from copulation to fledging

Recession
- Period without widespread and heavy infestations by swarms

Remission
- Period of deep recession marked by the complete absence of gregarious populations

Outbreak
- A marked increase in locust numbers due to concentration, multiplication and gregarisation which, unless checked, can lead to the formation of hopper bands and swarms

Upsurge
- A period following a recession marked initially by a very large increase in locust numbers and contemporaneous outbreaks followed by the production of two or more successive seasons of transient-to- gregarious breeding in complimentary seasonal breeding areas in the same or neighbouring Desert Locust regions

Plague
- A period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously

Decline
- A period characterised by breeding failure and/or successful control leading to the dissociation of swarming populations and the onset of recessions; can be regional or major

Warning levels

Green
- *Calm*. No threat to crops; maintain regular surveys and monitoring

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

Orange
- *Threat*. Threat to crops; survey and control operations must be undertaken

Red
- *Danger*. Significant threat to crops; intensive survey and control operations must be undertaken

Regions

Western
- Locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Niger, Senegal, Tunisia; during 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

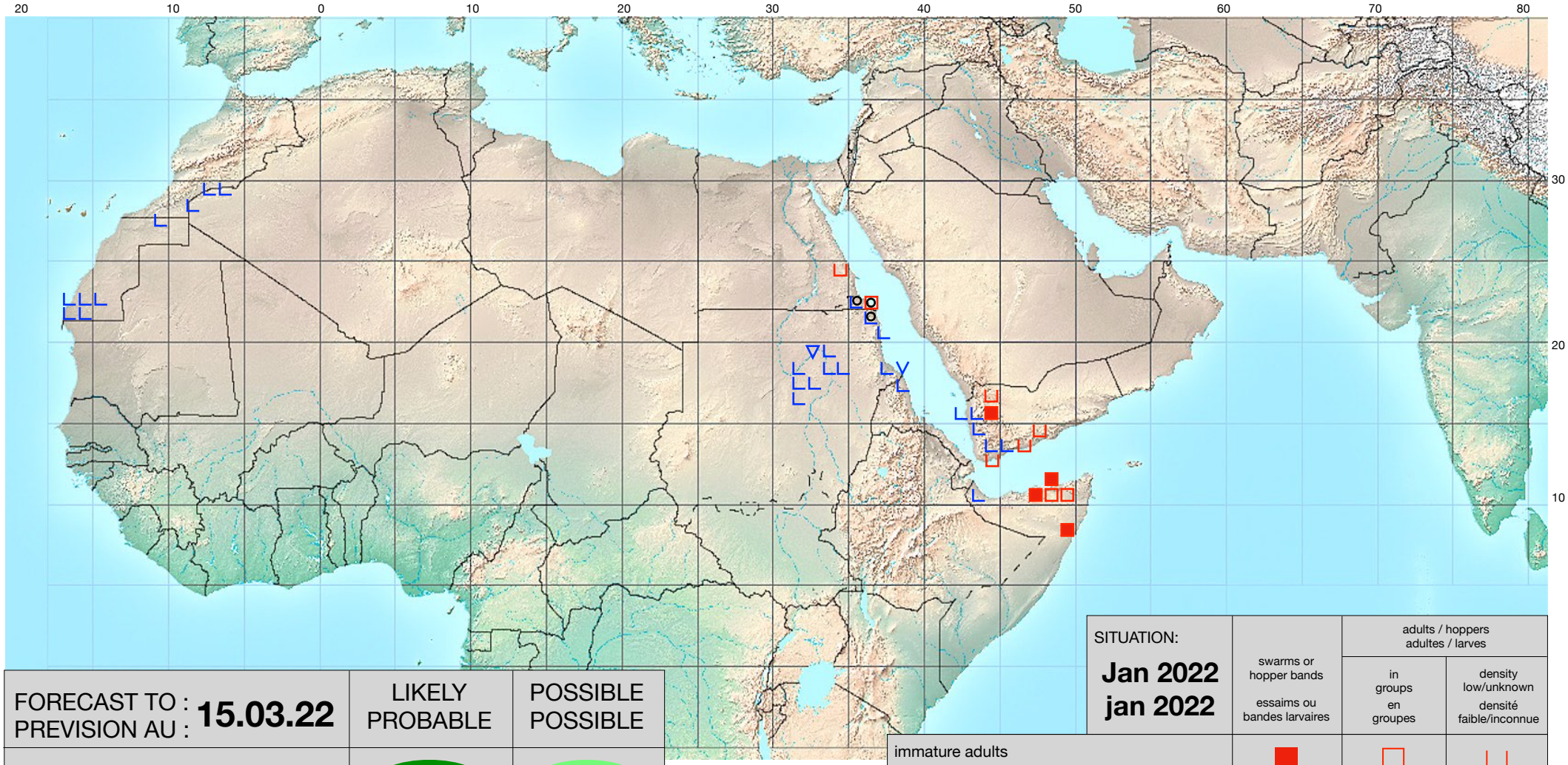
FAOLocust Facebook. Information exchange using social media
http://www.facebook.com/faolocust

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

520



FORECAST TO : PREVISION AU : **15.03.22**	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: **Jan 2022 jan 2022**	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)	●	○	⌓

Food and Agriculture Organization of the United Nations

No. 521 2 MARCH 2022

Desert Locust Bulletin

General situation during February 2022
Forecast until mid-April 2022

WESTERN REGION: CALM

SITUATION. Isolated adults in southern **Algeria**.

FORECAST. Very small-scale breeding is likely to commence in **Morocco** and **Algeria** once temperatures warm up and rains fall. No significant developments expected.

CENTRAL REGION: CALM

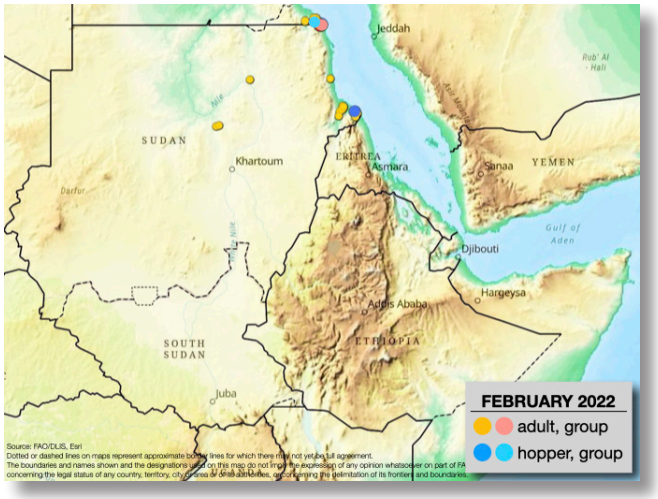
SITUATION. Small hopper and adult groups treated in southeast **Egypt** (1 220 ha). Scattered adults on the Red Sea coast in **Sudan** where limited breeding was detected in only one area. Immature adult groups seen in eastern **Ethiopia** flying southwards. Isolated adults on the **Oman** coast. No locusts reported elsewhere in the region.

FORECAST. Locusts will decline along both sides of the Red Sea where no further rains are expected, causing conditions to dry out in **Egypt**, **Sudan**, **Eritrea**, **Saudi Arabia**, and **Yemen**. Low numbers of adults may appear in the interior of Saudi Arabia and Yemen, but poor rains are expected to limit spring breeding this year. No significant developments expected.

EASTERN REGION: CALM

SITUATION. No locusts present.

FORECAST. Isolated adults are likely to appear in southeast **Iran** and southwest **Pakistan** where breeding may be limited by poor rainfall. No significant developments expected.



Upsurge ends in the Horn of Africa

The current Desert Locust upsurge has finally ended in the Horn of Africa after more than two years of intensive survey and control operations carried out by ground and air with generous support from the international community. For nearly the second consecutive month, no significant locust infestations have been detected in Djibouti, Eritrea, Ethiopia, Somalia, and Kenya during February. Although rain has not fallen recently and ecological conditions are dry, small groups of immature adults were seen moving southwards in eastern Ethiopia, which suggests that a few residual infestations may still be present. Therefore, surveys and vigilance should be maintained. This year's winter breeding along both sides of the Red Sea and the Gulf of Aden has been very poor due to a lack of rainfall. Consequently, only low numbers of adults were present on the coast of Egypt and Sudan. Ground teams treated small groups of hoppers and adults in southeast Egypt, and isolated breeding occurred on the southern coast in Sudan. Elsewhere, isolated adults were present in southern Algeria and northern Oman. During March and April, low numbers of adults may appear in the spring breeding areas in Morocco, Algeria, the interior of the Arabian Peninsula, southeast Iran, and southwest Pakistan where poor rains are expected to limit breeding this year. Consequently, the situation is expected to remain calm in the coming months.

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: eclo@fao.org / faodlislocust@gmail.com
Internet: www.fao.org/ag/locusts
Facebook/Twitter: faolocust

Weather & Ecological Conditions in February 2022

Little rainfall and poor ecological conditions limited winter breeding along both sides of the Red Sea and Gulf of Aden. Dry conditions prevailed in the Horn of Africa.

WESTERN REGION

No significant rain fell in the region during February. Consequently, annual vegetation remained dry except for a few places in the Draa Valley south of the Atlas Mountains in Morocco, near irrigated perimeters in the Adrar Valley of the central Sahara in Algeria, and in a few wadis in the southern Sahara near Tamanrasset. Overall, conditions were not favourable for breeding.

CENTRAL REGION

No significant rain fell in the Horn of Africa as well as in the winter breeding areas along both sides of the Red Sea and Gulf of Aden during February. Consequently, annual vegetation was dry in eastern and southern Ethiopia and northern and central Somalia where conditions were not favourable for breeding. Similarly, the little annual vegetation that was present in some coastal areas of the Red Sea in southeast Egypt, Sudan, Eritrea, Yemen, and Saudi Arabia was drying out and breeding conditions became less favourable.

EASTERN REGION

Very little rain fell in the region during February. Nevertheless, annual vegetation was becoming green in western portions of the Jaz Murian Basin and in a few coastal areas south of Minab in southeast Iran, and in limited areas of southwest Pakistan in the Shooli Valley south of Turbat, in the Turbat Valley, and near Kharan. While these are all key spring breeding areas, ecological conditions still remain primarily unfavourable until more rainfall occurs.

Area Treated

Egypt 1 220 ha

Desert Locust Situation and Forecast

WESTERN REGION

Algeria

• **SITUATION**

During February, isolated mature solitarious adults were seen in the southern Sahara at one place west of Tamanrasset (2250N/0528E). No locusts were seen in the Adrar Valley (2753N/0017W) of the central Sahara.

• **FORECAST**

Very small-scale and limited breeding could occur once temperatures warm up in the central Sahara if rains fall.

Chad

• **SITUATION**

No locusts were reported during 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**

Low numbers of locusts may be present and could persist in parts of Timetrine and the Adrar des Iforas.

Mauritania

• **SITUATION**

No locusts were reported during February.

• **FORECAST**

No significant developments are likely.

Morocco

• **SITUATION**

During February, no locusts were seen during surveys south of the Atlas Mountains from Tan-Tan (2826N/1106W) to Erfoud (3128N/0410W), and in the northern portion of Western Sahara near Smara (2644N/1140W).

• **FORECAST**

Very small-scale and limited breeding could occur once temperatures warm up in the Draa and Sakia El Hamra valleys as well as in the Adrar Settouf of Western Sahara if rains fall.

Niger

• **SITUATION**

No locusts were reported during February.

• **FORECAST**

Low numbers of adults may be present and could persist in parts of the Air Mountains. 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, 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.

CENTRAL REGION

Djibouti

• **SITUATION**

During February, no locusts were seen during surveys in coastal and interior areas of Obock and Tadjourah in the north and in the southeast near Ali Sabieh (1109N/4242E).

• **FORECAST**

No significant developments are likely.

Egypt

• **SITUATION**

During February, small groups of fifth instar solitarious and *transiens* hoppers were present in the first week on the Red Sea coast to the south of Halaib (2213N/3638E) near the Sudan border as a result of breeding during the past two months. Fledging occurred, giving rise to scattered immature adults and a few small groups. Isolated mature solitarious adults were seen further north along the coast towards Abu Ramad (2224N/3624E). No locusts were seen elsewhere in coastal and subcoastal areas near Shalatyn (2308N/3535E) and in the southern interior near Lake Nasser. Ground teams treated 1 220 ha.

• **FORECAST**

Locust numbers will decline along the Red Sea coast in the southeast as vegetation dries out.

Eritrea

• **SITUATION**

During February, no locusts were seen on the Red Sea coastal plains between Massawa (1537N/3928E) and Sheib (1551N/3903E) on the 1st.

• **FORECAST**

Isolated locusts may be present in a few places along the northern coastal plains of the Red Sea where numbers will decline as conditions become dry. No significant developments are likely.

Ethiopia

• **SITUATION**

During February, groups of immature adults was seen moving south from Dollo to Korahe zone in eastern Somalia region on the 17th that may have continued further south towards Negele (0520N/3935E) and Yabelo (0457N/3812E) in southern Oromia at the end of the month. No locusts were seen during ground and aerial surveys north of the Kenya border in the southern portion of Oromia and SNNPR, including the Rift Valley to Arba Minch (0602N/3733E), and in the Somali region near Dire Dawa (0935N/4150E), Jijiga (0922N/4250E), and further east along the Shebelle River.

• **FORECAST**

Low numbers of adults and a few small immature groups may be present in parts of southern Oromia and SNNPR to the north of the Kenya border that could start to move northwards in about mid-April.

Kenya

• **SITUATION**

No locusts were seen or reported during February.

• **FORECAST**

Low numbers of adults may be present south of the Ethiopia border in northern Mandera, Marsabit, and northeast Turkana counties. No significant developments are likely.

Oman

• **SITUATION**

During February, isolated mature solitarious adults were seen at one place on the Batinah coast northeast of Rustaq (2323N/5725E). Elsewhere, no locusts were seen on the northern coast, Musandam Peninsula, in the northern interior near Adam (2223N/5731E), Nizwa (2255N/5731E), and Buraimi (2415N/5547E), and in the southern Dhofar between Thumrait (1736N/5401E) and Shehan (1746N/5229E) along the Yemen border.

• **FORECAST**

No significant developments are likely.

Saudi Arabia

• **SITUATION**

During February, no locusts were seen along the Red Sea coastal plains in the south from Jizan (1656N/4233E) to Qunfidah (1909N/4107E) and on the central and northern coasts from Lith (2008N/4016E) to Duba (2719N/3546E). Locusts were also absent in the southwest interior near Najran (1729N/4408E) and the Yemen border.

• **FORECAST**

Isolated locusts may be present in a few places along the Red Sea coast where further breeding is unlikely. Consequently, low numbers of adults are likely to move to the interior, but spring breeding is expected to be very limited because of poor rainfall that is forecasted. No significant developments are likely.

Somalia

• **SITUATION**

During February, no locusts were seen during aerial and ground surveys in the northwest (Somaliland) and northeast (Puntland) as well as in central areas near Galkayo (0646N/4725E).

• **FORECAST**

Low numbers of adults may be present along parts of the northwest coast where breeding is unlikely because of dry conditions.

Sudan

• **SITUATION**

During February, very little winter breeding occurred on the Red Sea coast. Despite earlier reports of copulating adults in January, breeding was detected at only one place along the southern coast near Adobana (1810N/3816E) where scattered third instar solitarious hoppers were seen on the 21st. Low numbers of scattered mature solitarious adults were present on the southern coast between Aqiq (1813/N3811E) and Aiterba (1753N/3819E) and in Tokar Delta while scattered immature solitarious adults were present on the northern coast about 10 km south of the Egypt border. No locusts were seen elsewhere on the coast or in subcoastal areas along Wadi Oko/Diib. In the summer breeding areas, scattered mature solitarious adults persisted in a few places of the Bayuda Desert between Wadi Muqaddam and Abu Hamed (1932N/3320E) up to mid-month.

• **FORECAST**

Locust numbers will decline along the Red Sea coastal plains as conditions become dry. No significant developments are likely.

Yemen

• **SITUATION**

No surveys were carried out and no locusts were reported during February.

• **FORECAST**

Low numbers of adults may be present in a few places along the Red Sea and Gulf of Aden coastal plains where further breeding is unlikely. Consequently, low numbers of adults are likely to move to the interior, but spring breeding is expected to be very limited because of poor rainfall that is forecasted.

Bahrain, D.R. Congo, Iraq, Israel, Jordan, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syria, Tanzania, Turkey, UGANDA, and UAE

• **FORECAST**

No significant developments are likely.

EASTERN REGION

Afghanistan

• **SITUATION**

No locust reports were received during February.

• **FORECAST**

No significant developments are likely.

India

• **SITUATION**

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

• **FORECAST**

No significant developments are likely.

Iran

• **SITUATION**

During February, no locusts were seen or reported in coastal and interior areas of the south, and in the northeast.

• **FORECAST**

Isolated adults are likely to appear in coastal areas and the Jaz Murian Basin of the southeast where breeding may be limited by poor rainfall.

Pakistan

• **SITUATION**

During February, no locusts were seen along the southwest coast in Baluchistan from Pasni (2515N/6328E) to Gwadar (2508N/6219E), in interior valleys of Turbat (2600N/6303E) and Panjgur (2658N/6406E), and in northern Baluchistan between Dalbandin (2856N/6430E) and Nushki (2933N/6601E).

• **FORECAST**

Isolated adults are likely to appear in coastal and subcoastal areas of Baluchistan where breeding may be limited by poor rainfall.

Announcements

Locust warning levels

A colour-coded scheme indicates the seriousness of the current Desert Locust situation:

- **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. It indicates the alert level, perceived risk or threat of current Desert Locust infestations to crops, and appropriate response.

Locust reporting

RAMSES data. Countries should connect to the Internet and backup the RAMSES database whenever data are added or changed. There is no longer the need to send data directly to DLIS.

Bulletins. Affected countries are encouraged to prepare decadal, fortnightly, or monthly bulletins that summarize 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 regular surveys and control, developed with Plant Village (http://tiny.cc/eL3m)
- 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 and planning field operations in each country. [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]

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 that explains the danger of Desert Locust (https://www.youtube.com/watch?v=3TOhuA-v1m4)

Publicly available data

Desert Locust survey and control data are available for research and other non-commercial purposes, which can be viewed and downloaded from the FAO Locust Hub (https://locust-hub-hqfao.hub.arcgis.com) and Hand-in-Hand geospatial platform (https://data.apps.fao.org).

2022 calendar

- **CLCPRO.** 10th session, Algiers, Algeria (22–26 May, tbc)
- **DLCC.** 42nd session, Nairobi, Kenya (postponed to October–November)
- **SWAC.** 33rd session, Tehran, Iran (13–15 December, 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 km^2
- band: 1–25 m^2

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

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

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

Very large
- swarm: 500+ km^2
- band: 50+ ha

Rainfall

Light
- 1–20 mm

Moderate
- 21–50 mm

Heavy
- more than 50 mm

Summer rains and breeding areas

- July–September/October
- Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border

Winter rains and breeding areas

- October–January/February
- Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara

Spring rains and breeding areas

- February–June/July
- Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border

Other reporting terms

Breeding

- The process of reproduction from copulation to fledging

Recession

- Period without widespread and heavy infestations by swarms

Remission

- Period of deep recession marked by the complete absence of gregarious populations

Outbreak

- A marked increase in locust numbers due to concentration, multiplication and gregarisation which, unless checked, can lead to the formation of hopper bands and swarms

Upsurge

- A period following a recession marked initially by a very large increase in locust numbers and contemporaneous outbreaks followed by the production of two or more successive seasons of transient-to- gregarious breeding in complimentary seasonal breeding areas in the same or neighbouring Desert Locust regions

Plague

- A period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously

Decline

- A period characterised by breeding failure and/or successful control leading to the dissociation of swarming populations and the onset of recessions; can be regional or major

Warning levels

Green

- *Calm*. 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

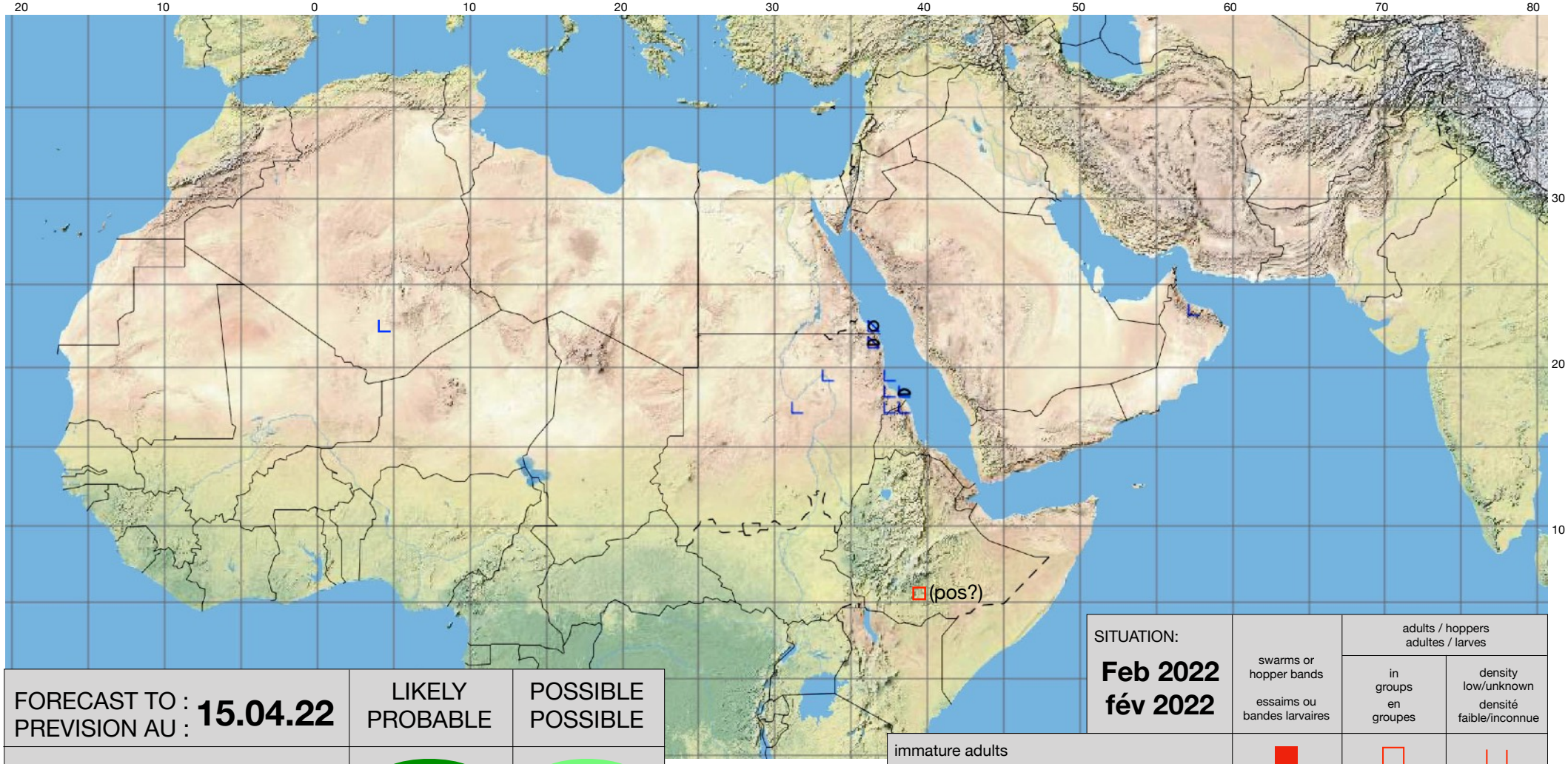
FAOLocust Facebook. Information exchange using social media
http://www.facebook.com/faolocust

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

521



FORECAST TO : PREVISION AU : **15.04.22**	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 2022 fév 2022**	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	◣	◺	L
adults, maturity unknown adultes, maturité inconnue	▲	△	⋀
egg laying or eggs pontes ou œufs	▼	▽	⋁
hoppers larves	●	○	◡
hoppers & adults (combined example) larves et adultes (symboles combinés)	●■	○□	◡⊔

Food and Agriculture Organization of the United Nations

No. 522 1 APRIL 2022

Desert Locust Bulletin

General situation during March 2022
Forecast until mid-May 2022

WESTERN REGION: CALM

SITUATION. No locusts present.

FORECAST. Very small-scale breeding could occur in parts of **Morocco** and **Algeria** if more rains fall. No significant developments are likely.

CENTRAL REGION: CALM

SITUATION. A few small remnant immature swarms in southern **Ethiopia** (400 ha treated). Scattered adults maturing in a few places on the Red Sea coast of **Egypt** and **Sudan** where breeding ended. Isolated adults in a few places on the Gulf of Aden coast in southern **Yemen**. No locusts reported elsewhere in the region.

FORECAST. Any remnant adults in southern **Ethiopia** may move north to areas of recent rainfall in the Somali region. Locusts will decline further along the Red Sea and Gulf of Aden coasts as vegetation dries out. Low numbers of solitarious adults may appear in the interior of **Saudi Arabia** and **Yemen** where breeding, if any, will be on a very small scale and limited by poor rainfall that is expected. No significant developments are likely.

EASTERN REGION: CALM

SITUATION. No locusts present.

FORECAST. Isolated adults are likely to appear in southeast **Iran** and southwest **Pakistan** where breeding, if any, will be on a very small scale and limited by poor rainfall that is expected. No significant developments are likely.

CALM SITUATION RETURNS

The Desert Locust situation remained calm during March as little rain fell, vegetation was dry, and very few locusts were detected by surveys. In the Horn of Africa, a few small remnant immature swarms were present in southern Ethiopia and aerial operations treated 400 ha. Any residual swarms that remain are not expected to mature and breed in the south; instead, they are more likely to move north towards the Somali region and eventually breed, but this may be limited by poor rainfall that is expected in the coming months. In any case, existing resources should be able to manage the situation. Locusts declined in winter breeding areas along the Red Sea coast in Egypt and Sudan, and a few adults were seen on the southern coast of Yemen. As very little rain is expected to fall this year in the spring breeding areas of northwest Africa, the Arabian Peninsula, and southwest Asia, no significant developments are likely between now and July. The longer-term outlook indicates an active early monsoon season along the Indo-Pakistan border and above-normal rainfall in the northern Sahel of Africa, the interior of Yemen, and northeast Ethiopia from July to September. This might eventually lead to a potential increase in locust numbers in about October.

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: eclo@fao.org / faodlislocust@gmail.com
Internet: www.fao.org/ag/locusts
Facebook/Twitter: faolocust

Weather & Ecological Conditions in March 2022

Very little rain fell during March causing a continuation of dry conditions in all areas except in parts of the spring breeding areas in southwest Asia.

WESTERN REGION

No significant rain fell, and dry conditions prevailed throughout the region during March. Overall, conditions remained unfavourable for breeding.

CENTRAL REGION

Similar to February, no significant rain fell in the Horn of Africa as well as in the winter breeding areas along both sides of the Red Sea and Gulf of Aden during March. Consequently, vegetation was nearly dry in all areas along the coastal plains except for a few places where it was still green. Overall, conditions were not favourable for breeding. During the last week of March, a few light showers fell in parts of southern (Arero–Teltele) and central (Bale Robe) Oromia in southern Ethiopia, and in the eastern part of the Somali region between Degeh Bur, Kebri Dehar, and Warder. However, this is unlikely to be enough to give rise to favourable breeding conditions.

EASTERN REGION

During the first decade of March, moderate rains fell in southwest Iran while lighter rains occurred in the Bashagard Mountains south of the Jaz Murian Basin in southeast Iran. Light rain also fell in parts of southwest Pakistan near Turbat, Panjgur, Nushki and Lasbela. In southwest Pakistan, vegetation was green along the coast from Pasni to Gwadar and in subcoastal areas of the Shooli and Turbat valleys. Vegetation was becoming green in the central and northern interior of Baluchistan, mainly the Panjgur Valley, near Khuzdar, and between Dalbandin and Nushki. Vegetation remained dry in the Lasbela and Uthal areas west of Karachi. No rain fell during the remainder of the month in the region.

Area Treated

Ethiopia 400 ha

Desert Locust Situation and Forecast

WESTERN REGION

Algeria

• SITUATION

During March, no locusts were seen in the Adrar Valley (2753N/0017W) of the central Sahara.

• FORECAST

Very small-scale and limited breeding could occur in the central Sahara if rains fall.

Chad

• SITUATION

No locusts were reported during March.

• forecast

No significant developments are likely.

Libya

• SITUATION

No locusts were reported during March.

• FORECAST

No significant developments are likely.

Mali

• SITUATION

No locusts were reported during March.

• FORECAST

Low numbers of locusts may be present and could persist in parts of Timetrine and the Adrar des Iforas.

Mauritania

• SITUATION

No locusts were reported during March.

• FORECAST

No significant developments are likely.

Morocco

• SITUATION

During March, no locusts were seen during surveys south of the Atlas Mountains southwest of Erfoud (3128N/0410W) and near Zag (2800N/0920W).

• FORECAST

Very small-scale and limited breeding could occur in the Draa and Sakia El Hamra valleys as well as in the Adrar Settouf of Western Sahara if rains fall.

Niger

• SITUATION

No locusts were reported during March.

• FORECAST

Low numbers of adults may be present and could persist in parts of the Air Mountains. No significant developments are likely.

Senegal

• **SITUATION**

No locusts were reported during March.

• **FORECAST**

No significant developments are likely.

Tunisia

• **SITUATION**

No locusts were reported during March.

• **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.

CENTRAL REGION

Djibouti

• **SITUATION**

No locust reports were received in March.

• **FORECAST**

No significant developments are likely.

Egypt

• **SITUATION**

During March, isolated solitarious adults were maturing on the Red Sea coast and in Wadi Diib between Abu Ramad (2224N/3624E) and the Sudan border. No locusts were seen further north to Shalatyn (2308N/3535E) and in the southern interior near Lake Nasser

• **FORECAST**

Locust numbers will decline further along the Red Sea coast and no significant developments are likely.

Eritrea

• **SITUATION**

During March, no locusts were seen on the Red Sea coastal plains between Massawa (1537N/3928E) and the Sudan border.

• **FORECAST**

No significant developments are likely.

Ethiopia

• **SITUATION**

During March, a small immature swarm was seen in Borena Zone of southern Oromia near Arero (0445N/3849E) on the 4th that moved west towards Yabelo (0457N/3812E), reaching Teltele (0504N/3723E) on the 17th. During the last week, there were several more reports of small immature groups and swarms near Teltele, some of which may have been the same infestation seen more than once. No locusts were seen elsewhere during surveys between Mega (0403N/3819E) and Arba Minch (0602N/3733E), near Bale Robe (0707N/4000E), and in the Somali region near Dire Dawa (0935N/4150E), Jijiga (0922N/4250E), and along the Shebelle River. Aerial control operations treated 400 ha on the 5th.

• **FORECAST**

A few small immature swarms may persist in parts of southern Oromia and SNNPR, but breeding is not likely. During April, a few small swarms could move north to areas of recent rainfall along the eastern escarpment and runoff areas between Bale Robe and Jijiga where they will mature but laying could be limited due to the poor rains that are expected.

Kenya

• **SITUATION**

No locusts were seen or reported during March.

• **FORECAST**

No significant developments are likely.

Oman

• **SITUATION**

During March, no locusts were seen in the northern interior near Adam (2223N/5731E), Nizwa (2255N/5731E), and Buraimi (2415N/5547E), on the northern coast, and the Musandam Peninsula.

• **FORECAST**

Isolated adults may be present in a few places of the northern interior and coast where small-scale breeding is likely to be limited by the poor rains that are expected.

Saudi Arabia

• **SITUATION**

During March, no locusts were seen along the Red Sea coastal plains in the south from Jizan (1656N/4233E) to Duba (2719N/3546E). Locusts were also absent in the southwest interior along the Yemen border near Najran (1729N/4408E).

• **FORECAST**

Isolated locusts may be present in a few places along the Red Sea coast where further breeding is unlikely. Consequently, low numbers of adults are likely to move to the interior where spring breeding will be limited because of the poor rains that are expected. No significant developments are likely.

Somalia

• **SITUATION**

During March, no locusts were seen during surveys in the northwest (Somaliland), northeast (Puntland), and in central areas near Galkayo (0646N/4725E).

• **FORECAST**

No significant developments are likely.

Sudan

• **SITUATION**

During March, locust numbers declined along the Red Sea coastal plains where only isolated mature solitarious adults were present in the Tokar Delta (1827N/3741E) and on the southern coast near Aqiq (1813/N3811E) and Adobana (1810N/3816E).

Winter breeding came to an end as the last fifth instar hopper group was reported on the 8th near Adobana.

• FORECAST

No significant developments are likely.

Yemen

• SITUATION

During March, isolated immature and mature solitarious adults were present in a few places along the southern coast from west of Aden (1250N/4503E) to Ahwar (1333N/4644E). No locusts were seen elsewhere along the Gulf of Aden coast. No surveys were carried out along the Red Sea coastal plains.

• FORECAST

Low numbers of adults may be present in a few places along the Red Sea coastal plains where further breeding is unlikely. Consequently, low numbers of adults are likely to move to the interior and breed on a small scale in areas that receive rainfall.

Bahrain, D.R. Congo, Iraq, Israel, Jordan, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syria, Tanzania, Turkey, UGANDA, and UAE

• FORECAST

No significant developments are likely.

EASTERN REGION

Afghanistan

• SITUATION

No locust reports were received in March.

• FORECAST

No significant developments are likely.

India

• SITUATION

During March, no locusts were seen by surveys in Rajasthan and Gujarat.

• FORECAST

No significant developments are likely.

Iran

• SITUATION

During March, no locusts were seen or reported in coastal and interior areas of the south, and in the northeast.

• FORECAST

Isolated adults are likely to appear in coastal areas and the Jaz Murian Basin of the southeast where spring breeding may be limited because of the poor rains that are expected.

Pakistan

• SITUATION

During March, no locusts were seen along the southwest coast in Baluchistan from Pasni (2515N/6328E) to Gwadar (2508N/6219E), in interior valleys of Turbat (2600N/6303E) and Panjgur (2658N/6406E), in northern Baluchistan between Dalbandin (2856N/6430E) and Nushki (2933N/6601E), and near Khuzdar (2749N/6639E) and Lasbela (2614N/6619E).

• FORECAST

Isolated adults are likely to appear in coastal and subcoastal areas of Baluchistan where spring breeding may be limited because of the poor rains that are expected.

Announcements

Locust warning levels

A colour-coded scheme indicates the seriousness of the current Desert Locust situation:

- **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. It indicates the alert level, perceived risk, or threat of current Desert Locust infestations to crops, and appropriate response.

Locust reporting

RAMSES data. Countries should connect to the Internet and backup the RAMSES database whenever data are added or changed. There is no longer the need to send data directly to DLIS.

Bulletins. Affected countries are encouraged to prepare decadal, fortnightly, or monthly bulletins that summarize 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 regular surveys and control, developed with Plant Village (http://tiny.cc/eL3m)
- 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 and planning field operations in each country. [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]

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 that explains the danger 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)
- Hand-in-Hand (https://data.apps.fao.org)

2022 calendar

- **CLCPRO.** 10th session, Algiers, Algeria (22–26 May, tbc)
- **DLCC.** 42nd session, Nairobi, Kenya (postponed to October–November)
- **SWAC.** 33rd session, Tehran, Iran (13–15 December, 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 km^2
- band: 1–25 m^2

Small

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

Medium

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

Large

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

Very large

- swarm: 500+ km^2
- band: 50+ ha

Rainfall

Light

- 1–20 mm

Moderate

- 21–50 mm

Heavy

- more than 50 mm

Summer rains and breeding areas

- July–September/October
- Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border

Winter rains and breeding areas

- October–January/February
- Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara

Spring rains and breeding areas

- February–June/July
- Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border

Other reporting terms

Breeding

- The process of reproduction from copulation to fledging

Recession

- Period without widespread and heavy infestations by swarms

Remission

- Period of deep recession marked by the complete absence of gregarious populations

Outbreak

- A marked increase in locust numbers due to concentration, multiplication and gregarisation which, unless checked, can lead to the formation of hopper bands and swarms

Upsurge

- A period following a recession marked initially by a very large increase in locust numbers and contemporaneous outbreaks followed by the production of two or more successive seasons of transient-to- gregarious breeding in complimentary seasonal breeding areas in the same or neighbouring Desert Locust regions

Plague

- A period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected

simultaneously

Decline

- A period characterised by breeding failure and/or successful control leading to the dissociation of swarming populations and the onset of recessions; can be regional or major

Warning levels

Green

- *Calm*. 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

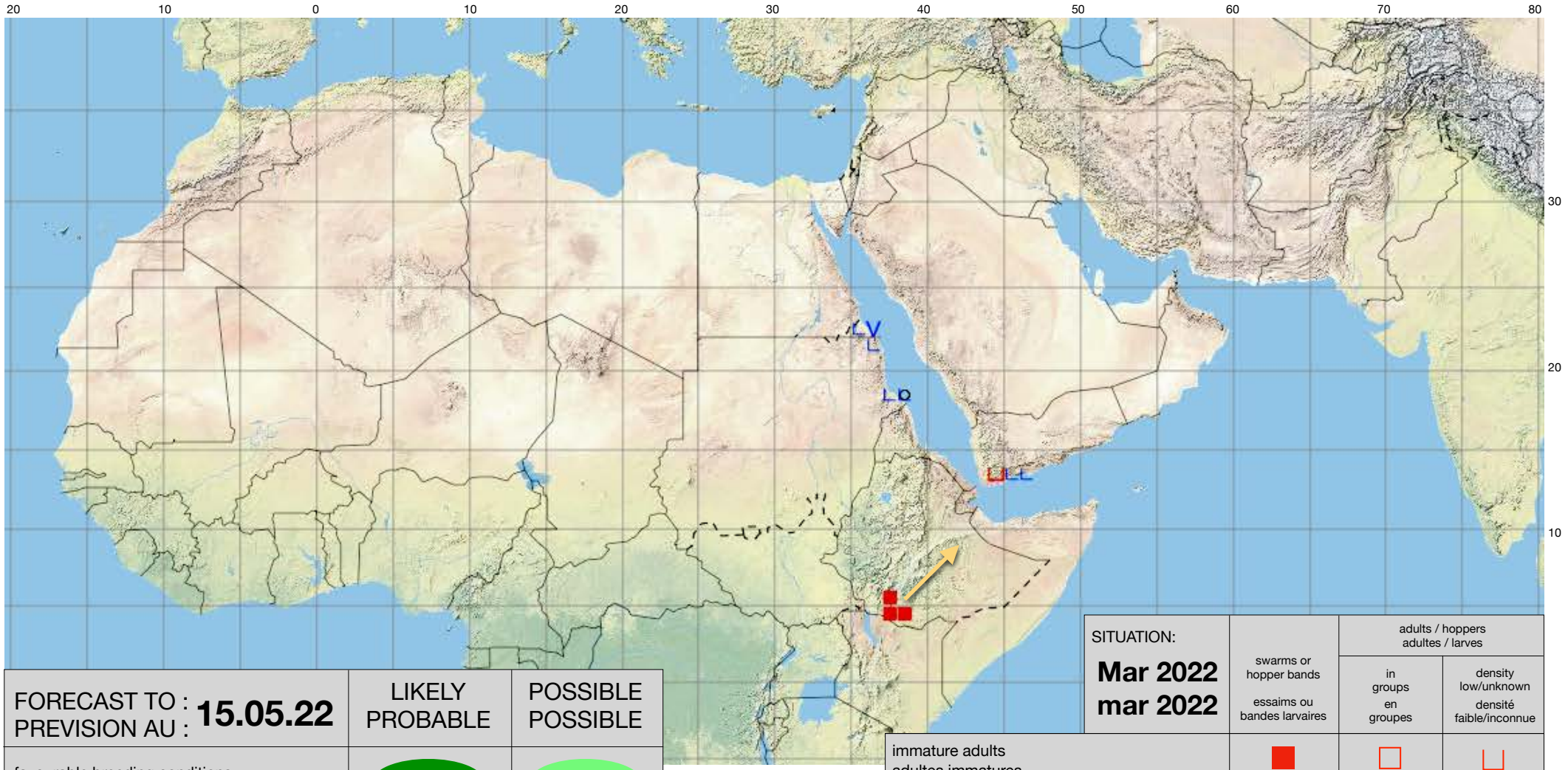
FAOLocust Facebook. Information exchange using social media
http://www.facebook.com/faolocust

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

522



FORECAST TO : PREVISION AU : **15.05.22**	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: **Mar 2022 mar 2022**	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)	●	○	⌓

Food and Agriculture Organization of the United Nations

No. 523 2 MAY 2022

Desert Locust Bulletin

General situation during April 2022
Forecast until mid-June 2022

WESTERN REGION: CALM

SITUATION. No locusts present.

FORECAST. Possibility of small-scale breeding in parts of **Morocco** and **Algeria** will decline during May. Low numbers of adults may be present and persist in northern **Mali** and **Niger**. No significant developments are likely.

CENTRAL REGION: CALM

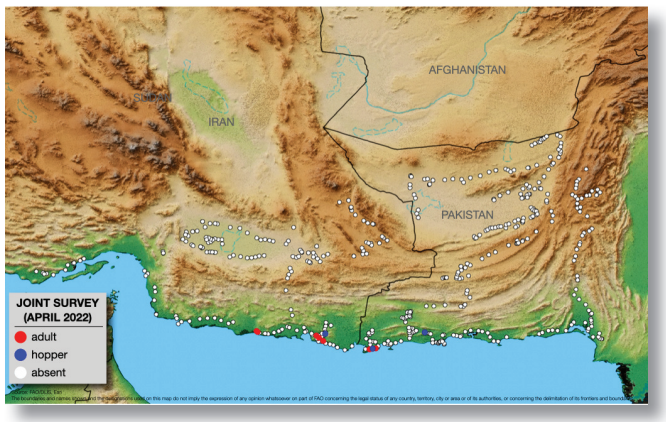
SITUATION. A few small remnant immature swarms persisted in southern **Ethiopia** (30 ha treated). Local concentrations of hoppers remained on the Red Sea coast of **Egypt** (340 ha). Isolated adults prevailed in a few places on the Gulf of Aden coast in southern **Yemen**. No locusts reported elsewhere in the region.

FORECAST. Any adults remaining in southern **Ethiopia** will move north to areas of recent rainfall in the Somali region where small-scale breeding could occur. Locusts will decline along the southern coast of **Yemen** as vegetation dries out and adults move to the interior and breed in areas that receive rainfall. Low numbers of solitarious adults may appear in areas of recent rain in the interior of **Saudi Arabia** but breeding is expected to be limited as temperatures increase. No significant developments are likely.

EASTERN REGION: CALM

SITUATION. Isolated adults and hoppers in coastal areas of southeast **Iran** and southwest **Pakistan**.

FORECAST. Locusts will decline in **Iran** and **Pakistan**, and further breeding is not expected. No significant developments are likely.



CALM SITUATION WILL CONTINUE

The Desert Locust situation remained calm during April as little rain fell and dry vegetation prevailed for a third consecutive month. In the Horn of Africa, a few small remnant immature swarms remained during the first week in southern Ethiopia where they are likely to move north to eastern parts of the Somali region to mature and breed on a small scale in areas of recent rainfall. Local hopper concentrations were treated in southeast Egypt, and isolated adults persisted on the southern coast of Yemen where they could move to the interior and breed on a small scale in areas that receive rainfall. The annual joint survey covered 17 000 km in southeast Iran and southwest Pakistan and found only isolated adults and hoppers in a few coastal areas, confirming that very little breeding occurred this spring. No locusts were reported in the Western Region. The current situation will remain calm in all regions. The longer-term outlook indicates an active early monsoon season along the Indo-Pakistan border and above-normal rainfall in the northern Sahel of Africa, the Yemen interior, and northeast Ethiopia from July to September. However, it would take several generations of successful breeding before locust numbers could increase to threatening levels; hence, the situation is expected to remain calm to at least October.

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: eclo@fao.org / faodlislocust@gmail.com
Internet: www.fao.org/ag/locusts
Facebook/Twitter: faolocust

Weather & Ecological Conditions in April 2022

Dry conditions prevailed in nearly all areas except for eastern Ethiopia and the interior of Saudi Arabia where good rains fell, and vegetation was becoming green.

WESTERN REGION

No significant rain fell and dry, unfavourable breeding conditions prevailed throughout the region during April. The only vegetation that was green was near a few irrigated areas in the central Sahara of Algeria. In West Africa, the Inter-Tropical Convergence Zone (ITCZ) continued its seasonal movement northwards but remained well south of the locust breeding areas even though its position was about 250 km further north than usual in southern Chad.

CENTRAL REGION

During April, ecological conditions were not favourable for breeding due to poor rains and dry conditions throughout the region. In the Horn of Africa, rainfall was generally limited to the Rift Valley in southern Ethiopia but light to moderate rains extended to the Somali region as well as southern and central Somalia during the second decade. There were substantial areas where vegetation was becoming green in the Somali region of eastern Ethiopia south of El Kere as well as further north between Kebri Dehar and Warder, and in southern and central Somalia as far north as Galkayo. In the interior of Saudi Arabia, light to moderate rains fell between Al Dawadimi and Gassim during the second and third decades, extending north to the Nafud Desert at times. There were small and limited areas where vegetation was becoming green between Gassim and Hail and near Wadi Dawasir. Locally heavy rains in the southern Asir Mountains caused some wadis to flood. Vegetation continued to dry out in winter breeding areas along both sides of the Red Sea and Gulf of Aden.

EASTERN REGION

No rain fell during the first decade of April in the region; however, light rains fell in the second decade in the Jaz Murian Basin of southeast Iran and from Lasbela to Khuzdar in the eastern portion of Baluchistan in southwest Pakistan. Lighter rain fell in the Kharan Valley and near Dalbandin in northern Baluchistan. Nevertheless, ecological conditions remained unusually dry due to poor spring rains and breeding conditions were not favourable.

Area Treated

Egypt 340 ha
Ethiopia 30 ha

Desert Locust Situation and Forecast

ALGERIA

• **SITUATION**

During April, no locusts were seen in the central Sahara between Reggane (2643N/0010E) and In Salah (2712N/0229E) and in the Adrar Valley (2753N/0017W).

• **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**

No significant developments are likely.

MALI

• **SITUATION**

No locusts were reported during April.

• **FORECAST**

Low numbers of locusts may be present and could persist in parts of Timetrine and the Adrar des Iforas.

MAURITANIA

• **SITUATION**

No locusts were reported during April.

• **FORECAST**

No significant developments are likely.

MOROCCO

• **SITUATION**

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

• **FORECAST**

The likelihood of very small-scale and limited breeding in the Draa and Sakia El Hamra valleys as well as in the Adrar Settouf of Western Sahara will decline as May progresses.

NIGER

• **SITUATION**

No locusts were reported during April.

• **FORECAST**

Low numbers of adults may be present and could persist in parts of the Air Mountains. 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, 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.

CENTRAL REGION

Djibouti

• **SITUATION**

A late report indicated that no locusts were seen on the coast near Tadjourah (1147N/4253E) and to the west of Djibouti (113431N430847E) town during March. No locusts were reported in April.

• **FORECAST**

No significant developments are likely.

Egypt

• **SITUATION**

During the last week of April, ground teams treated 340 ha of scattered solitarious and *transiens* fourth instar hoppers that were concentrating in the limited vegetation that remained green on the Red Sea coast near Abu Ramad (2224N/3624E). No locusts were seen elsehwere on the coast or near Lake Nasser between Abu Simbel (2219N/3138E) and Tushka (2247N/3126E).

• **FORECAST**

Locust numbers will decline further along the Red Sea coast and no significant developments are likely.

Eritrea

• **SITUATION**

No locusts were reported during April.

• **FORECAST**

No significant developments are likely.

Ethiopia

• **SITUATION**

During the first week of April, a few small immature swarms persisted in southern Oromia between Teltele (0504N/3723E) and the Rift Valley. Ground teams treated 30 ha on the 4th. No locusts were seen between Teltele and Mega (0403N/3819E) and in the Somali region near Jijiga (0922N/4250E).

• **FORECAST**

Locusts will decline in the south as a limited number of adult groups and perhaps a few small remnant swarms could appear further north in areas of recent rainfall in the eastern portion of the Somali region and breed on a small scale.

Kenya

• **SITUATION**

No locusts were seen or reported during April.

• **FORECAST**

No significant developments are likely.

Oman

• **SITUATION**

During April, no locusts were seen in the northern interior between Adam (2223N/5731E) and Nizwa (2255N/5731E), near Buraimi (2415N/5547E), and on the northern coast.

• **FORECAST**

Isolated adults may be present in a few places of the northern interior and coast, but the likelihood of limited small-scale breeding will decline as May progresses.

Saudi Arabia

• **SITUATION**

During April, no locusts were seen during surveys carried out on the Red Sea coast near Jizan (1656N/4233E), Yenbo (2405N/3802E) and Umm Lajj (2501N/3716E), in adjacent areas of the Asir Mountains, in the northern interior near Al Jawf (2948N/3952E) and Tabuk (2823N/3635E), and in the southwest near Najran (1729N/4408E).

• **FORECAST**

Low numbers of adults may appear in areas of recent rainfall in the interior, but breeding is expected to be limited as temperatures increase. No significant developments are likely.

Somalia

• **SITUATION**

During April, no locusts were reported in the northwest (Somaliland), northeast (Puntland), and in central areas near Galkayo (0646N/4725E). In addition, focal points did not see locusts in areas of recent rainfall on the plateau northwest of Boroma (0956N/4313E) and near Erigavo (1040N/4720E).

• **FORECAST**

No significant developments are likely.

Sudan

• **SITUATION**

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

• **FORECAST**

Isolated adults may appear near a few cropping areas in the Nile Valley between Shendi and Dongola. No significant developments are likely.

Yemen

• SITUATION

During April, isolated immature solitarious adults prevailed in a few places on the southern coast west of Aden (1250N/4503E) near Am Rija (1302N/4434E). No locusts were seen elsewhere along the Gulf of Aden coast to Mayfa'a (1416N/4735E). No surveys were carried out along the Red Sea coastal plains.

• FORECAST

Locusts will decline on the Gulf of Aden coast as low numbers of adults are likely to move to the interior and breed on a small scale in areas that receive rainfall.

Bahrain, D.R. Congo, Iraq, Israel, Jordan, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syria, Tanzania, Turkey, UGANDA, and UAE

• FORECAST

No significant developments are likely.

EASTERN REGION

Afghanistan

• SITUATION

No locust reports were received in April.

• FORECAST

No significant developments are likely.

India

• SITUATION

During April, no locusts were seen by surveys in Rajasthan and Gujarat.

• FORECAST

No significant developments are likely.

Iran

• SITUATION

During April, a few isolated mature solitarious adults were present on the southeast coast near Zarabad (2534N/5923E) and Chabahar (2517N/6036E). Very limited breeding occurred near Chabahar where a fourth instar solitarious hopper was seen, suggesting that laying occurred locally in early March. No locusts were seen elsewhere in coastal and interior areas of the south, and in the northeast.

• FORECAST

Locust numbers will decline on the coast and no significant developments are likely.

Pakistan

• SITUATION

During April, a few isolated immature and mature solitarious adults were present on the southwest coast near Jiwani (2502N/6150E) and in the Kolanch Valley west of Pasni (2515N/6328E). Very limited breeding occurred in both areas where a few fourth and fifth instar solitarious and *transiens* hoppers and fledglings were seen, suggesting that laying occurred during the last week of February and first half of March. No locusts were seen elsewhere on the coast or in the interior.

• FORECAST

Locust numbers will decline on the coast and no significant developments are likely.

Announcements

Locust warning levels

A colour-coded scheme indicates the seriousness of the current Desert Locust situation:

- **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. It indicates the alert level, perceived risk, or threat of current Desert Locust infestations to crops, and appropriate response.

Locust reporting

RAMSES data. Countries should connect to the Internet and backup the RAMSES database whenever data are added or changed. There is no longer the need to send data directly to DLIS.

Bulletins. Affected countries are encouraged to prepare decadal, fortnightly, or monthly bulletins that summarize 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 regular surveys and control, developed with Plant Village (http://tiny.cc/eL3m)
- 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 and planning field operations in each country. [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]

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)
- Hand-in-Hand (https://data.apps.fao.org)

Real-time evaluation report

The full report of the *2020–2021 Desert Locust upsurge real-time evaluation* is available: https://www.fao.org/ag/locusts/en/publicat/meeting/topic/2639/2641/index.html

2022 calendar

- **CRC.** 32nd session, Jeddah, Saudi Arabia (5–9 June)
- **DLCC.** 42nd session, Nairobi, Kenya (October or November, tbc)
- **CLCPRO.** 10th session, Algiers, Algeria (November, tbc)
- **SWAC.** Desert Locust Information Officer workshop, Tehran, Iran (5–7 December, tbc)
- **SWAC.** 33rd session, Esfahan, Iran (12–14 December, 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 km^2
- band: 1–25 m^2

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

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

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

Very large
- swarm: 500+ km^2
- band: 50+ ha

Rainfall

Light
- 1–20 mm

Moderate
- 21–50 mm

Heavy
- more than 50 mm

Summer rains and breeding areas
- July–September/October
- Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border

Winter rains and breeding areas
- October–January/February
- Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara

Spring rains and breeding areas
- February–June/July
- Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border

Other reporting terms

Breeding
- The process of reproduction from copulation to fledging

Recession
- Period without widespread and heavy infestations by swarms

Remission
- Period of deep recession marked by the complete absence of gregarious populations

Outbreak
- A marked increase in locust numbers due to concentration, multiplication and gregarisation which, unless checked, can lead to the formation of hopper bands and swarms

Upsurge
- A period following a recession marked initially by a very large increase in locust numbers and contemporaneous outbreaks

followed by the production of two or more successive seasons of transient-to- gregarious breeding in complimentary seasonal breeding areas in the same or neighbouring Desert Locust regions

Plague

- A period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously

Decline

- A period characterised by breeding failure and/or successful control leading to the dissociation of swarming populations and the onset of recessions; can be regional or major

Warning levels

Green

- *Calm*. 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

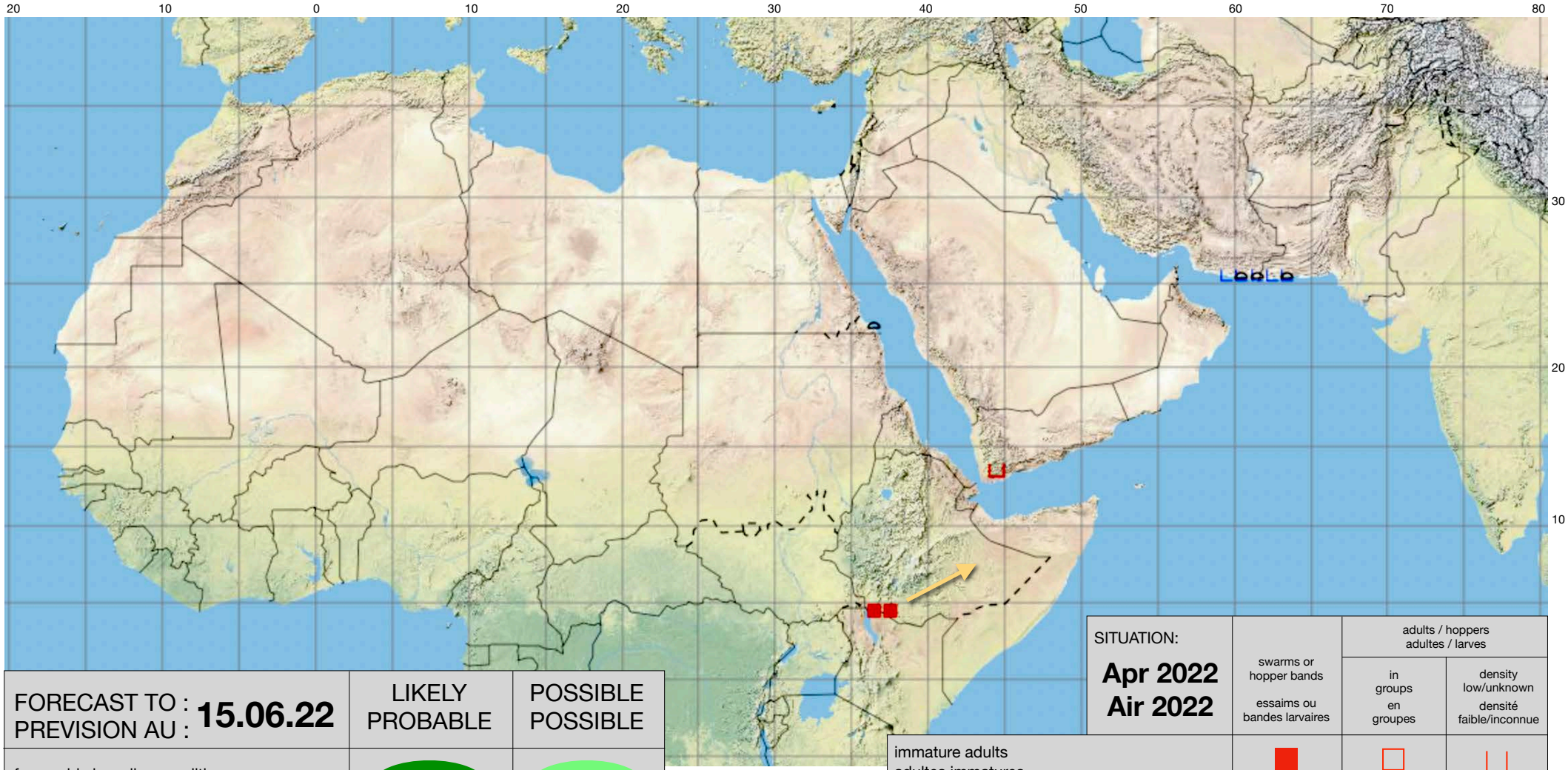
FAOLocust Facebook. Information exchange using social media
http://www.facebook.com/faolocust

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

523



FORECAST TO : PREVISION AU : **15.06.22**	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: **Apr 2022 Air 2022**	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)	●	○	⌓

Food and Agriculture Organization of the United Nations

No. 524 1 JUNE 2022

Desert Locust Bulletin

General situation during May 2022
Forecast until mid-July 2022

WESTERN REGION: CALM

SITUATION. No locusts present.

FORECAST. Small-scale breeding is likely to commence in the northern Sahel of **Mauritania**, **Mali**, **Niger**, and **Chad** during July with the onset of the summer rains. Locust numbers are expected to remain low, and no significant developments are likely.

CENTRAL REGION: CALM

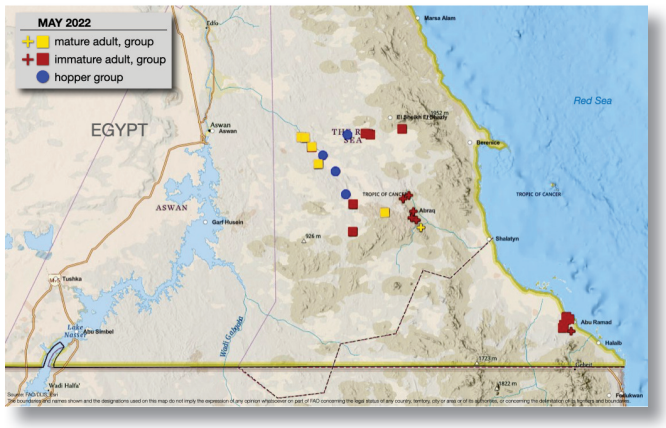
SITUATION. Local concentrations of hoppers and adults formed small groups in southeast **Egypt** (2 275 ha). No locusts reported elsewhere in the region.

FORECAST. Small-scale breeding is likely to commence in western **Eritrea** and the interior of **Sudan** and **Yemen** during July with the onset of the summer rains. Isolated breeding may occur in eastern **Ethiopia** during June and in the northeast (Afar region) during July. Locust numbers are expected to remain low in all breeding areas, and no significant developments are likely.

EASTERN REGION: CALM

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

FORECAST. Small-scale summer breeding is likely to commence along both sides of the Indo-Pakistan border during July with the onset of the monsoon rains. Locust numbers are expected to remain low, and no significant developments are likely.



CALM SITUATION PREVAILS

The Desert Locust situation continued to remain calm during May. Ecological conditions were dry and unfavourable for breeding in all regions because of a lack of rainfall. Small locust infestations were present in southeast Egypt and southwest Pakistan. In Egypt, hoppers and adults concentrated in the little vegetation that remained green near the Red Sea coast and formed several small groups that were treated. There is a limited risk that any undetected adult groups could move south to cropping areas in the Nile Valley in northern Sudan. In Pakistan, a few spring-bred solitarious adults were present on the southwest coast. During the forecast period, small-scale breeding is likely to commence in the summer breeding areas of the northern Sahel between Mauritania and western Eritrea and along both sides of the Indo-Pakistan border. Limited breeding may also occur in the interior of Yemen and perhaps in parts of eastern and northeast Ethiopia. These areas are likely to receive above-normal rains from July to September due to a persistent La Niña and a negative Indian Ocean Dipole that are expected to intensify further. Nevertheless, it would take several generations of successful breeding before locust numbers could increase to threatening levels; hence, the situation is expected to remain calm to at least October.

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: eclo@fao.org / faodlislocust@gmail.com
Internet: www.fao.org/ag/locusts
Facebook/Twitter: faolocust

Weather & Ecological Conditions in May 2022

No significant rain fell, vegetation was mainly dry and breeding conditions were unfavourable in all areas.

WESTERN REGION

No significant rain fell and unfavourable breeding conditions prevailed throughout the region during May. The only vegetation that was green was in Algeria near a few irrigated areas in the Adrar Valley and in Wadi Amded to the west of Tamanrasset in the south. In West Africa, the Inter-Tropical Convergence Zone (ITCZ) continued its seasonal movement northwards but remained well south of the locust breeding areas and its historical position between Mauritania and Niger. In Chad, the ITCZ reached Ati (Batha) by 20 May, which was about 100 km further north than usual. High temperatures were reported throughout the Sahel.

CENTRAL REGION

During May, ecological conditions continued to be unfavourable for breeding due to poor rains and dry conditions throughout the region. The only rain that was reported was in parts of Ethiopia where light rains fell in a few places of East Harerghe zone in the Somali region south of Jijiga and in southern Oromia. Annual vegetation was becoming green in the Somali region east and south of Jijiga to the Somalia border, extending to Las Anod in northeast Somalia. In Sudan, the Inter-Tropical Convergence Zone (ITCZ) continued its seasonal movement northwards and reached Zalingei in South Darfur and En Nahud in South Kordofan by 20 May, which was up to 175 km further north than usual. In Saudi Arabia, temperatures increased in the interior, and vegetation was green on the southern Red Sea coast close to Jizan and near irrigated areas in the northern interior of Al Jawf. In Yemen, limited areas were green from runoff along the eastern side of the highlands east of Sana'a and near Bayhan as well as in the Hadhramaut Valley.

EASTERN REGION

No significant rain fell and unfavourable breeding conditions prevailed throughout the region during May.

Area Treated

Egypt	2 275 ha

Desert Locust Situation and Forecast

WESTERN REGION

ALGERIA

• **SITUATION**

During May, no locusts were seen in the central Sahara along the Adrar Valley (2753N/0017W) and in the southern Sahara to the west of Tamanrasset (2250N/0528E) in Wadi Amded.

• **FORECAST**

No significant developments are likely.

CHAD

• **SITUATION**

No locusts were reported during May.

• forecast

Low numbers of solitarious adults are likely to appear in the northern Sahel during July when summer rains are expected to commence, which will be followed by small-scale breeding.

LIBYA

• **SITUATION**

No locusts were reported during May.

• **FORECAST**

No significant developments are likely.

MALI

• **SITUATION**

No locusts were reported during May.

• **FORECAST**

Low numbers of locusts may be present in parts of Timetrine and the Adrar des Iforas where small-scale breeding is expected once summer rains commence during July.

MAURITANIA

• **SITUATION**

No locusts were reported during May.

• **FORECAST**

Low numbers of solitarious adults are likely to appear in the southeast during July when summer rains are expected to commence, which will be followed by small-scale breeding.

MOROCCO

• **SITUATION**

No surveys were carried out and no locusts were reported during May.

• **FORECAST**

No significant developments are likely.

NIGER

• **SITUATION**

No locusts were reported during May.

• **FORECAST**

Low numbers of solitarious adults are likely to appear in central pasture areas and on the Tamesna Plains during July when summer rains are expected to commence, which will be followed by small-scale breeding.

Senegal

• **SITUATION**

No locusts were reported during May.

• **FORECAST**

No significant developments are likely.

Tunisia

• **SITUATION**

No locusts were reported during May.

• **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.

CENTRAL REGION

Djibouti

• **SITUATION**

No locusts were reported during May.

• **FORECAST**

No significant developments are likely.

Egypt

• **SITUATION**

During May, fifth and sixth instar hoppers and immature adults concentrated in the little vegetation that remained green and formed a few small groups along Wadi Garara (2352N/3359E) and nearby wadis in the Red Sea Hills to the west of El Sheikh El Shazly (2412N/3438E). Immature adults also formed a few small groups on the coast in the southeast near Abu Ramad (2224N/3624E) while scattered adults were present near Abraq (2323N/3451E). Ground teams treated 2 275 ha during May. No locusts were seen near farms in the Sh. Oweinat (2219N/2845E) area of the southern interior.

• **FORECAST**

Scattered adults and perhaps a few small groups may persist in the southeast, but they will decline and no significant developments are likely.

Eritrea

• **SITUATION**

No locusts were reported during May.

• **FORECAST**

Low numbers of solitarious adults are likely to appear in the western lowlands during July when summer rains are expected to commence, which will be followed by small-scale breeding.

Ethiopia

• **SITUATION**

During May, no locusts were seen by surveys conducted in the Somali region between Dire Dawa (0935N/4150E) and Ayasha (1045N/4234E), from Jijiga (0922N/4250E) to Degeh Bur (0813N/4333E), and in the east near Warder (0658N/4520E). In southern Oromia, no locusts were present near Teltele (0504N/3723E) .

• **FORECAST**

There is a low possibility that small-scale breeding could occur in areas of recent rainfall in the eastern portion of the Somali region. During July, low numbers of adults may appear in Afar where small-scale breeding could occur once rains fall. No significant developments are likely.

Kenya

• **SITUATION**

No locusts were seen or reported during May.

• **FORECAST**

No significant developments are likely.

Oman

• **SITUATION**

During May, no locusts were seen in the northern interior between Adam (2223N/5731E) and Nizwa (2255N/5731E), near Buraimi (2415N/5547E), on the northern coast, and in the south near Thumrait (1736N/5401E).

• **FORECAST**

No significant developments are likely.

Saudi Arabia

• **SITUATION**

During the first week of May, no locusts were seen by surveys on the Red Sea coast from Jizan (1656N/4233E) to Duba (2719N/3546E), in adjacent areas of the Hijaz and Asir Mountains, the southwest interior near Najran (1729N/4408E) and the Yemen border, and in the northern interior between Al Jawf (2948N/3952E), Tabuk (2823N/3635E), and the Jordan border.

• **FORECAST**

No significant developments are likely.

Somalia

• **SITUATION**

During May, no locusts were seen by surveys in the northwest (Somaliland), northeast (Puntland), and central areas near Galkayo (0646N/4725E). In addition, no locusts were seen along the Shebelle River north of Mogadishu (0202N/4520E).

• **FORECAST**

Isolated adults may be present in the northeast between Las Anod and the Ethiopia border. No significant developments are likely.

Sudan

• **SITUATION**

No surveys were carried out and no locusts were reported during May.

• **FORECAST**

A few small groups from the northeast could arrive in the northern Nile Valley between Dongola and Shendi. Low numbers of solitarious adults are likely to appear between North Darfur and Kassala states during July when summer rains are expected to commence.

Yemen

• **SITUATION**

During May, no locusts were seen during surveys in the interior near Al Hazm (1610N/4446E), Marib (1527N/4519E), Bayhan (1452N/4545E), and Ataq (1435N/4649E), the Hadhramaut Valley, the plateau from Thamud (1717N/4955E) to the Oman border, and in the east between Shehan (1746N/5229E) and Al Ghaydah (1612N/5210E).

• **FORECAST**

Small-scale breeding may occur in interior areas that receive rainfall at the end of the forecast period.

Bahrain, D.R. Congo, Iraq, Israel, Jordan, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syria, Tanzania, Turkey, Uganda, and UAE

• **FORECAST**

No significant developments are likely.

EASTERN REGION

Afghanistan

• **SITUATION**

No locust reports were received in May.

• **FORECAST**

No significant developments are likely.

India

• **SITUATION**

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

• **FORECAST**

Low numbers of solitarious adults may appear in parts of eastern Rajasthan during July when summer monsoon rains are expected to commence.

Iran

• **SITUATION**

No locusts were seen by surveys in southern coastal areas and in the northeast during May.

• **FORECAST**

No significant developments are likely.

Pakistan

• **SITUATION**

During May, a few isolated solitarious adults were maturing on the southwest coast near Jiwani (2502N/6150E) and Pasni (2515N/6328E). No locusts were seen elsewhere on the coast or in the interior.

• **FORECAST**

Low numbers of solitarious adults may appear in parts of Tharparkar, Nara and Cholistan during July when summer monsoon rains are expected to commence.

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 (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]

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]

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)

Real-time evaluation report

The full report of the *2020–2021 Desert Locust upsurge real-time evaluation* is available: http://tiny.cc/RTE2022

2022 calendar

- **CRC.** 32nd session, Jeddah, Saudi Arabia (5–9 June)
- **DLCC.** 42nd session, Nairobi, Kenya (October/November, tbc)
- **CLCPRO.** 10th session, Algiers, Algeria (November, tbc)
- **SWAC.** Desert Locust Information Officer workshop, Tehran, Iran (5–7 December, tbc)
- **SWAC.** 33rd session, Esfahan, Iran (11–13 December, 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 km^2
- band: 1–25 m^2

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

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

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

Very large
- swarm: 500+ km^2
- band: 50+ ha

Rainfall

Light
- 1–20 mm

Moderate
- 21–50 mm

Heavy
- more than 50 mm

Summer rains and breeding areas
- July–September/October
- Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border

Winter rains and breeding areas
- October–January/February
- Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara

Spring rains and breeding areas
- February–June/July
- Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border

Other reporting terms

Breeding

- The process of reproduction from copulation to fledging

Recession

- Period without widespread and heavy infestations by swarms

Remission

- Period of deep recession marked by the complete absence of gregarious populations

Outbreak

- A marked increase in locust numbers due to concentration, multiplication and gregarisation which, unless checked, can lead to the formation of hopper bands and swarms

Upsurge

- A period following a recession marked initially by a very large increase in locust numbers and contemporaneous outbreaks followed by the production of two or more successive seasons of transient-to- gregarious breeding in complimentary seasonal breeding areas in the same or neighbouring Desert Locust regions

Plague

- A period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously

Decline

- A period characterised by breeding failure and/or successful control leading to the dissociation of swarming populations and the onset of recessions; can be regional or major

Warning levels

Green

- *Calm*. 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

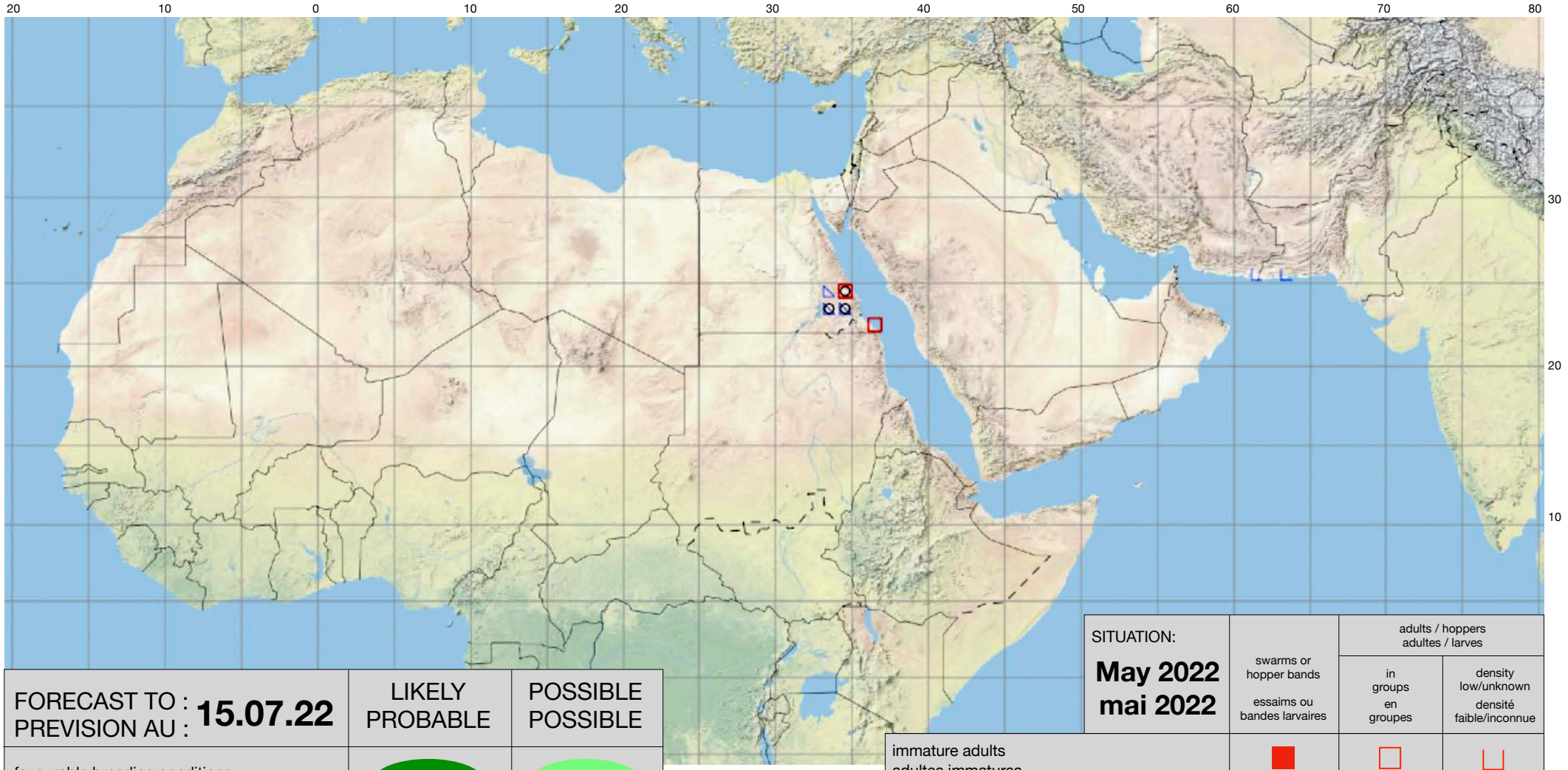
FAOLocust Facebook. Information exchange using social media
http://www.facebook.com/faolocust

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

524



FORECAST TO : PREVISION AU : **15.07.22**	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: **May 2022 mai 2022**	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)	●	○	⌓

Food and Agriculture Organization of the United Nations

No. 525 1 JULY 2022

Desert Locust Bulletin

General situation during June 2022
Forecast until mid-August 2022

WESTERN REGION: CALM

SITUATION. Low numbers of adults in the central and southern Sahara of **Algeria**.

FORECAST. Small-scale breeding will occur in the northern Sahel of **Mauritania**, **Mali**, **Niger**, and **Chad** with the onset of the summer rains. Locust numbers are expected to remain low, and no significant developments are likely.

CENTRAL REGION: CALM

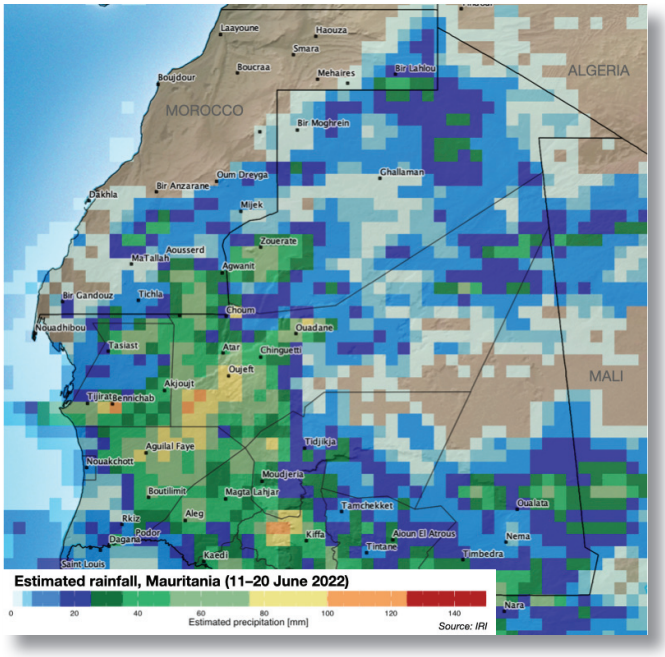
SITUATION. Low numbers of adults persist in southeast **Egypt**.

FORECAST. Small-scale breeding will occur in western **Eritrea** and the interior of **Sudan** and **Yemen** with the onset of the summer rains. Isolated breeding may occur in northeast **Ethiopia**. Locust numbers are expected to remain low in all breeding areas, and no significant developments are likely.

EASTERN REGION: CALM

SITUATION. No locusts present.

FORECAST. Small-scale summer breeding will occur along both sides of the Indo-Pakistan border with the onset of the monsoon rains. Locust numbers are expected to remain low, and no significant developments are likely.



SUMMER RAINS START IN SOME AREAS

The Desert Locust situation continued to remain calm during June. Only low numbers of solitarious adults persisted in southeast Egypt and near irrigated areas in the Sahara of Algeria. No control operations were required during the month. Due to a persistent La Niña, seasonal rains commenced earlier than normal as expected in some southern parts of the summer breeding areas in the northern Sahel between Mauritania and western Eritrea. Rains were more heavier and widespread in Mauritania. Nevertheless, vegetation remained mostly dry but was starting to become green in parts of central Niger, the interior of Sudan, and eastern Ethiopia. In response to a negative Indian Ocean Dipole, pre-monsoon rains fell in some areas along the Indo-Pakistan border that should cause annual vegetation to become green. During the forecast period, small-scale breeding will occur in the northern Sahel from Mauritania to western Eritrea and along both sides of the Indo-Pakistan border. This will cause locust numbers to increase slightly but remain well below threatening levels. Limited breeding may also occur in northeast Ethiopia and in the interior of Yemen if rains fell during the forecast period.

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: eclo@fao.org / faodlislocust@gmail.com
Internet: www.fao.org/ag/locusts
Facebook/Twitter: faolocust

Weather & Ecological Conditions in June 2022

Rains began to fall in the summer breeding areas of the northern Sahel in Africa and along the Indo-Pakistan border. Heavy rains fell from west to northern Mauritania.

WESTERN REGION

The Inter-Tropical Convergence Zone (ITCZ) continued its seasonal movement northwards in West Africa and arrived in the summer breeding areas during the second decade of June when it reached Tamchekket and Oualata in southern Mauritania, north of Gourma in central Mali, Tchin in central Niger, and Arada in eastern Chad. The ITCZ was up to 200 km further north than usual in Mauritania, central Mali and Chad but was slightly further south than normal in Niger. As a result, light rain commenced in central Mali and eastern Chad during the first decade. This was followed by widespread moderate to heavy rains in Tiris-Zemmour (Fdeirik 32 mm, Zouerate 44), Inchiri (Bennichab 124 mm), Adrar (Ouadane 93 mm), Trarza (Boutilimit 93 mm), and Tagant (Nbeika 52 mm) of north, northwest and west Mauritania. Some showers reached the southern parts of Western Sahara in Morocco. Lighter rains fell in south and southeast Mauritania, central and northern Mali, and parts of central Niger and eastern Chad. Despite these rains, annual vegetation remained mostly dry throughout the summer breeding areas in the northern Sahel; however, it was starting to become green between Tchin and Abalak in central Niger.

CENTRAL REGION

The Inter-Tropical Convergence Zone (ITCZ) continued its seasonal movement northwards over Sudan and arrived in the summer breeding areas during the second decade of June when it reached Mellit in North Darfur, some 100 km further north than usual. Its position remained normal of North Kordofan where it was located north of El Obeid. As a result, light to moderate rains fell in West and North Darfur, White Nile, and southern parts of North Kordofan in Sudan, and southern areas of the western lowlands in Eritrea. Despite these rains, annual vegetation remained dry except north of Zalingei in Darfur and between Umm Badr and Nahud in Kordofan where it was starting to become green. Localized, light showers may have occurred in the Afar region of northeast Ethiopia and near Jijiga in the Somali region. Annual vegetation remained dry in Afar but was starting to green up in small, localized areas of the Somali region between Jijiga and Degeh Bur, and near Kebri Dehar. Dry conditions prevailed in the summer breeding areas in the interior of Yemen.

EASTERN REGION

Late rains fell in the spring breeding area in eastern Baluchistan, Pakistan while pre-monsoon rains fell in the summer breeding areas of Cholistan, Pakistan and parts of Rajasthan, India. Consequently, annual vegetation was becoming green in parts of Cholistan but remained dry in most other areas.

Area Treated

No control operations were carried out during June.

Desert Locust Situation and Forecast

WESTERN REGION

Algeria

• **SITUATION**

During June, scattered immature solitarious adults, including one group, were present near irrigated perimeters in the Adrar Valley (2753N/0017W) of the central Sahara. Isolated mature solitarious adults were seen in the southern Sahara to the west of Tamanrasset (2250N/0528E).

• **FORECAST**

No significant developments are likely.

Chad

• **SITUATION**

No locusts were reported during June.

• forecast

Low numbers of solitarious adults are likely to appear in the northern Sahel and breed on a small-scale in areas that receive summer rains.

Libya

• **SITUATION**

No locusts were reported during June.

• **FORECAST**

No significant developments are likely.

Mali

• **SITUATION**

No locusts were reported during June.

• **FORECAST**

Low numbers of locusts may be present in parts of Timetrine and the Adrar des Iforas where small-scale breeding is expected in areas that receive summer rains.

Mauritania

• **SITUATION**

No locusts were reported during June.

• FORECAST

Low numbers of solitarious adults are likely to appear throughout the south and breed on a small-scale in areas of recent rains.

Morocco

• SITUATION

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

• FORECAST

No significant developments are likely.

Niger

• SITUATION

No locusts were reported during June.

• FORECAST

Low numbers of solitarious adults are likely to appear in central pasture areas and on the Tamesna Plains and breed on a small-scale in areas that receive summer rains.

Senegal

• SITUATION

No locusts were reported during June.

• FORECAST

No significant developments are likely.

Tunisia

• SITUATION

No locusts were 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.

CENTRAL REGION

Djibouti

• SITUATION

No locusts were reported during June.

• FORECAST

No significant developments are likely.

Egypt

• SITUATION

During June, scattered mature solitarious adults were present at a few places near the Red Sea coast in the southeast between Shalatyn (2308N/3535E) and Abraq (2323N/3451E). No locusts were seen on the coast between Abu Ramad (2224N/3624E) and the Sudan border, in the Nile Valley near Abu Simbel (2219N/3138E), Tushka (2247N/3126E), and north of Aswan (2405N/3256E).

• FORECAST

No significant developments are likely.

Eritrea

• SITUATION

No locusts were reported during June.

• FORECAST

Low numbers of solitarious adults are likely to appear in the western lowlands and breed on a small-scale in areas that receive summer rains.

Ethiopia

• SITUATION

During June, no locusts were seen by surveys conducted in the Somali region from Jijiga (0922N/4250E) and Degeh Bur (0813N/4333E) to eastern areas near Kebri Dehar (0644N/4416E), Warder (0658N/4520E) and the Somalia border, and south of El Kere (0550N/4205E) and Gode (0557N/4333E). Locusts were also absent in southern Oromia near Teltele (0504N/3723E).

• FORECAST

Low numbers of adults may appear in Afar where small-scale breeding could occur in areas that receive summer rains. No significant developments are likely.

Kenya

• SITUATION

No locusts were seen or reported during June.

• FORECAST

No significant developments are likely.

Oman

• SITUATION

During June, no locusts were seen in the northern interior between Nizwa (2255N/5731E) and Buraimi (2415N/5547E) and on the northern Batinah coast.

• FORECAST

No significant developments are likely.

Saudi Arabia

• SITUATION

No locusts were reported during June.

• FORECAST

No significant developments are likely.

Somalia

• SITUATION

During June, no locusts were seen by surveys on the plateau in the northwest (Somaliland) from Boroma (0956N/4313E) to Burco (0931N/4533E) and in the northeast (Puntland) between Las Anod (0828N/4721E), Garowe (0824N/4829E), Bosaso (1118N/4910E), and Iskushuban (1017N/5014E) as well as in central areas near Galkayo (0646N/4725E).

• FORECAST

No significant developments are likely.

Sudan

• SITUATION

During June, no locusts were seen in the Nile Valley between Khartoum (1533N/3235E) and Atbara (1742N/3400E).

• FORECAST

A few small groups from the northeast could arrive in the northern Nile Valley between Dongola and Shendi. Low numbers of solitarious adults are likely to appear between North Darfur and Kassala states and breed on a small-scale in areas that receive summer rains.

Yemen

• SITUATION

During June, no locusts were seen during intensive surveys in the interior from Al Hazm (1610N/4446E) to Ataq (1435N/4649E), Shabwah (1522N/4700E), Minwakh (1650N/4812E), the Hadhramaut Valley, on the plateau north of Sayun (1559N/4844E) and near Hat (1719N/5205E) and the Oman border, and along the eastern coast near Al Ghaydah (1612N/5210E).

• FORECAST

Small-scale breeding may occur in interior areas that receive summer rains.

Bahrain, D.R. Congo, Iraq, Israel, Jordan, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syria, Tanzania, Turkey, Uganda, and UAE

• FORECAST

No significant developments are likely.

EASTERN REGION

Afghanistan

• SITUATION

No locust reports were received in June.

• FORECAST

No significant developments are likely.

India

• SITUATION

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

• FORECAST

Low numbers of solitarious adults may appear in parts of eastern Rajasthan and breed on a small-scale once monsoon rains commence.

Iran

• SITUATION

No locusts were seen by surveys in the southeast and northeast during June.

• FORECAST

No significant developments are likely.

Pakistan

• SITUATION

During June, no locusts were seen in the spring breeding areas along the coast in Baluchistan from Jiwani (2502N/6150E) to west of Karachi (2450N/6702E). Similarly, no locusts were seen in the summer breeding areas in Tharparkar, Nara and Cholistan deserts.

• FORECAST

Low numbers of solitarious adults may appear in parts of Tharparkar, Nara and Cholistan and breed on a small-scale once monsoon rains commence.

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 (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]

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]

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)

Real-time evaluation report

The full report of the *2020–2021 Desert Locust upsurge real-time evaluation* is available: http://tiny.cc/RTE2022

2022–2023 calendar

- **CLCPRO.** 10th session, Algiers, Algeria (27 November – 1 December, tbc)
- **SWAC.** Desert Locust Information Officer workshop, Tehran, Iran (5–7 December)
- **SWAC.** 33rd session, Esfahan, Iran (11–13 December)
- **DLCC.** 42nd session (March, Kenya, 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 km^2
- band: 1–25 m^2

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

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

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

Very large
- swarm: 500+ km^2
- band: 50+ ha

Rainfall

Light
- 1–20 mm

Moderate
- 21–50 mm

Heavy
- more than 50 mm

Summer rains and breeding areas
- July–September/October
- Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border

Winter rains and breeding areas
- October–January/February
- Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara

Spring rains and breeding areas
- February–June/July
- Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border

Other reporting terms

Breeding
- The process of reproduction from copulation to fledging

Recession

- Period without widespread and heavy infestations by swarms

Remission

- Period of deep recession marked by the complete absence of gregarious populations

Outbreak

- A marked increase in locust numbers due to concentration, multiplication and gregarisation which, unless checked, can lead to the formation of hopper bands and swarms

Upsurge

- A period following a recession marked initially by a very large increase in locust numbers and contemporaneous outbreaks followed by the production of two or more successive seasons of transient-to- gregarious breeding in complimentary seasonal breeding areas in the same or neighbouring Desert Locust regions

Plague

- A period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously

Decline

- A period characterised by breeding failure and/or successful control leading to the dissociation of swarming populations and the onset of recessions; can be regional or major

Warning levels

Green

- *Calm*. 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

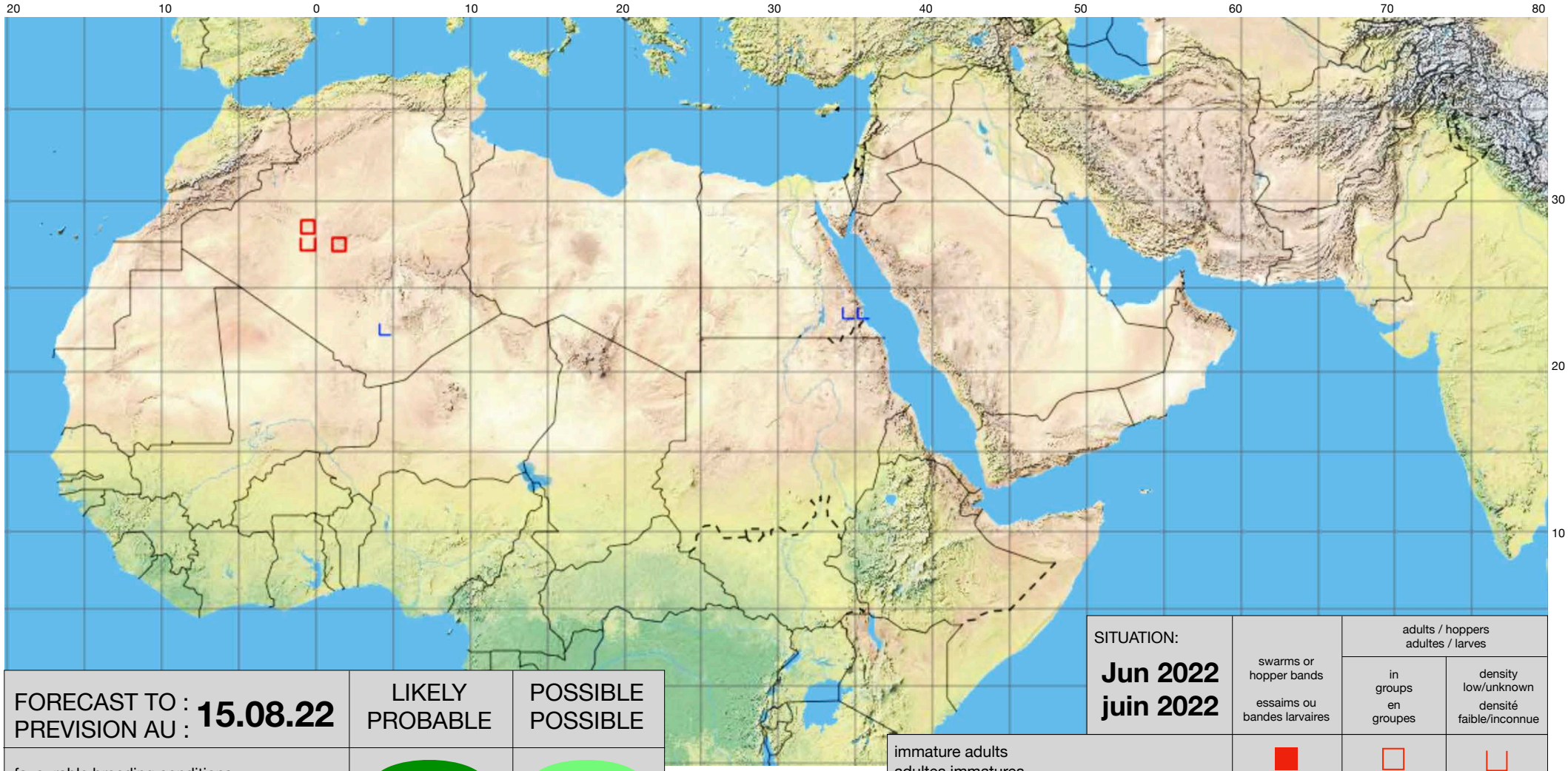
FAOLocust Facebook. Information exchange using social media
http://www.facebook.com/faolocust

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

525



FORECAST TO : PREVISION AU : **15.08.22**	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: **Jun 2022 juin 2022**	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)	●	○	⌓

Food and Agriculture Organization of the United Nations

No. 526 11 August 2022

Desert Locust Bulletin

General Situation during July 2022
Forecast until mid-September 2022

WESTERN REGION: CALM

SITUATION. No locust present.

FORECAST. Small-scale breeding will occur in the breeding areas of northern Sahel countries in the presence of a sufficient amount of rain. Scattered locusts could appear in the north of the Sahel (in Mauritania, Mali, Niger and Chad).

CENTRAL REGION: CALM

SITUATION. Few solitarious adult and hopper groups are present in the interior of Sudan and solitarious adults were present in the interior of Yemen.

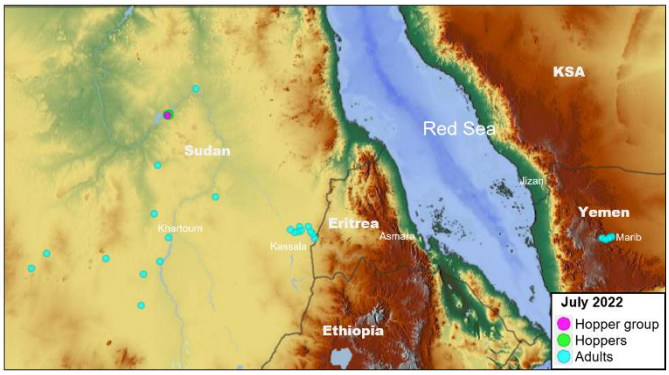
FORECAST. Small-scale breeding will continue in the summer breeding areas with sufficient rainfall in the interior of **Sudan**, and will start in **Yemen**, and to a lesser extent in western **Eritrea**. Limited breeding may also occur in **northeast Ethiopia** and **northwest Somalia** if sufficient rains fell during the forecast period.

The seasonal weather conditions in the Arabian Sea and the Indian Ocean that bring rain towards the south of the Arabian Peninsula, may allow small-scale locust breeding to take place in the Empty Quarter and traditional breeding areas in Oman and the southern parts of the Kingdom of Saudi Arabia.

EASTERN REGION: CALM

SITUATION. No locusts present.

FORECAST. Small-scale summer breeding may occur along both sides of the Indo-Pakistan border with the onset of the monsoon rains. Locust numbers are expected to remain low, and no significant developments are likely.



SUMMER RAINS STARTED IN SUMMER BREEDING AREAS

The Desert Locust situation continued to remain calm during July. Only low numbers of solitarious adults and hoper groups were reported from different sites in the summer breeding areas in the interior of Sudan, and few isolated immature solitarious adults were reported in the summer breeding areas of Marib Governorate in Yemen. July was characterized by heavy rains in the Sahel region (Mali, Niger and Mauritania), Oman, Yemen and India (Gujarat, Bikaner and Nagaur). Moderate rainfalls were recorded in the North African countries (southern Algeria, Libya and Morocco). Moderate to high rains fell in Eritrea, Ethiopia, Pakistan, Saudi Arabia, Somalia (Somaliland), and Sudan, while low to moderate rains fell in Djibouti and Egypt. The rains fell during July in the breeding areas have contributed to the creation of favourable ecological conditions (vegetation and soil moisture) for locust breeding, where vegetation was found greening/green and soil was observed to be wet or moist in breeding areas in several countries. As the predictable weather models indicated above-normal rains are likely in summer breeding areas during August and September, small-scale breeding will occur in the northern Sahel from Mauritania to western Eritrea, and in breeding areas with sufficient rainfall, particularly in Sudan and Yemen, and along both sides of the Indo-Pakistan border. Limited breeding may also occur in northeast Ethiopia and Somalia if good rains fall during the forecast period. These breeding activities will cause locust numbers to increase slightly by the end of the forecast period.

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: eclo@fao.org / faodlislocust@gmail.com
Internet: www.fao.org/ag/locusts
Facebook/Twitter: faolocust

Weather & Ecological Conditions in July 2022

WESTERN REGION

July was characterized by the rainy season in the Sahel with significant precipitations in Mali, Niger and Mauritania, while in Chad only the south and centre of the country have received light to moderate rains. In the North Africa countries, moderate rains fell on southern Algeria, Libya and Morocco with light showers in the Atlas and sporadic showers in the south. The Intertropical Convergence Zone (ITCZ) continued its seasonal movement; where it moved north during the 3rd decade of July in some areas of the western region, comparable to its previous position, namely in north of Mauritania, northeast of Mali and north of Chad, which is above the climatological position of 0.2 degrees. In the Sahel countries, ecological conditions are favourable in Mali and Mauritania and soon will become favourable for breeding in Niger and Chad, while in Algeria only irrigated agricultural schemes may be suitable for locust breeding.

CENTRAL REGION

Heavy rains fell in Oman, interior and highlands of Yemen, moderate to high rains fell in Eritrea, Ethiopia, Saudi Arabia, and Sudan, while low to moderate rains fell in Djibouti, Egypt, and Ethiopia. These rains are likely to allow ecological conditions to become more favourable for Desert Locust breeding during the coming period. In Somaliland, rainfall was recorded in the last week of July in the west of Berbera coastal areas (Ceelsheikh area). Green vegetation was observed in inland and sub-coastal in the western regions, Awdal, Gabiley and west of M/Jeex regions. Dry vegetation was observed in the eastern regions, Saaxil, Togdheer and Sanaag regions and soil moisture was dry in all surveyed locations.

EASTERN REGION

Heavy rain fell at coastal areas of Gujarat, India, and moderate to heavy rain in the breeding areas of India (Bikaner and Nagaur) and all the potential locust breeding areas of Pakistan (Tharparkar, Nara and Cholistan, Balochistan). Vegetation was found green/greening and soil observed to be wet or moist in the breeding areas of both countries, except some places. Poor rainfall was reported in Iran, where vegetation was dry or drying with high temperature and low soil moisture.

Area Treated

No control operations were carried out during July.

Desert Locust Situation and Forecast

WESTERN REGION

ALGERIA

• **SITUATION**

No locusts were reported in July.

• **FORECAST**

No *significant* developments are likely.

BURKINA-FASO

• **SITUATION**

No locusts were reported during July.

• **FORECAST**

No *significant* developments are likely.

CHAD

• **SITUATION**

No locusts were reported during July.

• forecast

The increasing rains in the gregarization areas would likely improve the ecological conditions for locust breeding and survival.

LIBYA

• **SITUATION**

No locusts were reported during July.

• **FORECAST**

No *significant* developments are likely.

MALI

• **SITUATION**

No locusts were reported during July.

• **FORECAST**

Small-scale breeding may occur in the north of the country in the Tamesna and Adrar des Iforas areas where rains have been recorded, but locust numbers will remain low.

MAURITANIA

• **SITUATION**

No locusts were reported during July.

• **FORECAST**

Small-scale breeding is expected in the areas that receive rains in the south and centre of the country and in Tiris Zemmour. Ecological conditions for breeding will improve and persist over the forecast period.

MOROCCO

• **SITUATION**

No surveys were carried out and no locusts were reported during July.

• **FORECAST**

No *significant* developments are likely.

NIGER

• **SITUATION**

No locusts were reported during July.

• **FORECAST**

Small-scale breeding of solitarious adults is likely to occur in the pasture areas and on the Tamesna Plains that receive summer rains.

SENEGAL

• **SITUATION**

No locusts were reported during July.

• **FORECAST**

No *significant* developments are likely.

TUNISIA

• **SITUATION**

No locusts were reported during July.

• **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 July.

• **FORECAST**

No *significant* developments are likely.

EGYPT

• **SITUATION**

During July, no locusts were seen during the surveys in southern Red Sea coastal plains near Halaib (2213N/3638E) and Abu-Ramad (2224N/3624E), the inner areas to the west of Marsa Alam (2504N/3454E), and near Lake Nasser in Abu-Simbel (2219N/3138E) and Toshka (2247N/3126E).

• **FORECAST**

No *significant* developments are likely.

ERITREA

• **SITUATION**

No locusts were reported during July.

• **FORECAST**

Low numbers of solitarious adults are likely to appear in the western lowlands and breed on a small-scale in areas that receive summer rains. No significant developments are likely.

ETHIOPIA

• **SITUATION**

No locusts were reported during July during the ground and aerial survey operations that were undertaken in the southern parts of Oromia region, and the southern Nations, Nationaliaties and peoples' region.

• **FORECAST**

No significant developments are likely.

KENYA

• **SITUATION**

No locusts were seen or reported during July.

• **FORECAST**

No *significant* developments are likely.

OMAN

• **SITUATION**

During July, no locusts were reported during surveys carried out in Al Dakhyliah, Al Batinah North, Al Batinah South, Al Buraimi and Musandam.

• **FORECAST**

Small scale breeding could occur in some traditional breeding areas, but no significant developments are likely.

SAUDI ARABIA

• **SITUATION**

No locusts were reported during July from surveys carried out in Makkah, Al-Madinah, Asir, Najran and Jazan regions.

• **FORECAST**

No *significant* developments are likely.

SOMALIA

• **SITUATION**

No locusts were reported during July.

• **FORECAST**

No *significant* developments are likely.

SUDAN

• **SITUATION**

During July, Low density immature and mature adult groups mixed with scattered adults, as well as 4th to 6th instar hopper groups and fledglings, from breeding in June, were found at one location near Derbi in the River Nile State where additional scattered mature solitarious adults were seen at other sites near Abu-Hamed and east of Shendi (1641N/3322E). Additional isolated and scattered mature solitarious adults were seen at several locations near Kassala (1527N/3623E). Low numbers of mature solitarious adults were reported at few sites in North Kordofan, White Nile and, west and east Khartoum states. No locusts were reported during surveys carried out in Sinkat in the Red Sea state.

• **FORECAST**

Small scale breeding will continue causing an increase in locusts numbers, particularly, in the River Nile and Kassala states, giving a rise to hopper and adult groups.

YEMEN

• **SITUATION**

During July, low density isolated immature solitarious adults were seen at few sites in Sirwah and Bidbdah districts of Marib (1527N/4519E). No more locusts were seen during the surveys in the other interior near Al Hazm (1609N/4447E),

Sana'a (1521N/4412E), and on the Red Sea coast between Suq Abs (1600N/4312E) and Zabid (1410N/4318E).

• **FORECAST**

Small-scale breeding will commence in the interior areas that received good rains recently in Marib, Al Jawf, Shabwah and Hadramaut. Limited breeding can occur on the Red Sea and Gulf of Aden coastal plains where good rains fell recently.

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

• **FORECAST**

No *significant* developments are likely.

EASTERN REGION

AFGHANISTAN

• **SITUATION**

No locust reports were received in July.

• **FORECAST**

No *significant* developments are likely.

INDIA

• **SITUATION**

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

• **FORECAST**

Low numbers of solitarious adults may appear in parts of eastern Rajasthan and small-scale breeding may occur in the breeding areas that will receive rains in the forecast period.

IRAN

• **SITUATION**

During July, no locusts were seen by surveys in the three provinces (Khuzestan, Khorasan, and Sistan & Bluchestan).

• **FORECAST**

No *significant* developments are likely.

PAKISTAN

• **SITUATION**

During July, no locusts were seen in the summer-monsoon breeding areas of Tharparkar (Mirpur Khas), Nara (Sukkur) and Cholistan (Rahimyar Khan and Bahawalpur). Similarly, no locusts were seen in Uthal area of Balochistan. In total, 344 localities were checked with an area of 74,600 ha surveyed

during the month.

• **FORECAST**

Small scale may occur in summer-monsoon breeding areas during the forecast period.

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]

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]

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)

REAL-TIME EVALUATION REPORT

The full report of the 2020–2021 Desert Locust upsurge real-time evaluation is available: http://tiny.cc/RTE2022

2022–2023 CALENDAR

- **CLCPRO.** Joint survey using drones, Mauritania (16 September- 5 October)
- **CLCPRO.** Workshop for review of the tools developed to implement the health and environment standard, Senegal, (11-14 October)
- **CLCPRO-CRC**. Interregional workshop on the applied research, Tunisia (8-11 November)
- **CLCPRO.** 10th session, Algiers, Algeria (27 November – 1 December, tbc)
- **SWAC.** Desert Locust Information Officer workshop, Tehran, Iran (5–7 December)
- **SWAC.** 33rd session, Esfahan, Iran (11–13 December)
- **DLCC.** 42nd session (March, Kenya, 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. 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.

The following special terms are used in the Desert Locust Bulletin when reporting locusts:

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

Food and Agriculture Organization of the United Nations

No. 527 6 SEPTEMBER 2022

Desert Locust Bulletin

General situation during August 2022
Forecast until mid-October 2022

WESTERN REGION: CALM

SITUATION. Low numbers of hoppers and isolated adults in **Niger** and adults in **Mauritania**.

FORECAST. Small-scale breeding will occur in the northern Sahel of **Mauritania**, **Mali**, **Niger**, and **Chad**. Locust numbers are expected to remain low, and no significant developments are likely.

CENTRAL REGION: CALM

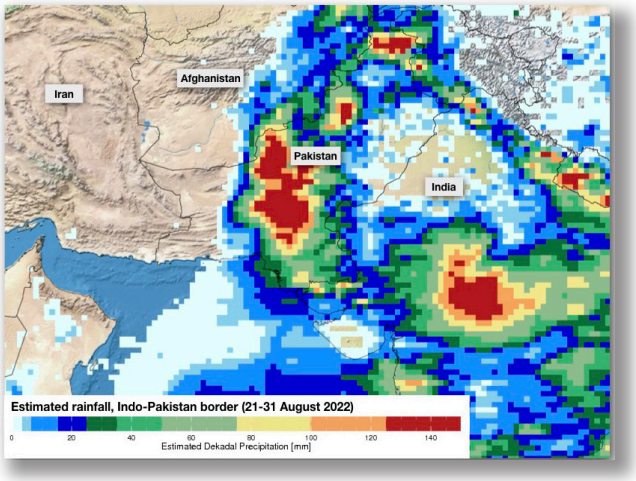
SITUATION. A scattered solitarious adults were seen on the Red Sea coast and in the interior **Yemen**.

FORECAST. Small-scale breeding may be in progress and will continue in the summer breeding areas in the interior of **Sudan**, western **Eritrea**, and in the interior and Red Sea coastal of **Yemen**. Locust numbers is expected to remain low in all breeding areas, and no significant developed are likely.

EASTERN REGION: CALM

SITUATION. No locusts present.

FORECAST. Small-scale breeding along both sides of the Indo-Pakistan border but will decline as the monsoon retreats from the second part of September. Locust numerous are expected to remain low in all breeding areas, and no significant developed are likely.



SUMMER RAINS CONTINUE IN MANY AREAS

The Desert Locust situation continued to remain calm during August. Only low numbers of solitarious adults were seen in a few places in southeast Mauritania, Niger and Yemen. The seasonal rains continued in August in the summer breeding areas from Mauritania to Eritrea. Heavy rain fell in southeast Pakistan and in parts of the Red Sea coastal plains in Yemen and southwest Saudi Arabia as well as a few places in Sahel. Vegetation became green from the beginning of August in most places. During the forecast period, small-scale breeding will occur in the northern Sahel from Mauritania to western Eritrea and along both sides of the Indo-Pakistan border. It be also occurred near the Red Sea coastal of Yemen. This will cause locust numbers to increase slightly but remain well below threatening levels.

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: eclo@fao.org / faodlislocust@gmail.com
Internet: www.fao.org/ag/locusts
Facebook/Twitter: faolocust

Weather & Ecological Conditions in August 2022

Breeding conditions remained favourable in the Sahel of West Africa to Eritrea, Yemen, Pakistan and India.

WESTERN REGION

August was characterized by continued seasonal rains in the Sahel region. Light to moderate rainfall was in most of the summer areas from Mauritania to Chad, while heavy rainfall occurred in Inchiri and southwest Adrar in Mauritania, Adrar des Iforas in Mali, Air in Niger, and central and northeast in Chad. In Algeria, moderate rainfall was in the southern part to Mali. Light rain may have occurred in the Western Sahara in Morocco. The Intertropical Convergence Zone (ITCZ) in the second decade become north in Mauritania and Mali, south in Niger, and about the same in Chad. The ecological conditions are favorable for breeding in Mauritania, Mali, Niger and Chad, and purpose in the south of Algeria.

CENTRAL REGION

The Intertropical Convergence Zone (ITCZ) in Sudan where about 50 km further north during the third decade of August in North Darfur and North Kordofan compared to the first two decades. Further east towards the Red Sea Hills, it was about 130 km to the south during the last decade. In general, August this year was less than normal. Light to moderate, with a few heavy, rains occurred in west and north Darfur, North Kordofan, White Nile, Kassala, and Bayuda Desert in Sudan and the western lowlands of Eritrea. Moderate and heavy rains fell on the Red Sea coastal plains of Saudi Arabia from Al Madinah to Jizan, as well as the Red Sea coastal plains, the highlands and inner breeding areas of Yemen. Moderate to heavy rains occurred in the Afar and Amhara regions of northeast Ethiopia. Consequently, vegetation started to become green in the Red Sea coastal plains of Saudi Arabia, Yemen and Eritrea as well as the inner breeding areas of Yemen and Sudan.

EASTERN REGION

In Pakistan, heavy rains occurred in Sind include Tharparkar and Nara as well as the southeast parts of Cholistan in Punjab. In India, it was much less as only moderate rains occur in Rajasthan and Gujarat. Soil moisture and vegetation were observed at most of the survey areas.

Area Treated

No control operations were carried out during August.

Desert Locust Situation and Forecast

WESTERN REGION

Algeria

• **SITUATION**

No surveys were carried out and no locusts were reported during August.

• **FORECAST**

No significant developments are likely.

Chad

• **SITUATION**

No surveys were carried out and no locusts were reported during August.

• **FORECAST**

Low numbers of solitarious adults are likely to be in parts of the northern Sahel where they are likely to breed on a small-scale.

Libya

• **SITUATION**

No locusts were reported during August.

• **FORECAST**

No significant developments are likely.

Mali

• **SITUATION**

No locusts were reported during August.

• **FORECAST**

Low numbers of solitarious adults are likely to be in parts of Timetrine, Adrar des Iforas and Tamesna where they are likely to breed on a small-scale.

Mauritania

• **SITUATION**

Only a few isolated immature and mature individuals were in Tagant, Assab and Hodh Ech Chargui. The situation remained calm elsewhere.

• **FORECAST**

Low numbers of solitarious adults are likely to be present and breed on a small-scale from Trarza, Tagant, Hodh El Gharbi, and Hodh Ech Chargui as well as parts of Inchiri and southwest Adrar.

Morocco

• **SITUATION**

No locusts were reported during August.

• **FORECAST**

No significant developments are likely.

Niger

• **SITUATION**

In Air, isolated hoppers and immature adults were seen in a few places near Timia (1809N/0846E). In further south near Zinder, isolated immature and mature adults were present near Tasker (1507N/1041E).

• **FORECAST**

Low numbers of solitarious adults are likely to be in parts of Tamesna, Tasker and perhaps Air where they are likely to breed on a small-scale.

Senegal

• **SITUATION**

No locusts were reported during August.

• **FORECAST**

No significant developments are likely.

Tunisia

• **SITUATION**

No locusts were reported during August.

• **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.

CENTRAL REGION

Djibouti

• **SITUATION**

No surveys were carried out and no locusts were reported during August.

• **FORECAST**

No significant developments are likely.

Egypt

• **SITUATION**

No locusts were seen in August during the surveys on the Red Sea coastal plains near Abu-Ramad (2224N/3624E), Halaib (2213N/3638E) and Baranice (2359N/3524E), and the subcoastal areas to the west of Shalatyn (2308N/3535E).

• **FORECAST**

No significant developments are likely.

Eritrea

• **SITUATION**

No surveys were carried out and no locusts were reported during August.

• **FORECAST**

Low numbers of solitarious adults may appear in the western lowlands and breed on a small-scale.

Ethiopia

• **SITUATION**

No locusts were reported in August during the surveys carried out at the end of the month near Dire Dawa (0935N/4150E).

• **FORECAST**

No significant developments are likely.

Kenya

• **SITUATION**

No locust reports were received in August.

• **FORECAST**

No significant developments are likely.

Oman

• **SITUATION**

During August, no locusts were seen in the eastern, northern interior between Sur (2234N/5930E) and Nizwa (2255N/5731E) and Buraimi (2415N/5547E) and on the Batinah coast and Musandam peninsula.

• **FORECAST**

No significant developments are likely.

Saudi Arabia

• **SITUATION**

No locusts were reported in August during the surveys that were carried out on the Red Sea coastal plains from Lith (2008N/4016E) to Jizan (1656N/4233E) as well as south of Asir Mountains, Al Baha and Najran areas.

• **FORECAST**

Small scale breeding may commence by low numbers of adults that may appear on the Red Sea coastal plains between Lith and Jizan.

Somalia

• **SITUATION**

No surveys were carried out and no locusts were reported during August.

• **FORECAST**

No significant developments are likely.

Sudan

• **SITUATION**

No locusts were seen during the surveys carried out in 1 August in North Kordofan from Umm Saiyala (1426N/3112E) to Khartoum (1533N/3235E).

• **FORECAST**

Low numbers of solitarious hoppers and adults are likely to

be present in parts of North Darfur, North Kordofan, Kassala and Bayuda Desert.

Yemen

• SITUATION

During August, a Mature and Immature solitarious adults were seen in the interior near Al Hazm (1610N/4446E). No locusts were seen during intensive surveys near Sana'a (1521N/4412E) and in the interior from Al Hazm to Ataq (1435N/4649E), the Hadhramaut Valley, and the plateau north to Hat (1719N/5205E) to the Oman border.

• FORECAST

Small-scale breeding may be in progress in interior areas that received summer rains will cause locust numbers to increase slightly. Limited breeding may commence in the Red Sea coastal plains.

Bahrain, D.R. Congo, Iraq, Israel, Jordan, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syria, Tanzania, Turkey, Uganda, and UAE

• FORECAST

No significant developments are likely.

EASTERN REGION

Afghanistan

• SITUATION

No locust reports were received in August.

• FORECAST

No significant developments are likely.

India

• SITUATION

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

• FORECAST

Low numbers of solitarious adults may appear in parts of Rajasthan and Gujarat, and breed on a small-scale.

Iran

• SITUATION

No locusts were seen by surveys in the southeast and northeast during August.

• FORECAST

No significant developments are likely.

Pakistan

• SITUATION

No locusts were reported during August.

• FORECAST

Low numbers of solitarious adults are likely to be present Tharparkar, Nara and Cholistan and breed on a small-scale.

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 (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]

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]

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)

Real-time evaluation report

The full report of the *2020–2021 Desert Locust upsurge real-time evaluation* is available: http://tiny.cc/RTE2022

2022–2023 calendar

- **CLCPRO.** Joint survey using drones, Mauritania (16 September-5 October)
- **CLCPRO**. Workshop for review of the tools developed to implement the health and environment standard, Senegal, (11-14 October)
- **CLCPRO-CRC**. Interregional workshop on the applied research, Tunisia (8-11 November)
- **CRC.** Regional training course on locust management for invasion countries, Hurghada, Egypt (13- 21 November)
- **CLCPRO.** 10th session, Algiers, Algeria (27 November-1 December)
- **SWAC.** Desert Locust Information Officer workshop, Tehran, Iran (5-7 December)
- **SWAC.** 33rd session, Esfahan, Iran (11-13 December)
- **DLCC.** 42nd session (March, Kenya, 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 km^2
- band: 1–25 m^2

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

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

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

Very large
- swarm: 500+ km^2
- band: 50+ ha

Rainfall

Light
- 1–20 mm

Moderate
- 21–50 mm

Heavy
- more than 50 mm

Summer rains and breeding areas
- July–September/October
- Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border

Winter rains and breeding areas
- October–January/February
- Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara

Spring rains and breeding areas
- February–June/July
- Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border

Other reporting terms

Breeding
- The process of reproduction from copulation to fledging

Recession

- Period without widespread and heavy infestations by swarms

Remission

- Period of deep recession marked by the complete absence of gregarious populations

Outbreak

- A marked increase in locust numbers due to concentration, multiplication and gregarisation which, unless checked, can lead to the formation of hopper bands and swarms

Upsurge

- A period following a recession marked initially by a very large increase in locust numbers and contemporaneous outbreaks followed by the production of two or more successive seasons of transient-to- gregarious breeding in complimentary seasonal breeding areas in the same or neighbouring Desert Locust regions

Plague

- A period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously

Decline

- A period characterised by breeding failure and/or successful control leading to the dissociation of swarming populations and the onset of recessions; can be regional or major

Warning levels

Green

- *Calm*. 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

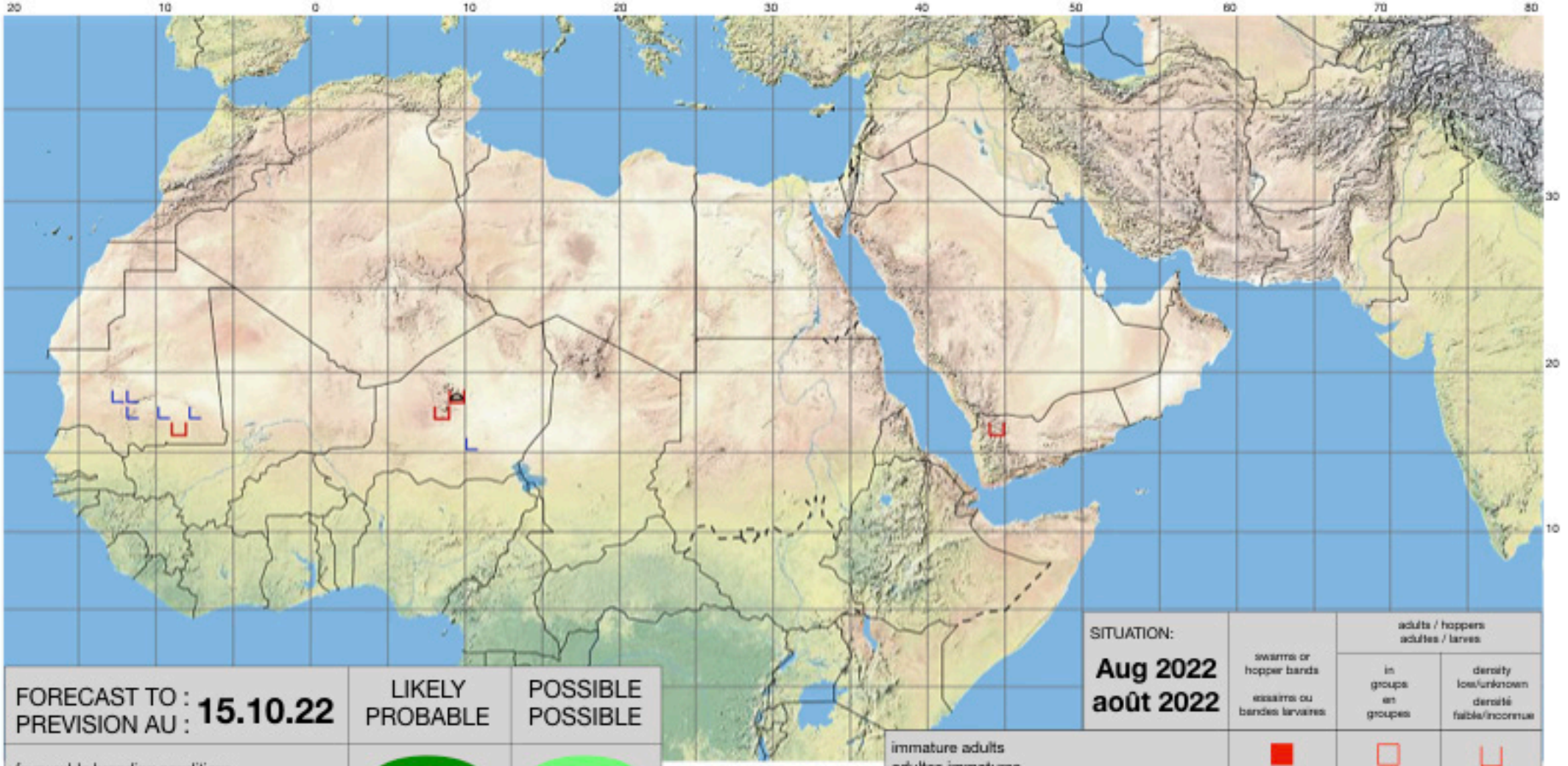
FAOLocust Facebook. Information exchange using social media
http://www.facebook.com/faolocust

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

527



FORECAST TO : PREVISION AU : **15.10.22**	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: **Aug 2022 août 2022**	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)	■●	◻○	⊟⌓

Food and Agriculture Organization of the United Nations

No. 528 4 OCTOBER 2022

Desert Locust Bulletin

General situation during September 2022
Forecast until mid-November 2022

WESTERN REGION: CALM

SITUATION. Low density of adults in **Mauritania** and **Niger**, hoppers in northeast Mauritania.

FORECAST. Locust numbers will decrease in the northern Sahel of **Mauritania**, **Mali**, **Niger**, and **Chad** and increase slightly in the northwest of Mauritania. Locust numbers are expected to remain low, and no significant developments are likely.

CENTRAL REGION: CALM

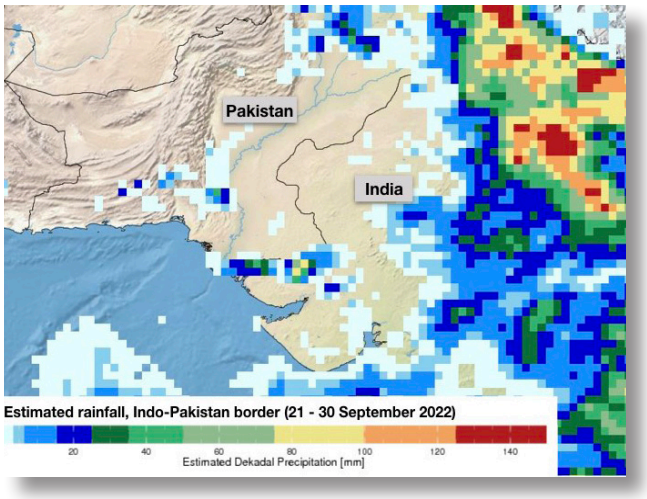
SITUATION. Low numbers of adults in Sudan, coastal and interior of **Yemen**, and one place in Western Desert of **Egypt**.

FORECAST. Low numbers in **Sudan** will decrease west of the Nile but increase slightly in the east toward the Red Sea Hills and from about mid-November start to appear in the coastal plains. In November, adults will increase slight on the Red Sea coastal plains in **Yemen** and breeding while **Saudi Arabia** be get some in centre and south Red Sea coast. Locust numbers are expected to remain low in all breeding areas, and no significant developments are likely.

EASTERN REGION: CALM

SITUATION. No locusts present.

FORECAST. No significant developments are likely.



SUMMER RAINS DECLINED

The Desert Locust situation continued to remain calm during September. Only low numbers of solitarious adults persisted in Mauritania, Niger, Sudan, and Yemen. Few hoppers were seen in parts of northwest Mauritania and in the Red Sea coastal plain of Yemen. In the Western Desert of Egypt, biological control treated 20 ha of one farm that had groups of hopper and adult. Light to moderate rainfall continued in the northern Sahel but was declined during the second half of the month from Mauritania to western Eritrea, and vegetation started to dry out in many places. Similarly, the withdrawal of the southwest monsoon finish in Indo-Pakistan border during the last week of September. During the forecast, locust numbers will continue to decrease in the summer breeding areas but are likely to increase slightly in current areas of northwest Mauritania and in the Red Sea coast of Yemen and start to appear in the coastal plains in Sudan, Saudi Arabia, and maybe Eritrea and Egypt from November onwards. Consecutively, the locusts will continue to be remain well below threatening levels and 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.

Telephone: +39 06 570 52420 (7 days/week, 24 hr)
E-mail: eclo@fao.org / faodlislocust@gmail.com
Internet: www.fao.org/ag/locusts
Facebook/Twitter: faolocust

Weather & Ecological Conditions in September 2022

By the end of September, summer raining was declined from Mauritania to Eritrea and the southwest monsoon finished in Indo-Pakistan.

WESTERN REGION

The Inter-Tropical Convergence Zone (ITCZ) during the first two decades of September where about the same position except for the second decade where western Mauritania and Chad were somewhat south than normal while in northeast Mali and northwest Niger where north than normal. In any case, it was further north than normal from 1.6 degree (180 km) in the western and 1.5 degree (350 km) in the eastern. Light to moderate rain occurred in the northwest of Mauritania up to Zouerat during the first decade. However, by the second decade rain declined from Mauritania to Chad, and vegetation started to dry out in many places.

CENTRAL REGION

The Inter-Tropical Convergence Zone (ITCZ) during the first two decades of September where the same in Sudan. In both cases, it was further north than normal in Darfur and Kordofan by about 270 km but remained the same east of the Nile Valley. Rain increased in Darfur, Kordofan, and eastern area during the first decade, including northeast, but then decreased in the second decade in all areas. Vegetation was green in Darfur and Kordofan but starting to dry out it in the second decade. Further east, vegetation increased during the first decade from the Nile to Red Sea Hills and in western Eritrea. In the Red Sea coast of Yemen, rain was light in the first decade and a bit more in the second decade including the south Red Sea coast of Saudi Arabia. As a result, Red Sea coast vegetation became green during the first decade in Yemen and in the second decade of Saudi Arabia in the centre and southern coast. In northwest Somalia, vegetation increases on the plateau.

EASTERN REGION

Rainfall declined during the first two decades in the Indo-Pakistan area and vegetation starting to dry out after the first decade. The normal withdrawal of the southwest monsoon is usually about the third week of September in Rajasthan (17 September in Western Rajasthan and 25 September in Eastern Rajasthan). In this year, the seasonal withdrawal was delayed by one week.

Area Treated

Control operations were carried out during September:

Egypt	20 ha

Desert Locust Situation and Forecast

WESTERN REGION

Algeria

• **SITUATION**

No locusts were reported during September.

• **FORECAST**

No significant developments are likely.

Chad

• **SITUATION**

No surveys were carried out and no locusts were reported during September.

• **FORECAST**

Isolated of solitarious hoppers and adults are likely to be in some areas from Kanem and Fada, but will decrease from November.

Libya

• **SITUATION**

No locusts were reported during September.

• **FORECAST**

No significant developments are likely.

Mali

• **SITUATION**

No surveys were carried out and no locusts were reported during September.

• **FORECAST**

Low numbers of solitarious hoppers and adults are likely to decrease in Timetrine, Adrar des Iforas, and Tamesna from November.

Mauritania

• **SITUATION**

During September, isolated immature and mature solitarious adult were present in a few areas if the south from Aioun El Atrous (1639N/0936W) to Magta Lahjar (1730N/1305W) while copulating was present south of Tidjikja (1833N/1126W) at one site. In the northwest, scattered adults increased in Inchiri and southwest Adrar from Bennichab (1928N/1525W) to Atar (2032N/1308W) and scattered hopper of all instars were seen from Akjoujt (1945N/1421W) to Oujeft (2003N/1301W).

• **FORECAST**

Low numbers of solitarious hoppers and adults will decrease in the south during October but will increase slightly in the northwest near Inchiri and southwest Adrar.

Morocco

• **SITUATION**

No surveys were carried out and no locusts were reported during September.

• **FORECAST**

No significant developments are likely.

Niger

• **SITUATION**

During September, isolated mature solitarious adult were present in Tamesna from In Abangharit (1754N/0559E) to Arlit (1843N/0721E). Adults were breeding in at least one place near In Abangharit.

• **FORECAST**

Low numbers of solitarious hoppers and adults are likely to decrease in Tamesna from November.

Senegal

• **SITUATION**

No locusts were reported during September.

• **FORECAST**

No significant developments are likely.

Tunisia

• **SITUATION**

No locusts were reported during September.

• **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.

CENTRAL REGION

Djibouti

• **SITUATION**

No locusts were reported during September.

• **FORECAST**

No significant developments are likely.

Egypt

• **SITUATION**

In September, locusts were present in the Western Desert near Abu Mingar (2630N2740E) where second to fifth hopper groups, fledgling and adults were seen at one farm. Ground biological control treated 20 ha. No locusts were seen in nearby farms in Farafra (2710N/2818E), in Tushka (2247N/3126E) and Abu Simbel (2219N/3138E) near Lake Nasser, and in the Red Sea coastal plains from Halaib (2213N/3638E) to west and north of El Sheikh El Shazly (2412N/3438E).

• **FORECAST**

Locusts will decrease in the Western Desert and no significant developments are likely. A few locusts may start to appear in the southeast of the Red Sea coastal plains from about mid-Novembers.

Eritrea

• **SITUATION**

No surveys were carried out and no locusts were reported during September.

• **FORECAST**

Low numbers of solitarious hoppers and adults are likely to decrease in the western lowlands and may start to appear in the coastal plains from about mid-November.

Ethiopia

• **SITUATION**

During September, no locusts were seen from Dire Dawa (0935N/4150E) to Ayasha (1045N/4234E), near Jijiga (0922N/4250E), and in the south near Teltele (0504N/3723E).

• **FORECAST**

No significant developments are likely.

Kenya

• **SITUATION**

No locusts were reported during September.

• **FORECAST**

No significant developments are likely.

Oman

• **SITUATION**

During September, no locusts were seen by surveys on the Musandam Peninsula, the Batinah coast between Sohar (2421N/5644E) and Jamma (2333N/5733E), in the northern interior near Buraimi, near Nizwa and Adam (2223N/5731E), and in the south near Thumarit (1736N/5401E) and Maziuna (1750N/5239E).

• **FORECAST**

No significant developments are likely.

Saudi Arabia

• **SITUATION**

During September, no locusts were seen in Red Sea coast from Lith (2008N/4016E) to Jizan (1656N/4233E), interior near Al Baha (2001N/4129E), and in the southwest interior near Najran (1729N/4408E).

• **FORECAST**

A few locusts may start to appear in centre and south of the Red Sea coastal plains in Novembers.

Somalia

• SITUATION

No survey were carried out and no locusts were reported during September.

• FORECAST

No significant developments are likely.

Sudan

• SITUATION

During September, scattered immature solitarious adults were in a few places of West Darfur and Northern Kordofan, while mature adults were present in the Bayuda Desert and parts of Northern and River Nile. Mature adults increased slightly east of the Nile Valley from Kassala (1527N/3623E) to west of the Red Sea Hills.

• FORECAST

Low numbers of solitarious hoppers and adults will decrease west of the Nile during October but increase slightly in the east toward the Red Sea Hills. Numbers may start to appear in the coastal plains from about mid-November.

Yemen

• SITUATION

During September, scattered immature and mature solitarious adults were seen on the central parts of the Red Sea coast from south of Hodeidah (1450N/4258E) to Suq Abs (1600N/4312E) and in the interior near Al Hazm (1610N/4446E). Isolated fourth instar hoppers were seen on the 24 September in one place south of Suq Abs. No locusts were seen from Marib (1527N/4519E) to Ataq (1435N/4649E) and Al Abr (1608N/4714E), Hadhramaut Valley near Sayun (1559N/4844E), and south of Hat (1719N/5205E) in the interior.

• FORECAST

Low numbers of solitarious hoppers and adults will decrease in the interior but increase on the Red Sea coastal plains where breeding could start by November.

Bahrain, D.R. Congo, Iraq, Israel, Jordan, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syria, Tanzania, Turkey, Uganda, and UAE

• FORECAST

No significant developments are likely.

EASTERN REGION

Afghanistan

• SITUATION

No locust reports were received in September.

• FORECAST

No significant developments are likely.

India

• SITUATION

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

• FORECAST

Low numbers will decrease in Rajasthan and Gujarat.

Iran

• SITUATION

No locusts were seen by surveys carried out in the southeast at Hormozgan and Sistan va Baluchistan, southwest at Khuzestan, and northeast at Khorasan during September.

• FORECAST

No significant developments are likely.

Pakistan

• SITUATION

No locusts were seen by surveys during September in Tharparkar, Nara, Cholistan, and Uthal.

• FORECAST

Low numbers will decrease in Tharparkar, Nara and Cholistan from mid-October onward.

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 (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]

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]

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)

Real-time evaluation report

The full report of the *2020–2021 Desert Locust upsurge real-time evaluation* is available: http://tiny.cc/RTE2022

2022–2023 calendar

- **CLCPRO**. Workshop for review of the tools developed to implement the health and environment standard, Senegal, (11-14 October)
- **CLCPRO-CRC**. Interregional workshop on the applied research, Tunisia (8-11 November)
- **CLCPRO.** 10th session, Algiers, Algeria (27 November-1 December)
- **SWAC.** Desert Locust Information Officer workshop (postponement)
- **SWAC.** 33rd session (postponement)
- **DLCC.** 42nd session (March, Kenya, 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 km^2
- band: 1–25 m^2

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

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

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

Very large
- swarm: 500+ km^2
- band: 50+ ha

Rainfall

Light
- 1–20 mm

Moderate
- 21–50 mm

Heavy
- more than 50 mm

Summer rains and breeding areas
- July–September/October
- Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border

Winter rains and breeding areas
- October–January/February
- Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara

Spring rains and breeding areas
- February–June/July
- Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border

Other reporting terms

Breeding

- The process of reproduction from copulation to fledging

Recession

- Period without widespread and heavy infestations by swarms

Remission

- Period of deep recession marked by the complete absence of gregarious populations

Outbreak

- A marked increase in locust numbers due to concentration, multiplication and gregarisation which, unless checked, can lead to the formation of hopper bands and swarms

Upsurge

- A period following a recession marked initially by a very large increase in locust numbers and contemporaneous outbreaks followed by the production of two or more successive seasons of transient-to- gregarious breeding in complimentary seasonal breeding areas in the same or neighbouring Desert Locust regions

Plague

- A period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously

Decline

- A period characterised by breeding failure and/or successful control leading to the dissociation of swarming populations and the onset of recessions; can be regional or major

Warning levels

Green

- *Calm*. 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

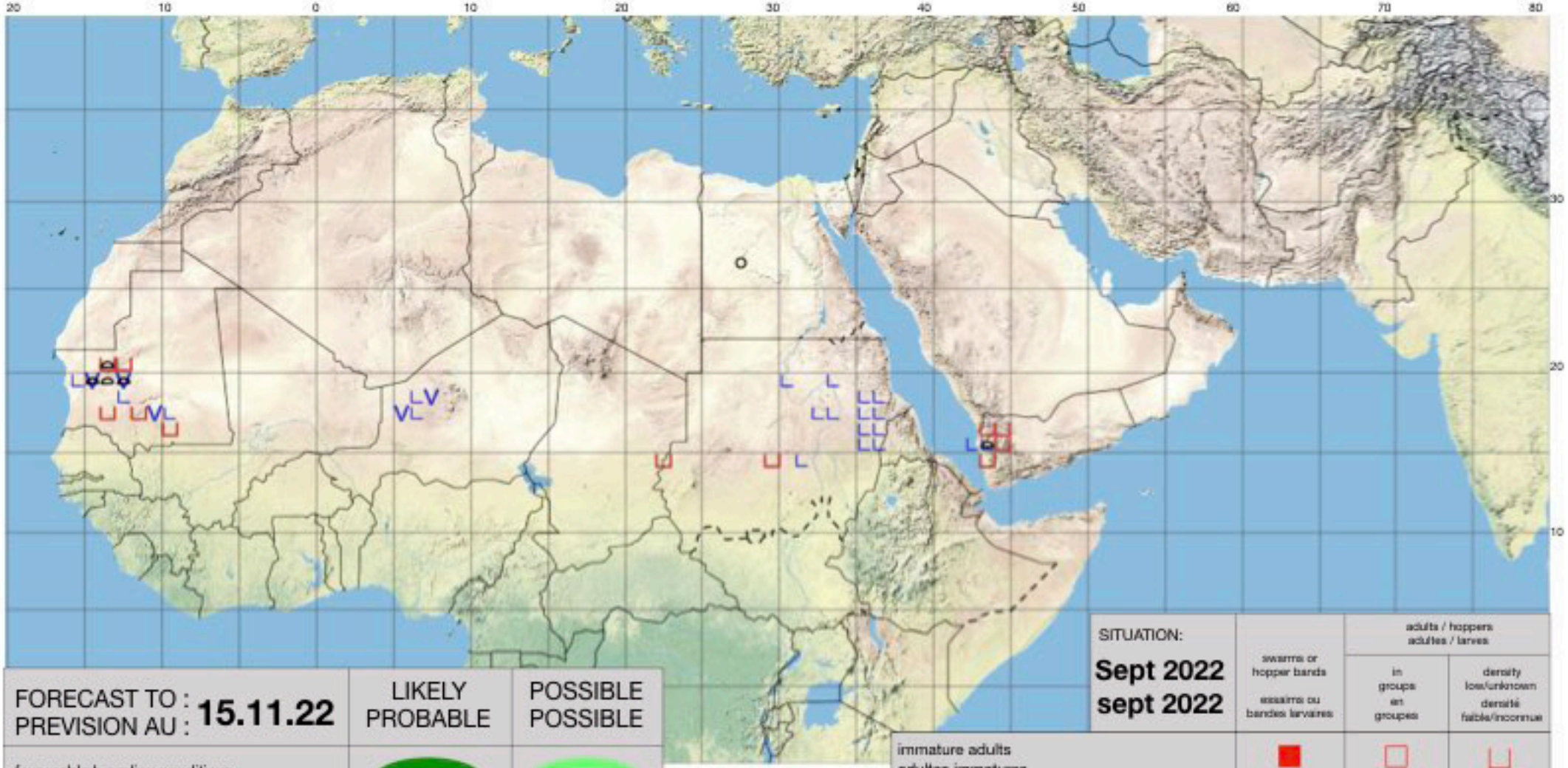
FAOLocust Facebook. Information exchange using social media
http://www.facebook.com/faolocust

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

528



FORECAST TO : PREVISION AU : **15.11.22**	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: **Sept 2022** **sept 2022**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves: in groups en groupes	adults / hoppers adultes / larves: density low/unknown densité faible/inconnue
immature adults adultes immatures			
mature or 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)			

Food and Agriculture Organization of the United Nations

No. 529 7 NOVEMBER 2022

Desert Locust Bulletin

General situation during October 2022
Forecast until mid-December 2022

WESTERN REGION: CALM

SITUATION. In parts of northwest **Mauritania**, a few groups of mature adults where copulating and a transiens hoppers were seen. Low numbers of adults and a few hoppers were seen in western **Mauritania** and **Niger** while **Chad** had only adults.

FORECAST. Locust numbers will decrease in the northern Sahel of **Mauritania**, **Niger**, and **Chad** and increase slightly in the northwest of **Mauritania** where breeding will occur and a few more groups can form.

CENTRAL REGION: CALM

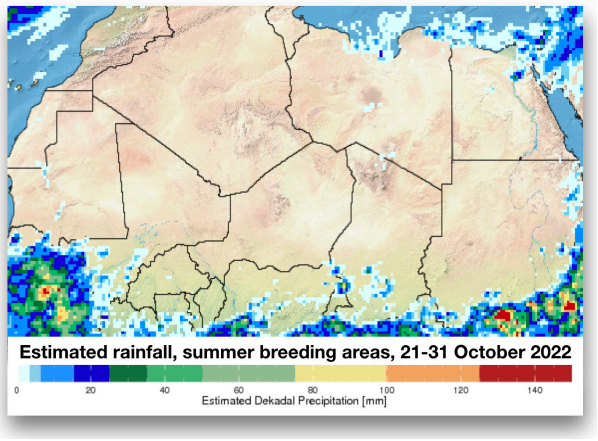
SITUATION. In **Sudan**, a group of mature adults were seen on the west of the Red Sea Hills and low numbers of adults, include hoppers at one place were west of the Nile Valley. In the Red Sea coast, low numbers of adults and a few hoppers were seen in **Yemen** and less in **Eritrea**.

FORECAST. Locust numbers will increase slightly on the Red Sea coast of **Sudan**, **Eritrea**, **Yemen** and appear in **Saudi Arabia** and perhaps southeast **Egypt**. Small-scale breeding is expected to remain low in the winter area and no significant developments are likely.

EASTERN REGION: CALM

SITUATION. The situation remained calm in the region during October.

FORECAST. No significant developments are likely.



SITUATION IS CALM

The Desert Locust situation continued to remain calm during October. Rain had finished and summer breeding was nearly none. Low numbers of solitarious adults and a few hoppers were seen in parts of Mauritania, Niger, Chad, Sudan, and Yemen. In northwest Mauritania, few groups of copulating adults and transiens hoppers occurred and 213 ha were treated. In Sudan, one group of adults were seen on the west of the Red Sea Hills. In pre-winter areas, light rain fell at time on the Red Sea coast of Yemen and started to rain in the parts of the coast of Sudan, Eritrea, and Saudi Arabia. No rain or locusts were in Southwest Asia. During the forecast, locust numbers will appear and increase slightly in the Red Sea coast of Sudan, Eritrea, Yemen, Saudi Arabia, and maybe southeast Egypt and the coast of northwestern Somalia. Small-scale breeding is locally to start but should remain low in the winter area and no significant developments are likely. In northwest Mauritania, breeding will occur and a few more groups can form.

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: eclo@fao.org / faodlislocust@gmail.com
Internet: www.fao.org/ag/locusts
Facebook/Twitter: faolocust

Weather & Ecological Conditions in October 2022

Some rain fell in the northwest and northern Mauritania and in a few parts of the winter breeding areas on Red Sea coast.

WESTERN REGION

The Inter-Tropical Convergence Zone (ITCZ) during the first decade of October was further north than normal in Mauritania (315 km), Mali (350 km), Niger (130 km), and Chad (420 km). This also occurred in the second decade in southeast Mauritania (250 km) and northeast Chad (210 km). By mid-month, the ITCZ was well south of the breeding areas in the northern Sahel and the summer had finished. Consequently, little rain fell between Mauritania and Chad except for light showers in the northwest and north of Mauritania. By the end of the month, vegetation was starting to dry out in almost all places except in northwest Mauritania where it remained green.

CENTRAL REGION

The Inter-Tropical Convergence Zone (ITCZ) was 200 km farther north than normal on the western side of the Nile in Sudan during the first two decades of October. During the third decade, ITCZ was well south of the breeding areas in the northern Sahel. Consequently, the summer rains had finished except for light rain during the first and third decades between the Nile Valley and the west of the Red Sea Hill and in the Nile Valley during the second decade. Vegetation was drying out in all areas. During the winter breeding on the Red Sea coast, light rain fell at time in parts of Yemen, southwest Saudi Arabia, central Eritrea and, during the last decade in south Sudan. In northwest Somalia, vegetation increases on the plateau.

EASTERN REGION

No significant rains fell in the region during October. Consequently, vegetation was dry in Cholistan, Pakistan but remained green in Tharparkar and Nara. In India, vegetation was starting to dry out in Rajasthan and Gujarat.

Area Treated

Control operations were carried out during October:

Mauritania	213 ha

Desert Locust Situation and Forecast

WESTERN REGION

Algeria

• **SITUATION**

No locusts were reported during October.

• **FORECAST**

No significant developments are likely.

Chad

• **SITUATION**

During October, isolated immature and mature solitarious adults were present in some sites to the west and north of Mao (1406N/1511E) in Kanem, mature adults in north of Batha, near Arada (1501N/2040E) in Biltine, as well as near Kalait (1550N/2054E) and the Sudan border near Amdjarass (1604N/2250E). Elsewhere no locust presence was reported.

• **FORECAST**

Isolated solitarious hoppers and adults from Kanem to Fada will decrease and no significant developments are likely.

Libya

• **SITUATION**

No locusts were reported during October.

• **FORECAST**

No significant developments are likely.

Mali

• **SITUATION**

No surveys were carried out and no locusts were reported during October.

• **FORECAST**

Low numbers of solitarious hoppers and adults are likely to decrease in Timetrine, Adrar des Iforas, and Tamesna from November.

Mauritania

• **SITUATION**

During October, mainly mature solitarious adults with few copulating groups and two groups of 1st to 5th instars transient hoppers were seen from Akjoujt (1945N/1421W) to Atar (2032N/1308W) in the northwest. Ground control treated 213 ha. Further south, mainly isolated immature and a few mature solitarious adults were present from Nouakchott (1809N/1558W) to Moudjeria (1752N/1219W). Isolated 5th solitarious hoppers were seen near Nouakchott.

• **FORECAST**

Low numbers of solitarious hoppers and adults will decrease in the south but will increase slightly in the northwest near Inchiri and southwest Adrar. Laying is likely to occur, and hoppers and adults will form small groups in some places.

Morocco

• **SITUATION**

No surveys were carried out and no locusts were reported during October.

• **FORECAST**

No significant developments are likely.

Niger

• **SITUATION**

During October, isolated immature and mature solitarious adults were present, mixed with solitarious hoppers at a few sites of the northwest near In Abangharit (1745N/0559E) in Agadez. Scattered immature solitarious adults and hoppers and two adults groups seen north of Tasker (1507N/1041E) in Zinder.

• **FORECAST**

Low numbers of solitarious hoppers and adults are likely to decrease in Tamesna and Tasker.

Senegal

• **SITUATION**

No locusts were reported during October.

• **FORECAST**

No significant developments are likely.

Tunisia

• **SITUATION**

No locusts were reported during October.

• **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.

CENTRAL REGION

Djibouti

• **SITUATION**

No locusts were reported during October.

• **FORECAST**

No significant developments are likely.

Egypt

• **SITUATION**

No locusts were reported during October during the surveys conducted in the southeast near Abu-Ramad (2224N/3624E), west of Shalatyn (2308N/3535E), west of Berenice (2359N/3524E), as well as west of Lake Nasser near Tushka (2247N/3126E).

• **FORECAST**

No significant developments are likely.

Eritrea

• **SITUATION**

During late October, a few isolated immature and mature solitarious adults and a five instar hoppers were seen on the central Red Sea coast near Wekiro (1548N/3918E). No locusts were seen north of Embere (1628N/3856E).

• **FORECAST**

Locust numbers are likely to increase and breed in the Red Sea coastal plains.

Ethiopia

• **SITUATION**

During October, no locusts were seen in Somali Region from Dire Dawa (0935N/4150E) to Ayasha (1045N/4234E), near Jijiga (0922N/4250E), in Afar region, and in the south near Teltele (0504N/3723E).

• **FORECAST**

No significant developments are likely.

Kenya

• **SITUATION**

No locust reports were received and no locusts were reported in October.

• **FORECAST**

No significant developments are likely.

Oman

• **SITUATION**

During October, no locusts were seen during the surveys on the Musandam Peninsula, on the Batinah coast north of Sohar (2421N/5644E), in the northern interior near Buraimi, north of Ibri (2314N/5630E), near Nizwa (2255N/5731E) and Adam (2223N/5731E).

• **FORECAST**

No significant developments are likely.

Saudi Arabia

• **SITUATION**

During October, no locusts were seen in Red Sea coast from Yanbo (2405N/3802E) to Jizan (1656N/4233E), and in the southwest interior near Najran (1729N/4408E).

• **FORECAST**

A few locusts will appear in center and south of the Red Sea coastal plains in November.

Somalia

• **SITUATION**

No locusts were reported in surveyed areas during October.

• **FORECAST**

No significant developments are likely.

Sudan

• **SITUATION**

During October, mature solitarious adults were seen at some places in the Red Sea state near Derudeb (1731N/3607E),

Haiya (1820N/3621E) where breeding groups were seen, and near Sinkat (1855N/3648E), in the Nile state where solitarious hoppers were seen at one place, in North Darfur state near AlFashir (1337N/2522E), and at few sites in North Kordofan state. Elsewhere, no more locusts seen in the other survey areas in Khartoum and in most sites in Northern state.

• FORECAST

Low numbers of solitarious hoppers and adults will decline in the summer breeding areas and will move to the Red Sea winter areas where breeding will occur.

Yemen

• SITUATION

During October, intensive surveys were conducted on the Red Sea coastal plains and the interior areas. Solitarious immature and mature adults were seen on the central parts of the Red Sea coast from south of Hodeida (1450N/4258E) to Suq Abs (1600N/4312E) and in the interior in Hadhramaut Valley near Hawra (1542N/4817E) and north of Sayun (1559N/4844E). Elsewhere, no more locusts were seen during the surveys conducted in several areas in Shabwah, Hadhramaut and Al-Mahrah.

• FORECAST

Low numbers of solitarious adults will decrease in the interior but increase on the Red Sea coastal plains where breeding will increase slightly.

Bahrain, D.R. Congo, Iraq, Israel, Jordan, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syria, Tanzania, Turkey, Uganda, and UAE

• FORECAST

No significant developments are likely.

EASTERN REGION

Afghanistan

• SITUATION

No locust reports were received in October.

• FORECAST

No significant developments are likely.

India

• SITUATION

No locusts were seen in October during the intensive surveys in Rajasthan and Gujarat.

• FORECAST

No significant developments are likely.

Iran

• SITUATION

No locusts were reported in October during surveys conducted in Sistan and Baluchistan, Hormozgan, Fars, Kerman, Khuzestan, and South Khorasan provinces.

• FORECAST

No significant developments are likely.

Pakistan

• SITUATION

No locust reports were received in October and no locusts were seen by surveys in Tharparkar, Nara, Cholistan, and Uthal.

• FORECAST

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 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 (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]

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]

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)

Real-time evaluation report

The full report of the *2020–2021 Desert Locust upsurge real-time evaluation* is available: http://tiny.cc/RTE2022

2022–2023 calendar

- **CLCPRO-CRC**. Interregional workshop on the applied research, Tunisia (8-11 November)
- **CLCPRO.** 10th session, Algiers, Algeria (27 November-1 December)
- **SWAC.** Desert Locust Information Officer workshop (postponement)
- **SWAC.** 33rd session (postponement)
- **DLCC.** 42nd session (March, Kenya, 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 km^2
- band: 1–25 m^2

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

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

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

Very large
- swarm: 500+ km^2
- band: 50+ ha

Rainfall

Light
- 1–20 mm

Moderate
- 21–50 mm

Heavy
- more than 50 mm

Summer rains and breeding areas
- July–September/October
- Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border

Winter rains and breeding areas
- October–January/February
- Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara

Spring rains and breeding areas
- February–June/July
- Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border

Other reporting terms

Breeding
- The process of reproduction from copulation to fledging

Recession

- Period without widespread and heavy infestations by swarms

Remission

- Period of deep recession marked by the complete absence of gregarious populations

Outbreak

- A marked increase in locust numbers due to concentration, multiplication and gregarisation which, unless checked, can lead to the formation of hopper bands and swarms

Upsurge

- A period following a recession marked initially by a very large increase in locust numbers and contemporaneous outbreaks followed by the production of two or more successive seasons of transient-to- gregarious breeding in complimentary seasonal breeding areas in the same or neighbouring Desert Locust regions

Plague

- A period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously

Decline

- A period characterised by breeding failure and/or successful control leading to the dissociation of swarming populations and the onset of recessions; can be regional or major

Warning levels

Green

- *Calm*. 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

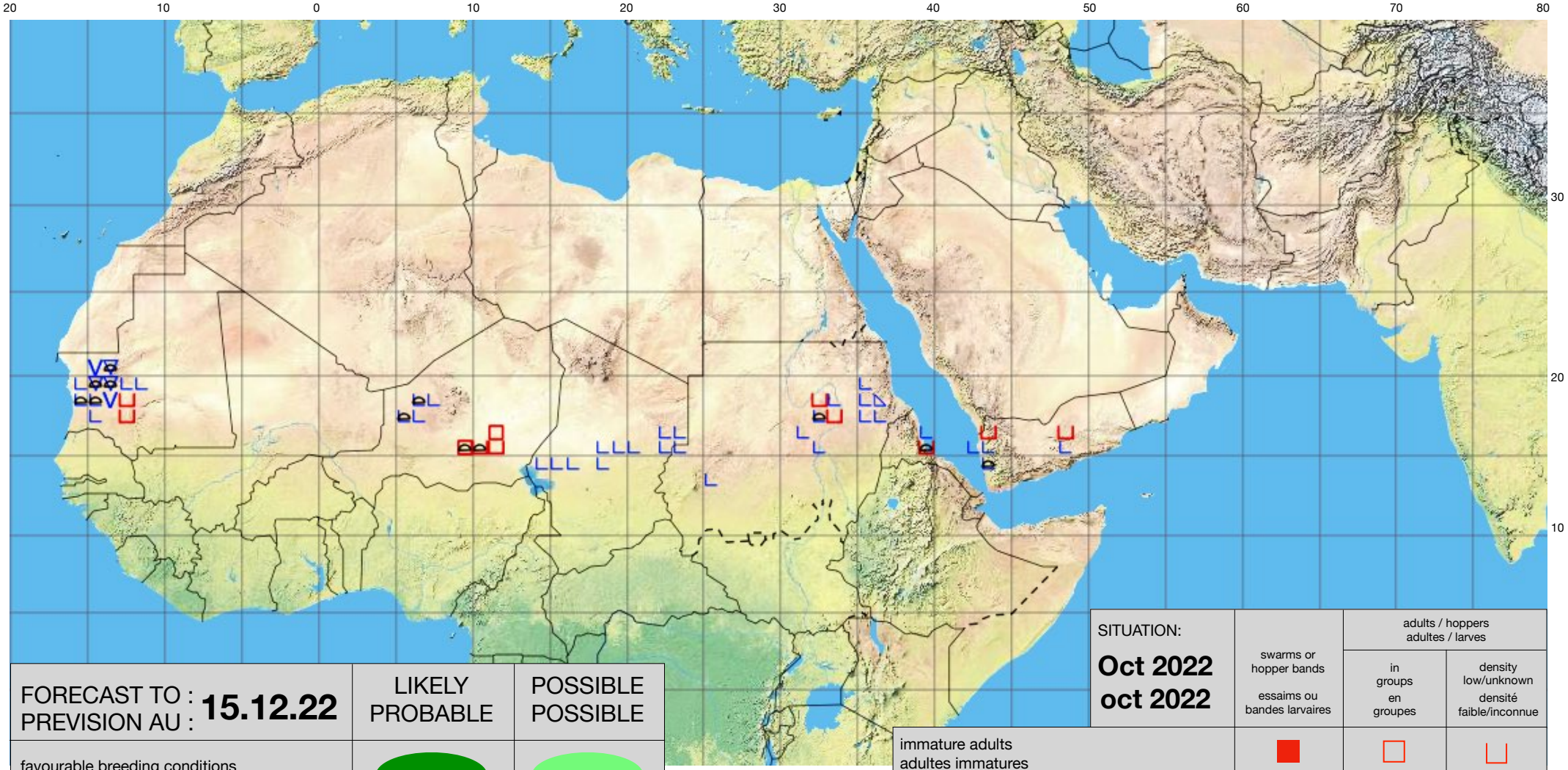
FAOLocust Facebook. Information exchange using social media
http://www.facebook.com/faolocust

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

529



FORECAST TO : PREVISION AU : **15.12.22**	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: **Oct 2022 oct 2022**	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	◣	◺	L
adults, maturity unknown adultes, maturité inconnue	▲	△	⋀
egg laying or eggs pontes ou œufs	▼	▽	⋁
hoppers larves	●	○	◡
hoppers & adults (combined example) larves et adultes (symboles combinés)	●■	○□	◡⊔

Food and Agriculture Organization of the United Nations

No. 530 7 DECEMBER 2022

Desert Locust Bulletin

General situation during November 2022
Forecast until mid-January 2023

WESTERN REGION: CALM

SITUATION. A very small outbreak developed in northwestern **Mauritania** (2 298 ha treated) with hopper, groups, and bands. Low numbers of solitarious adults in **Western Sahara**, south of the Atlas Mountains in **Morocco**, central **Algeria**, **Niger**, and northeast **Chad**.

FORECAST. The hopper groups and a few small bands will form adult groups in the outbreak of northwest **Mauritania** during December which should help teams to control. Locust numbers will decrease in **Niger** and **Chad**, and a few locusts will remain in **Western Sahara**, **Morocco** and central **Algeria**.

CENTRAL REGION: CALM

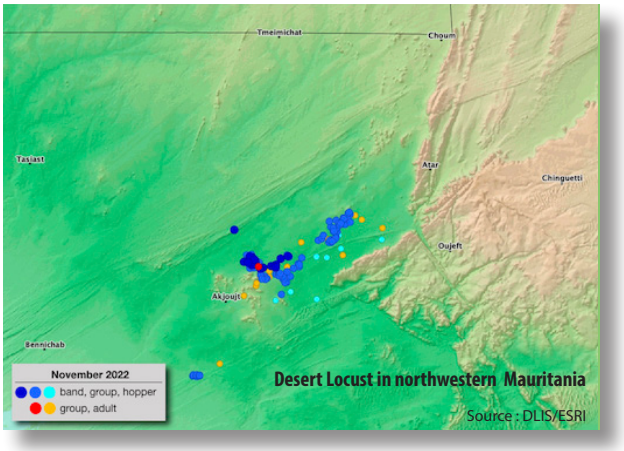
SITUATION. Locust numbers decreased in the summer area of **Sudan** but increased slightly in the Red Sea coast where copulating started. Low number continues in the coast of **Yemen** and less in **Eritrea** and **Egypt**.

FORECAST. Small breeding will occur mainly in **Sudan** and **Yemen** with less in **Eritrea** and **Egypt**. Laying and hatching will occur in December. Low numbers of adults are likely to appear on the Red Sea coastal plains of **Saudi Arabia** and breed on a small scale. A few locusts may breed on a small scale if more rain fells in northwest coast of **Somalia**.

EASTERN REGION: CALM

SITUATION. No locusts present.

FORECAST. No significant developments are likely.



SMALL OUTBREAK IN MAURITANIA

The Desert Locust situation continued to remain calm during November. A small outbreak developed in early November where hoppers, groups, and bands were seen in an area of about 100 km by 70 km in northwestern Mauritania. Ground teams treated 2 298 ha. In Sudan, low numbers of adults were first seen in the winter breeding areas this year along the Red Sea coast where a few copulating had started. Isolated adults were else seen in coastal areas of Eritrea, southeast Egypt, and northwest Somalia. In Yemen, low numbers of adults have been on the coast since September. In the Western Region, the summer breeding area has finished. During the forecast, December and January may have slightly above-normal rainfall in the northern parts of the Red Sea coast in northern Saudi Arabia, Egypt, and Sudan while southern areas from Eritrea, southern Saudi Arabia, Yemen, and northern Somalia will be drier than normal. As a result, a single generation of small-scale breeding is likely during the winter area. In northwest Mauritania, groups of adults are likely to form in December but should decrease due to control, vegetation that dries out, and rain which is not likely to occur. No significant development is 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.

Telephone: +39 06 570 52420 (7 days/week, 24 hr)
E-mail: eclo@fao.org / faodlislocust@gmail.com
Internet: www.fao.org/ag/locusts
Facebook/Twitter: faolocust

Weather & Ecological Conditions in November 2022

Good rains fell in northern part of the Red Sea coastal plains in Saudi Arabia.

WESTERN REGION

No significant rain fell during November. Vegetation was still green in northwest Mauritania near Akjoujt and Atar as well as in northeast Chad southeast of Fada. In Algeria, vegetation was green in a few places near irrigation perimeter in the Adrar Valley of the central and in the south near Tamanrasset. For all other areas, vegetation was drying or dry.

CENTRAL REGION

During November, rainfall occurred along the Red Sea coastal plain and northeast subcoastal areas of Sudan, Saudi Arabia, and a few places of northern Somalia. Vegetation was green on the Red Sea coast in Yemen and started to become green on the southern part of the Red Sea coast in Sudan and Saudi Arabia. In northern Saudi Arabia, vegetation was still dry but good rains fell in the third decade on the central and northern areas. Vegetation was also greening on the central areas of Eritrea, Djibouti, and parts of northern Somalia but was still dry in southeast Egypt, interior of Yemen, and in Oman.

EASTERN REGION

No significant rains fell in the region during November. Vegetation was drying out in both sides of the Indo-Pakistan border except for a few places in Nara of Pakistan and western parts of Jaisalmer and Barmer in Rajasthan, India.

Area Treated

Control operations were carried out during November:

Mauritania	2 298 ha

Desert Locust Situation and Forecast

WESTERN REGION

ALGERIA

• **SITUATION**

During November, isolated immature solitarious adults were seen near irrigated perimeters in the Adrar Valley (2753N/0017W). No locusts were present in the south near Tamanrasset (2250N/0528E).

• **FORECAST**

No significant developments are likely.

CHAD

• **SITUATION**

During November, isolated mature solitarious adults were seen at a few places near Arada (1501N/2040E) and Amdjarass (1604N/2250E) in the northeast. No locusts were present from Kanem to Fada.

• **FORECAST**

Isolated solitarious adults will decrease and no significant developments are likely.

LIBYA

• **SITUATION**

No locusts were reported during November.

• **FORECAST**

No significant developments are likely.

MALI

• **SITUATION**

No surveys were carried out and no locusts were reported during November.

• **FORECAST**

Low numbers of solitarious hoppers and adults will decrease in Timetrine, Adrar des Iforas, and Tamesna. No significant developments are likely.

MAURITANIA

• **SITUATION**

During November, groups of 1st to 3rd instars transiens hoppers were seen in the first half of the month between Akjoujt (1945N/1421W) and Atar (2032N/1308W). During the second half of the month, 4th and 5th instar transiens and a few small gregarious bands were seen. Very few isolated immature and mature adults were present, including a few copulating and one mature group. Most of the locusts are within an area of about 100 km by 70 km northeast of Akjoujt. There is also a smaller area of about 20 km southwest of Akjoujt. No surveys were carried out in other parts of the northwest. Ground teams treated 2 298 ha.

• **FORECAST**

Hopper groups and a few small bands will continue in northeast from Akjoujt to Atar as groups of adults are likely to form. These should decrease due to control, vegetation that starts to dry out, and rain which is not likely to occur.

MOROCCO

• **SITUATION**

During November, isolated immature solitarious were seen south of the Atlas Mountains in the Draa Valley between Assa (2836N/0926W) and Foum El Hassan (2901N/0853W).

• **FORECAST**

Low numbers of adults will remain in parts of Draa Valley of Morocco.

Niger

• **SITUATION**

During November, a few scattered immature solitarious adults and one small group were present between Tanout (1458N/0852E) and Tasker (1507N/1041E).

• **FORECAST**

No significant developments are likely.

Senegal

• **SITUATION**

No locusts were reported during November.

• **FORECAST**

No significant developments are likely.

Tunisia

• **SITUATION**

No locusts were reported during November.

• **FORECAST**

No significant developments are likely.

Western Sahara

• **SITUATION**

Scattered mature solitarious adults were present in the Adrar Settouf between Ma'Tallah (2223N/1502W) and the coast. Further north, isolated immature solitarious were seen south of the Wadi Sakia El Hamra near Smara (2644N/1140W).

• **FORECAST**

Low numbers of adults will remain in parts of Adrar Settouf and Sakia El Hamra in Western Sahara.

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.

CENTRAL REGION

Djibouti

• **SITUATION**

During November, no locusts were seen in the northern, southern and southeast interior as well as the northern coastal.

• **FORECAST**

No significant developments are likely.

Egypt

• **SITUATION**

During November, only isolated immature adults were seen at one site near Halaib (2213N/3638E). No locusts were seen during the surveys conducted between Shalatyn (2308N/3535E) and Halaib, near Lake Nasser between Abu Simbel and Tushka (2247N/3126E), and in the northwest near Siwa oasis (2912N/2531E).

• **FORECAST**

A few locusts may appear on the Red Sea coast in the southeast and breed on a small scale if more rainfall appears.

Eritrea

• **SITUATION**

During November, a few isolated immature solitarious adults were present in the central area on the Red Sea coast near Sheib (1551N/3903E) and Akbanazouf Plain (1555N/3910E).

• **FORECAST**

Small-scale breeding is likely to occur on the central and northern coastal plains if more rainfall appears.

Ethiopia

• **SITUATION**

No reports were received and no locusts were reported in November.

• **FORECAST**

No significant developments are likely.

Kenya

• **SITUATION**

No locust reports were received and no locusts were reported in October.

• **FORECAST**

No significant developments are likely.

Oman

• **SITUATION**

During November, no locusts were seen near Musandam Peninsula, on the Batinah coast, and in a few places in the northern interior.

• **FORECAST**

No significant developments are likely.

Saudi Arabia

• **SITUATION**

During November, no locusts were seen in Red Sea coast from Yenbo (2405N/3802E) to Jizan (1656N/4233E), and in the southwest interior near Najran (1729N/4408E).

• **FORECAST**

Low numbers of adults are likely to appear on the Red Sea coastal plains and breed on a small scale.

Somalia

• **SITUATION**

During November, a few immature solitarious adults were seen at one place in the northwest coast southeast of Lughaye (1041N/4356E). No locusts were seen in the coast, escarpment, and plateau of Somaliland, in Puntland near Erigavo (1040N/4720E), Gardo (0930N/4905E), Garowe (0824N/4829E), and in central areas near Galkayo (0646N/4725E).

• **FORECAST**

A few locusts may breed on a small scale if more rainfall appears.

Sudan

• **SITUATION**

During November, scattered immature and mature solitarious adults were seen in the winter areas along the Red Sea coast

near Tokar (1827N/3741E) and further south near Aiterba (1753N/3819E) and Eritrea. A few copulating adults were found in both areas during the last decade. In the summer breeding area, low numbers of solitarious adults were seen on the west of the Red Sea Hills near Haiya (1820N/3621E), the Atbara River and a few near the Bayuda Desert.

• FORECAST

Low numbers of solitarious adults will increase slightly with copulating and laying in central and southern Red Sea coastal plain. Hatching should start by the first week of December and fledging from about the second week of January. Breeding may also occur in the northern Red Sea coast and subcoastal area.

Yemen

• SITUATION

During November, scattered immature and mature solitarious adults were seen on the central and north Red Sea coast from Hodeidah (1450N/4258E) to Suq Abs (1600N/4312E). Elsewhere, no locusts were seen in the interior near Bayhan (1452N/4545E), Nisab (1430N/4629E), Al Abr (1608N/4714E), Sayun (1559N/4844E), Thamud (1717N/4955E), and Hat (1719N/5205E).

• FORECAST

Low numbers of solitarious adults may increase slightly on the Red Sea coastal plains where breeding can occur if more rains fall.

Bahrain, D.R. Congo, Iraq, Israel, Jordan, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syria, Tanzania, Turkey, Uganda, and UAE

• FORECAST

No significant developments are likely.

EASTERN REGION

Afghanistan

• SITUATION

No locust reports were received in November.

• FORECAST

No significant developments are likely.

India

• SITUATION

During November, no locusts were seen by surveys in Rajasthan and Gujarat.

• FORECAST

No significant developments are likely.

Iran

• SITUATION

During November, no locusts were seen by surveys in the south and southeast.

• FORECAST

No significant developments are likely.

Pakistan

• SITUATION

During November, no locusts were seen by surveys in Tharparkar, Nara, and Cholistan in the summer breeding area as well as the Uthal area near the coastal area in Baluchistan.

• FORECAST

Low numbers of locust will decrease in Tharparkar, Nara, Cholistan, and Uthal.

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 (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]

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]

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)

Real-time evaluation report

The full report of the *2020–2021 Desert Locust upsurge real-time evaluation* is available: http://tiny.cc/RTE2022

2023 calendar

- **DLCC.** 42nd session (14-17 March, Kenya)

Glossary of terms

The following special terms are used in the Desert Locust Bulletin when reporting locusts:

Non-gregarious adults and hoppers

Isolated (few)
- very few present and no mutual reaction occurring
- 0–1 adult/400 m foot transect (or less than 25/ha)

Scattered (some, low numbers)
- enough present for mutual reaction to be possible but no ground or basking groups seen
- 1–20 adults/400 m foot transect (or 25–500/ha)

Group
- forming ground or basking groups
- 20+ adults/400 m foot transect (or 500+/ha)

Adult swarm and hopper band sizes

Very small
- swarm: less than 1 km^2
- band: 1–25 m^2

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

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

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

Very large
- swarm: 500+ km^2
- band: 50+ ha

Rainfall

Light
- 1–20 mm

Moderate
- 21–50 mm

Heavy
- more than 50 mm

Summer rains and breeding areas
- July–September/October
- Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border

Winter rains and breeding areas
- October–January/February
- Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara

Spring rains and breeding areas
- February–June/July
- Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border

Other reporting terms

Breeding
- The process of reproduction from copulation to fledging

Recession
- Period without widespread and heavy infestations by swarms

Remission
- Period of deep recession marked by the complete absence of gregarious populations

Outbreak
- A marked increase in locust numbers due to concentration, multiplication and gregarisation which, unless checked, can lead to the formation of hopper bands and swarms

Upsurge
- A period following a recession marked initially by a very large increase in locust numbers and contemporaneous outbreaks followed by the production of two or more successive seasons of transient-to- gregarious breeding in complimentary seasonal breeding areas in the same or neighbouring Desert Locust regions

Plague

- A period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously

Decline

- A period characterised by breeding failure and/or successful control leading to the dissociation of swarming populations and the onset of recessions; can be regional or major

Warning levels

Green

- *Calm*. 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

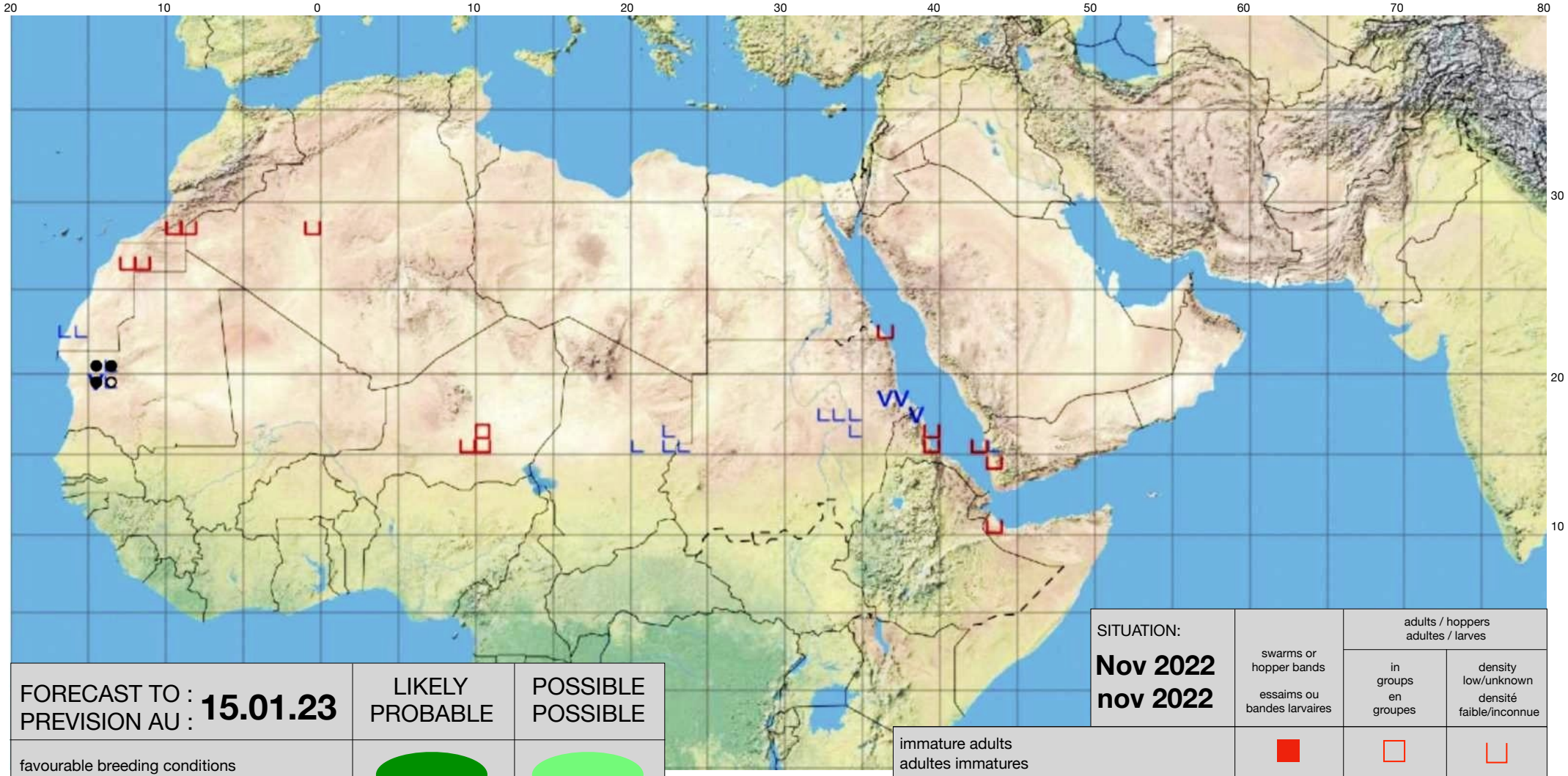
FAOLocust Facebook. Information exchange using social media
http://www.facebook.com/faolocust

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

530



FORECAST TO : PREVISION AU : **15.01.23**	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: **Nov 2022** **nov 2022**	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)	●	○	◡

Food and Agriculture Organization of the United Nations

DESERT LOCUST UPDATE

DESERT LOCUST INFORMATION SERVICE

Danger Level = Serious (Central Region)

6 JANUARY 2022. SMALL SWARMS PERSIST IN NE SOMALIA

OVERVIEW. Control operations are continuing against a limited number of small immature swarms in northeast Somalia that formed last month from local breeding. During the last week of December, a few swarms probably migrated towards the southwest and reached the edge of the Rift Valley in southern Ethiopia where they were reported on the 28–29th. Since then, there have been no signs of additional migration towards southern Ethiopia and northern Kenya. Elsewhere, low numbers of solitarious adults are present along both sides of the Red Sea where winter breeding has started in Yemen and southeast Egypt.

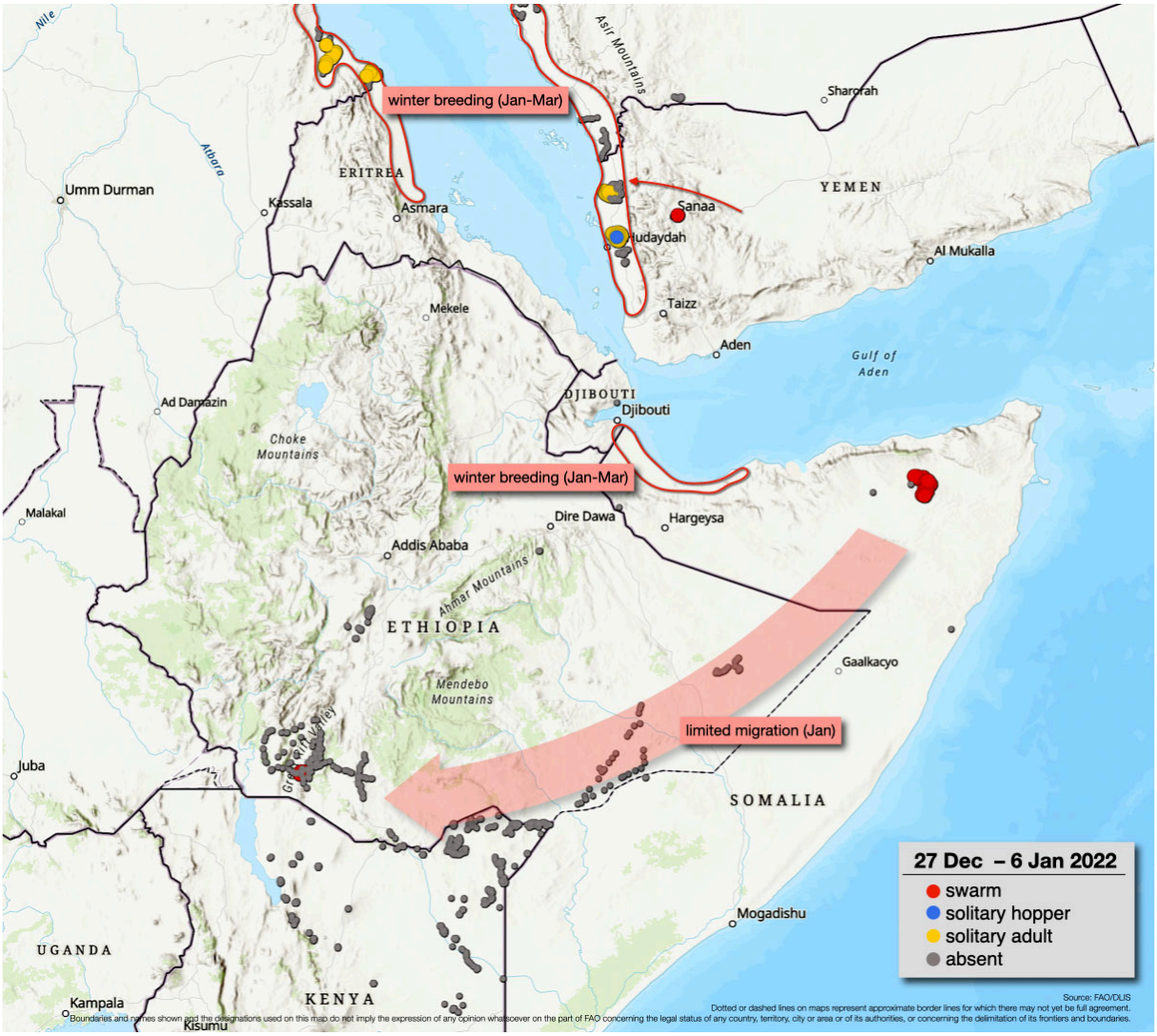
WHY IT MATTERS. The control operations carried out in northeast Somalia during the past month have dramatically reduced the number of swarms that formed in the past three weeks. Nevertheless, a few immature swarms are still present in the northeast where they are likely to remain a bit longer than expected because local winds are concentrating them between Garowe, Las Anod, and Erigavo and delaying their anticipated migration south-westwards across eastern Ethiopia to the border of Kenya. As conditions are drying out in northern Somalia, limited swarm movement is still expected to occur. If any swarms reach the Kenya/Ethiopia border, easterly and southeasterly winds are likely to carry them towards the Rift Valley in northern Kenya and southern Ethiopia, preventing movement further south into central Kenya. Consequently, vigilance and preparedness should be maintained in northern Kenya and southern Ethiopia throughout January in case any additional small immature swarms appear from the northeast. The current level of resources should be sufficient to control the swarms before they become mature and ready to breed when the long rains commence in about April. Elsewhere, no significant developments are expected along both sides of the Red Sea.

CONTEXT. Compared to the past two years, the potential invasion of swarms in northeast Kenya is later this year because they are only present in northeast Somalia and not in eastern Ethiopia and central Somalia where prevailing winds tend not to impede their migration. The threat to Kenya this year is less dangerous and on a much smaller scale.

TAKEAWAY. The current upsurge continues to show optimistic signs that it is declining further.

- **Central Region** (SERIOUS) – maintain operations (Ethiopia, Somalia) and vigilance (N. Kenya)
- **Western Region** (CALM) – no significant activities
- **Eastern Region** (CALM) – no significant activities

www.fao.org/ag/locusts



CURRENT SITUATION. Control operations continue against a few small immature swarms in NE Somalia where local winds are delaying migration southwards to southern Ethiopia and northern Kenya. Low numbers of adults are present in winter breeding areas along both sides of the Red Sea where breeding has started in some places.

Food and Agriculture Organization of the United Nations

No. 531 8 JANUARY 2023

Desert Locust Bulletin

General situation during December 2022
Forecast until mid-February 2023

WESTERN REGION: CALM

SITUATION. Small groups of adults in a very small outbreak in northwest **Mauritania** (2 264 ha treated); scattered adults in southern part of **Western Sahara** (562 ha), the central and southern Sahara of **Algeria**, and in **Niger**.

FORECAST. Locust should decrease in northwest **Mauritania** where only small numbers remains; low numbers of adults are likely to remain in northern Mauritania, **Western Sahara**, and a few in central and southern **Algeria**. No significant rainfall or vegetation are expected in the next six weeks except in a few parts in northern Mauritania.

CENTRAL REGION: CALM

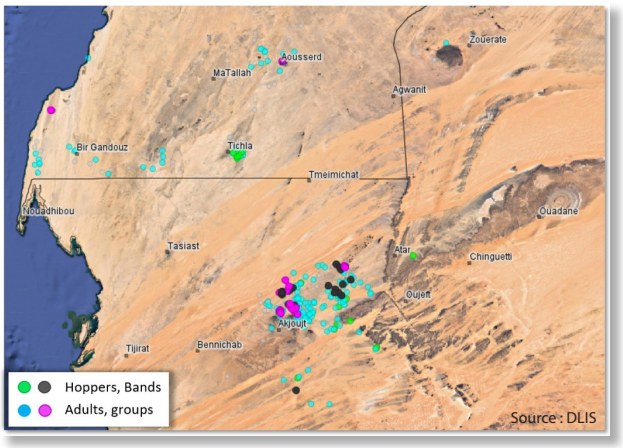
SITUATION. Low numbers of hoppers and adults in the Red Sea coast of **Sudan**, Red Sea and Gulf of Aden in **Yemen**; and isolated adults in southeast **Egypt**.

FORECAST. Low numbers of locusts will remain in a few areas of the Red Sea coast in **Sudan** and **Egypt**, the Red Sea and Gulf of Aden in **Yemen**, and could appear on the Red Sea coast of **Saudi Arabia** and breed. A few locusts may occur in **Eritrea** and **Somalia** if more rains fall. However, no significant rainfall is expected except for central Red Sea coast in Saudi Arabia and perhaps southern Sudan in January.

EASTERN REGION: CALM

SITUATION. No locusts present.

FORECAST. No significant developments are likely.



SMALL OUTBREAK CONTINUES IN MAURITANIA

The Desert Locust situation continued to remain calm during December. The very small outbreak continues in northwest Mauritania where hoppers completed development after the first dekad and only groups of immature adults were present. Low numbers of adults were observed in the southern Western Sahara. Ground teams treated 2 264 and 562 ha in Mauritania and Morocco respectively. Low numbers of adults were seen in Niger, Algeria and Egypt. In Sudan and Yemen, low numbers of hoppers and adults were observed along the Red Sea coast and the Gulf of Aden. During the forecast, locusts will decrease in northwest Mauritania due to control and only low numbers will remain. Similar, locusts should decrease in northern Mauritania and Western Sahara. No significant rainfall or vegetation is expected in the next six weeks except perhaps in northern Mauritania and the central Red Sea coast of Saudi Arabia and maybe Sudan. Low numbers of hoppers and adults are likely to continue in the Red Sea coast of Sudan, Yemen, and perhaps Egypt. In Saudi Arabia, low numbers of adults may occur on the Red Sea coast and breed on a small scale. No significant development is 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.

Telephone: +39 06 570 52420 (7 days/week, 24 hr)
E-mail: eclo@fao.org / faodlislocust@gmail.com
Internet: www.fao.org/ag/locusts
Facebook/Twitter: faolocust

Weather & Ecological Conditions in December 2022

Only limited rains were seen in Western Sahara, northern Mauritania, and parts of the Red Sea coastal areas in Saudi Arabia and Sudan.

WESTERN REGION

Vegetation was nearly dry in most areas of the northern Sahel and further north in the desert. Nevertheless, small areas of vegetation were still green in a few places near Inchiri and Adrar of Mauritania and parts of the southern Western Sahara. In Algeria, light rain fell in parts of the central Sahara near the first dekad and vegetation was green near irrigation perimeters in the Adrar Valley. On 28–31 December, some rain fell in places of Western Sahara near the coast and interior as well as parts of Adrar and Tiris-Zemmour in Mauritania.

CENTRAL REGION

Light rainfall occurred in the Red Sea coastal areas of Saudi Arabia through the month and during the second dekad in Sudan. Small areas of vegetation were green in a few places of the Red Sea and Gulf of Aden coast in Yemen as well as the coast and subcoastal area of Sudan. It was starting to become green on parts of the Red Sea coast of Saudi Arabia but remained mostly dry on the coast of Egypt, Eritrea, and northwest Somalia.

EASTERN REGION

Light to moderate rains fell in the southwest coastal area of Iran. Fortunately, this does not affect locusts since there is not an upsurge now.

Area Treated

Control operations were carried out during December:

Mauritania	2 264 ha
Morocco	562 ha

Desert Locust Situation and Forecast

WESTERN REGION

Algeria

• **SITUATION**

During December, isolated immature solitarious adults were seen in a few places in the central near Adrar (2753N/0017W) while isolated mature adults were present further south near Tamanrasset (2250N/0528E).

• **FORECAST**

No significant developments are likely.

Chad

• **SITUATION**

No locusts were reported during December.

• **FORECAST**

No significant developments are likely.

Libya

• **SITUATION**

No locusts were reported during December.

• **FORECAST**

No significant developments are likely.

Mali

• **SITUATION**

No locusts were reported during December.

• **FORECAST**

No significant developments are likely.

Mauritania

• **SITUATION**

During December, small solitarious and transiens, groups and a few very small bands of fourth and fifth instar hoppers were seen north and east of Akjoujt (1945N/1421W) towards Atar (2032N/1308W) in the first dekad only followed by a few solitarious third to fifth instar hoppers during the last dekad. As a result, groups of immature adults increased during the first two dekad and then decrease thereafter. A few mature solitarious adults were seen during the last week. Ground teams treated 2 264 ha. Elsewhere, a few isolated solitarious mature adults were seen further north near Zouerate (2244N/1221W) and Bir Moghrein (2510N/1135W).

• **FORECAST**

Adults are likely to continue to decrease in the northeast from Akjoujt to Atar due to control, drying vegetation, and no further rainfall. Low numbers of small adults are likely to be present further north in Tiris-Zemmour.

Morocco

• **SITUATION**

During December, no locusts were seen south of the Atlas Mountains from Guelmim (2859N/1003W) to south of Tan-Tan (2826N/1106W).

• **FORECAST**

Low numbers of adults will remain in parts of Draa Valley of Morocco.

Niger

• **SITUATION**

During December, isolated third and fourth solitarious hoppers and immature and mature solitarious adults were present at a

few places in the Air Mountains to the northwest and southeast of Iferouane (1905N/0824E). A few immature solitarious and transiens adults were seen on the 1st of December in the central pasture northwest of Tasker (1507N/1041E).

• **FORECAST**

A few numbers of solitarious adults may remain in the Air Mountains. No significant developments are likely.

Senegal

• **SITUATION**

No locusts were reported during December.

• **FORECAST**

No significant developments are likely.

Tunisia

• **SITUATION**

No locusts were reported during December.

• **FORECAST**

No significant developments are likely.

Western Sahara

• **SITUATION**

Isolated immature solitarious adults were present in Adrar Settouf during the second half of the months near Aousserd (2233N/1419W), Tichla (2138N/1453W), close to the coast near Bir Gandouz (2136N/1628W), and a few near Bir Anzarane (2353N/1431W). Small groups of immature adults were seen near Bir Anzarane and at the coast. Scattered third to fifth instar solitarious hoppers were seen near Tichla during the third dekad. They had hatched from the last week of November to mid-December and fledging will finish about mid-January. Further north, isolated immature solitarious adults were seen in Wadi Sakia El Hamra near Haouza (2707N/1112W).

• **FORECAST**

Low numbers of solitarious adults are likely to remain in parts of the Adrar Settouf in Western Sahara.

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.

CENTRAL REGION

Djibouti

• **SITUATION**

No locusts were seen or reported during December.

• **FORECAST**

No significant developments are likely.

Egypt

• **SITUATION**

During December, isolated mature solitarious adults were present at a few places near the Red Sea coast in the southeast between Abu Ramad (2224N/3624E) and the subcoastal area near Wadi Diib as well as south and north of Abraq (2323N/3451E). No locusts were seen in the Nile Valley near Abu Simbel (2219N/3138E), Tushka (2247N/3126E), and north of Aswan (2405N/3256E.

• **FORECAST**

Local breeding may occur on a small scale along the southeast Red Sea coast if more rain fall.

Eritrea

• **SITUATION**

No locusts were seen or reported during December.

• **FORECAST**

Small-scale breeding may occur on the central and northern coastal plains if more rain fall.

Ethiopia

• **SITUATION**

During December, no locusts were seen by surveys conducted in the Somali and Oromia regions.

• **FORECAST**

No significant developments are likely.

Oman

• **SITUATION**

During December, no locusts were seen near Musandam Peninsula, on the Batinah coast, the northern interior and in the south near Dhofar.

• **FORECAST**

No significant developments are likely.

Saudi Arabia

• **SITUATION**

During December, no locusts were seen on the Red Sea coast from Yenbo (2405N/3802E) in the north to Jizan (1656N/4233E) in the south as well as in the southwest interior near Najran (1729N/4408E).

• **FORECAST**

Low numbers of adults are likely to appear on the Red Sea coastal plains and breed on a small scale.

Somalia

• **SITUATION**

During December, no locusts were seen by surveys in the Somaliland from the northwest coast, escarpment, and the plateau from Boroma (0956N/4313E) to Burco (0931N/4533E). Similarly, no locusts were seen in the northeast coast from Bosaso (1118N/4910E) to the interior near Las Anod (0828N/4721E) and Galkayo (0646N/4725E).

• **FORECAST**

A few locusts may occur in the northwest but more rain is needed before breeding can occur. No significant developments are likely.

Sudan

• SITUATION

During December, isolated late solitarious hoppers and a few isolated immature solitarious adults were seen in a few places in the Tokar Delta (1827N/3741E) during the second half of the month. In the last week, scattered two to fourth solitarious hoppers were at one place in the south near Karora (1745N/3820E) while isolated first instar hoppers were seen on the coast in the north. Elsewhere, scattered solitarious mature adults were present in the northeast subcoastal areas from Wadi Oko near Tomala (2002N/3551E) to Wadi Diib and the Egypt border, and on the coast from north of Port Sudan (1938N/3713E) to the Eritrea border.

• FORECAST

Low numbers of solitarious hoppers and adults will remain in a few areas in the Red Sea coastal plain of north, central and south as well as the subcoastal areas in the northeast.

Yemen

• SITUATION

During December, scattered immature and mature solitarious adults were present in the Red Sea coast from Zabid (1410N/4318E) to Suq Abs (1600N/4312E) and a few places in the Gulf of Aden coast near Am Rija (1302N/4434E) and Zinjibar (1306N/4523E) and farther north near Mayfa'a (1416N/4735E). Scattered fifth instar solitarious hoppers were seen in a few places in northern Red Sea and Aden coasts during the second half of the month where hatching had started during the second half of November.

• FORECAST

Low numbers of breeding will occur in a few areas of the Red Sea and Gulf of Aden. No significant developments are likely.

Bahrain, D.R. Congo, Iraq, Israel, Jordan, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syria, Tanzania, Turkey, Uganda, and UAE

• FORECAST

No significant developments are likely.

EASTERN REGION

Afghanistan

• SITUATION

No locust reports were received in December.

• FORECAST

No significant developments are likely.

India

• SITUATION

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

• FORECAST

No significant developments are likely.

Iran

• SITUATION

No locusts were seen by surveys in the south and northeast during December.

• FORECAST

No significant developments are likely.

Pakistan

• SITUATION

No locust surveys were carried out and no locusts were reported during December.

• FORECAST

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 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 (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]

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]

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)

Real-time evaluation report

The full report of the *2020–2021 Desert Locust upsurge real-time evaluation* is available: http://tiny.cc/RTE2022

2023 calendar

- **DLCC.** 42nd session (13-17 March, Nairobi, Kenya)

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)

Scattered (some, low numbers)
- enough present for mutual reaction to be possible but no ground or basking groups seen
- 1–20 adults/400 m foot transect (or 25–500/ha)

Group
- forming ground or basking groups
- 20+ adults/400 m foot transect (or 500+/ha)

Adult swarm and hopper band sizes

Very small
- swarm: less than 1 km^2
- band: 1–25 m^2

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

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

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

Very large
- swarm: 500+ km^2
- band: 50+ ha

Rainfall

Light
- 1–20 mm

Moderate
- 21–50 mm

Heavy
- more than 50 mm

Summer rains and breeding areas
- July–September/October
- Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border

Winter rains and breeding areas
- October–January/February
- Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara

Spring rains and breeding areas
- February–June/July
- Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border

Other reporting terms

Breeding
- The process of reproduction from copulation to fledging

Recession
- Period without widespread and heavy infestations by swarms

Remission
- Period of deep recession marked by the complete absence of gregarious populations

Outbreak
- A marked increase in locust numbers due to concentration, multiplication and gregarisation which, unless checked, can lead to the formation of hopper bands and swarms

Upsurge

- A period following a recession marked initially by a very large increase in locust numbers and contemporaneous outbreaks followed by the production of two or more successive seasons of transient-to- gregarious breeding in complimentary seasonal breeding areas in the same or neighbouring Desert Locust regions

Plague

- A period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously

Decline

- A period characterised by breeding failure and/or successful control leading to the dissociation of swarming populations and the onset of recessions; can be regional or major

Warning levels

Green

- *Calm*. 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

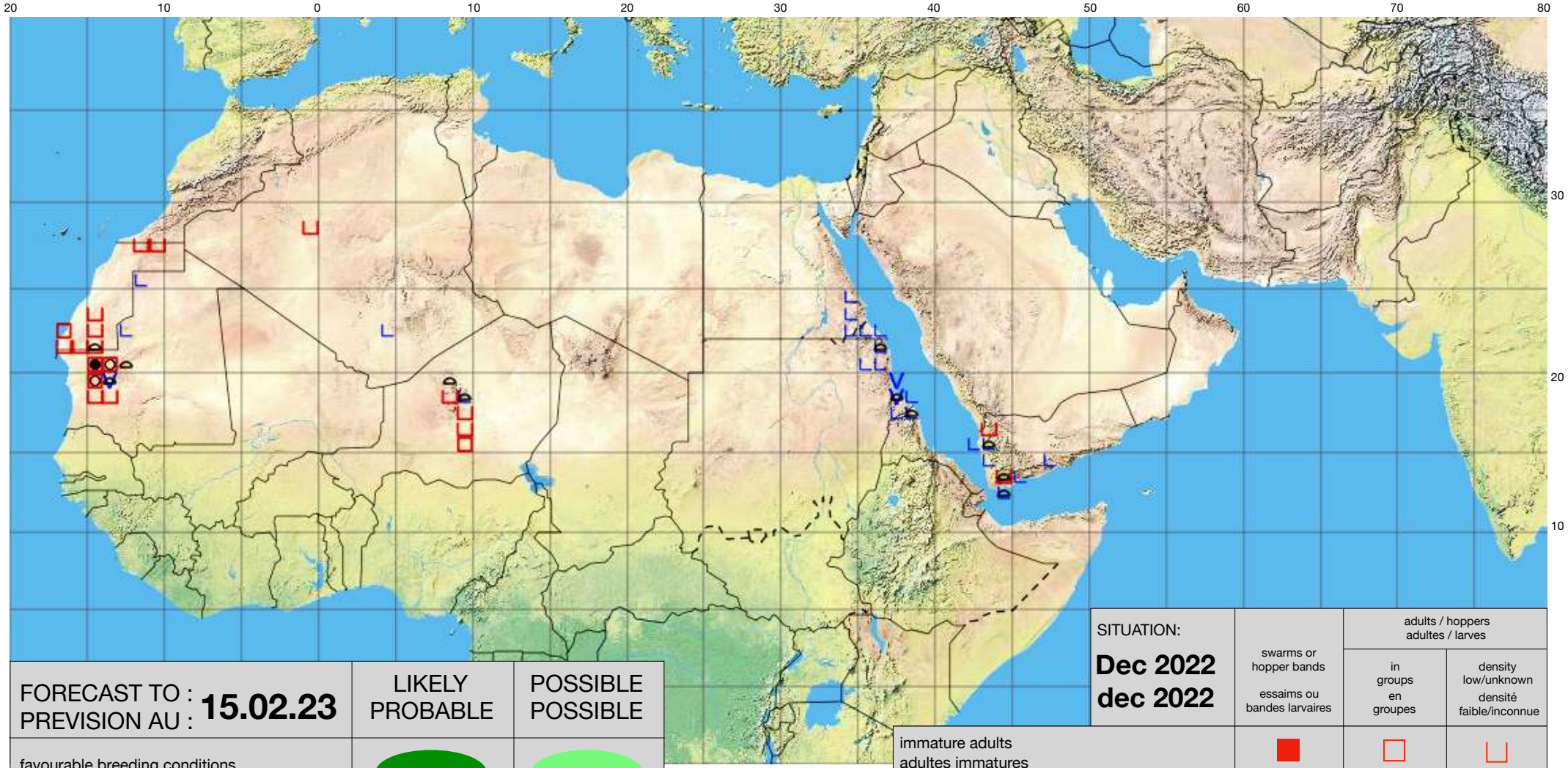
FAOLocust Facebook. Information exchange using social media
http://www.facebook.com/faolocust

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

531



FORECAST TO : PREVISION AU : **15.02.23**	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: **Dec 2022 dec 2022**	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)	●	○	◡