Food and Agriculture Organization of the United Nations

No. 519 4 JANUARY 2022

Desert Locust Bulletin

General situation during December 2021
Forecast until mid-February 2022

WESTERN REGION: CALM

SITUATION. Scattered hoppers and adults from local breeding in **Niger**.

FORECAST. No significant developments.

CENTRAL REGION: THREAT

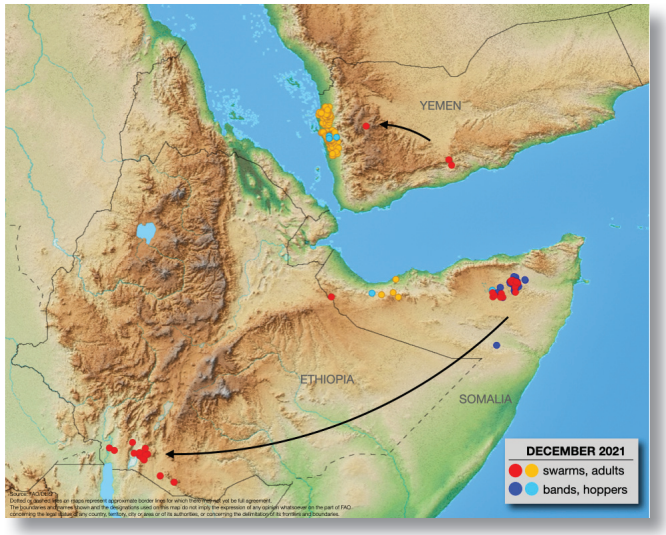
SITUATION. Control operations continue against numerous small late instar hopper bands in northeast **Somalia** (24 356 ha treated) where fledging started at mid-month, causing several small immature swarms to form. A few immature and mature swarms were present in southern **Ethiopia** (1 956 ha). Small adult groups declined in the interior of **Sudan** (1 550 ha) due to control and as adults moved to the Red Sea coast, causing scattered mature adults to increase slightly on the coast and in the northeast. Local breeding continues in southeast **Egypt** (6 ha). Isolated adults are present on the coast of **Eritrea**. Small-scale breeding started on the Red Sea coast of **Yemen** where scattered adults are present.

FORECAST. A few small immature swarms are likely to migrate from northeast **Somalia** to southern **Ethiopia** and northern **Kenya** in January; some swarms could also reach southern Somalia. The swarms are not likely to mature and breed until the long rains start in about April. Undetected breeding by summer-bred mature swarms may have occurred during December near the Ethiopia/Kenya border. Small-scale breeding will occur but may be limited by poor rains in coastal areas along both sides of the Red Sea in southeast **Egypt**, **Sudan**, **Eritrea**, **Yemen**, and **Saudi Arabia**, and on both sides of the Gulf of Aden.

EASTERN REGION: CALM

SITUATION. No locusts present.

FORECAST. Isolated adults may appear in spring breeding areas of southeast **Iran** and southwest **Pakistan** in February; no significant developments.



Small swarms form in NE Somalia

Desert Locusts remained confined to northeast Somalia and southern Ethiopia where control operations continued to reduce infestations during December. As expected, hoppers began to fledge at mid-month and formed several small immature swarms in northeast Somalia. The few swarms are limited in size and have so far remained mostly in the breeding areas. Nevertheless, it is likely that a few small swarms will move south through central and southern Somalia and adjacent areas of eastern Ethiopia to reach southern Ethiopia and northern Kenya during January. An early movement may have already occurred in late December when a few immature swarms were seen in southern Ethiopia near the Rift Valley where control operations were underway against small summer-bred mature swarms that so far have not bred. There should be sufficient teams and resources to undertake control operations well before the current swarms mature and breed, which would not occur until about April. Low numbers of solitarious adults are present in the winter breeding areas along both sides of the Red Sea in southeast Egypt, Sudan, Eritrea, and Yemen, and on the Gulf of Aden coast in northwest Somalia. Small-scale breeding commenced in Egypt, Yemen, and Somalia but numbers should remain low based on current predictions of poor rainfall during the winter. Consequently, the outlook is optimistic and suggests the upsurge will continue to decline. The situation remains calm in other regions.

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)
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Weather & Ecological Conditions in December 2021

Dry conditions in the Horn of Africa limited breeding. Breeding conditions improving along both sides of the Red Sea.

WESTERN REGION

Very little rain fell in the region during December except for parts of northwest Mauritania where light showers may have occurred during the second decade in Dakhlet Nouadhibou and western Inchiri. Consequently, ecological conditions remained dry and unfavourable for locusts except in Algeria near irrigated perimeters in the Adrar Valley of the central Sahara, west of Tamanrasset in the south, and near the Niger border and In Guezzam.

CENTRAL REGION

No significant rain fell in the region during December. Consequently, ecological conditions continued to dry out in the Horn of Africa and in the interior of Sudan and Yemen. In the winter breeding areas along both sides of the Red Sea, light showers may have fallen near the Sudan/Egypt border and on the central coast of Saudi Arabia between Jeddah and Masturah at mid-month. Despite poor rainfall, annual vegetation was green in some coastal and subcoastal areas of southeast Egypt between the Sudan border and El Sheikh El Shazly, on the coast of Sudan from Port Sudan to Eritrea, on the coast of Eritrea near Akbanazouf Plain, on the coast of Saudi Arabia near Jizan, Qunfidah, and Masturah, and on the coast of Yemen from Zabid to Suq Abs. Vegetation was becoming green in a few places on the northwest coast of Somalia.

EASTERN REGION

Dry conditions prevailed and no significant rain fell in the region during December. Consequently, conditions were not favourable for breeding.

Area Treated

Control operations declined to 27 868 ha in December compared to 38 483 ha in November.

Egypt	6 ha
Ethiopia	1 956 ha
Somalia	24 356 ha
Sudan	1 550 ha

Desert Locust Situation and Forecast

WESTERN REGION

Algeria

• **SITUATION**

During December, 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 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**

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

Mauritania

• **SITUATION**

No locusts were reported during December.

• **FORECAST**

No significant developments are likely.

Morocco

• **SITUATION**

No locusts were reported during December.

• **FORECAST**

No significant developments are likely.

Niger

• **SITUATION**

During December, scattered immature and mature solitarious adults persisted to the southeast of the Air Mountains and isolated solitarious hoppers were present at one place. Isolated immature and mature solitarious adults, including a few small concentrations, were seen on the Tamesna Plains south of In Abangharit (1754N/0559E) and south of Assamakka (1920N/0546E).

• **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 December.

• **FORECAST**

No significant developments are likely.

Tunisia

• **SITUATION**

No locusts were reported during November and December.

• **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 December, no locusts were seen during surveys in the southeast near Ali Sabieh (1109N/4242E) and in the northern interior near Obock (1158N/4317E).

• **FORECAST**

No significant developments are likely.

Egypt

• **SITUATION**

During December, scattered mature solitarious were present in the southeast along the Red Sea coastal plains and subcoastal areas between El Sheikh El Shazly (2412N/3438E) and the Sudan border. A few copulating adults were seen during the first week and early instar hoppers, including a few small groups and bands of *transiens* hoppers, were present during the third week, indicating that laying started during the last week of November with hatching from the second week of December onwards. No locusts were seen in the interior near Lake Nasser. Ground teams treated 6 ha.

• **FORECAST**

Fledging of current hoppers will commence in mid-January, which could give rise to a few small groups of immature adults. Small-scale breeding could continue along the Red Sea coastal plains in the southeast if more rains fall.

Eritrea

• **SITUATION**

During December, no locusts were seen during surveys along the Red Sea coastal plains between Massawa (1537N/3928E) and the Sudan border. However, locals reported isolated immature solitarious adults in the Afabet (1612N/3841E) area. On the southern coast, isolated mature solitary adults were seen in the Buya area west of Mersa Fatma (1454N/4018E) where breeding occurred last month.

• **FORECAST**

Low numbers of adults may be present and breeding on a small scale in areas of recent rainfall along the southern coastal plains of the Red Sea between Tio and Assab. Small-scale breeding could occur in central and northern coastal areas if more rains fall.

Ethiopia

• **SITUATION**

During December, several mature swarms persisted in the southern parts of SNNPR and Oromia regions between Konso (0520N/3726E) and the Kenya border. There was no indication that breeding took place. An immature swarm was first reported on the 20th, followed by a few more reports of small immature swarms on the 28–29th. These swarms may have arrived from northeast Somalia. No locusts were seen during surveys elsewhere in Oromia and SNNPR as well as in Somali region. Aerial operations treated 1 956 ha.

• **FORECAST**

Breeding may be in progress in the south between Teltele and the Kenya border, giving rise to hatching and the formation of small hopper bands. This could be supplemented by immature swarms from northeast Somalia moving through the Somali region to reach the south during January.

Kenya

• **SITUATION**

No locusts were seen or reported during December.

• **FORECAST**

Low numbers of small immature swarms from northeast Somalia are likely to appear in the northeast during the first two weeks of January and spread to other northern counties towards Turkana and Isiolo.

Oman

• **SITUATION**

During December, no locusts were seen in the northern interior between Ibra (2243N/5831E) and Buraimi (2415N/5547E), on the Musandam Peninsula, and along the Batinah coast.

• **FORECAST**

No significant developments are likely.

Saudi Arabia

• **SITUATION**

During December, no locusts were seen in the southwest interior near Najran (1729N/4408E) and the Yemen border, and along the Red Sea coastal plains from

Jizan (1656N/4233E) to Qunfidah (1909N/4107E) and further north near Rabigh (2247N/3901E).

• **FORECAST**

Low numbers of locusts are likely to appear in some areas along the coastal plains from Jizan to Duba. Small-scale breeding may occur in areas of recent rain near Jizan and in other places that receive rain.

Somalia

• **SITUATION**

During the first three weeks of December, numerous small mid-late instar hopper bands were present in the northeast (Puntland) where they were concentrated in three main areas to the north and northwest of Gardo (0930N/4905E). Hoppers started to fledge on the 14th, giving rise to an increasing number of small immature swarms during the last two weeks of the month. The swarms remained mostly in the breeding areas with a slight westward shift towards eastern Somaliland. There were no reports of a southward movement. In the northwest (Somaliland), scattered immature and mature solitarious adults were present on the escarpment and the coastal plains near Berbera (1028N/4502E). Scattered fourth instar solitarious hoppers were seen on the escarpment south of Bulhar (1023N/4425E) at mid-month, indicating that small-scale breeding had commenced. Control operations treated 24 356 ha of which 5 754 ha were by air.

• **FORECAST**

A limited number of small immature swarms may drift slightly westwards along the plateau before moving south and southwest through central and southern Somalia and adjacent areas of eastern Ethiopia to southern Ethiopia and northern Kenya. In Somaliland, small-scale breeding is likely to cause locust to increase slightly on the northwest coast if rainfall occurs.

Sudan

• **SITUATION**

During December, small groups of immature adults were present in the Bayuda Desert south of Ed Debba (1803N/3057E) in the first week and ground teams treated 1 550 ha. On the Red Sea coastal plains, scattered mature solitarious adults were seen in a few places between the borders of Eritrea and Egypt, and in the northeast along Wadi Oko/Diib from Tomala (2002N/3551E) to the Egypt border.

• **FORECAST**

Locust infestations will end in the Bayuda Desert. Small-scale breeding will occur along much of the Red Sea coastal plains and in subcoastal areas of the northeast but may be limited by poor rainfall that is expected. Nevertheless, there remains a risk that small hopper groups could form in some areas.

Yemen

• **SITUATION**

During December, an immature swarm, most likely from local breeding, was seen in the south on the 9th south of Ataq (1435N/4649E) on the 9th and 25th while another immature swarm was seen near Sana'a (1521N/4412E) on the 28th. Scattered immature and mature solitarious adults were present along the Red Sea coastal plains between Zabid (1410N/4318E) and Suq Abs (1600N/4312E). A few third and fourth instar solitarious hoppers were seen during the third week from laying and hatching in November.

• **FORECAST**

Fledging will start in early January in areas of current breeding along the Red Sea coastal plains. Small-scale breeding will continue and cause locust numbers to increase slightly on the Red Sea coast and may occur on the Gulf of Aden coast in the south.

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 December.

• **FORECAST**

No significant developments are likely.

India

• **SITUATION**

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

• **FORECAST**

No significant developments are likely.

Iran

• **SITUATION**

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

• **FORECAST**

Isolated adults may start to appear the end of the forecast period in coastal areas of the southeast.

Pakistan

• **SITUATION**

No locusts were reported during December.

• **FORECAST**

Isolated adults may start to appear the end of the forecast period in coastal areas of the southwest.

Announcements

Locust warning levels

A colour-coded scheme indicates the seriousness of the current Desert Locust situation: **green** for *calm*, **yellow** for *caution*, **orange** for *threat*, and **red** for *danger*. The scheme is applied to the Locust Watch web page and to the monthly bulletins. The levels indicate the perceived risk or threat of current Desert Locust infestations to crops and appropriate actions are suggested for each level.

Locust reporting

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 fortnightly or monthly bulletins summarizing the situation and share them with other countries. During periods of increased locust activity, decadal bulletins may also be issued.

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 two days of the new month will be included in the FAO Desert Locust Bulletin; otherwise, they will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Desert Locust upsurge and response

On 17 January 2020, the Director-General of FAO activated the L3 protocols, the highest emergency level in the United Nations system, in FAO to allow fast-tracking an effective response to the upsurge in the Horn of Africa.
[www.fao.org/locusts]

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]

Alison Steedman (1947–2021)

It is with deep regret to announce the passing of Alison Steedman on 15 October 2021. Ms Steedman worked with the Anti-Locust Research Centre (ALRC) / Centre for Overseas Pest Research (COPR) in the UK from 1968 to 1976. She was involved in the daily operations of the Desert Locust Information Service (DLIS) at COPR before it was handed over to FAO and was the editor of the *Locust Handbook*. We would like to express our sincere condolences to her family and government.

Calendar

- **Clubhouse discussion.** When will the current Desert Locust upsurge end? https://www.clubhouse.com/join/desert-locust/uJm5jw3T/PALLqd1m (12 January 2022, 16h GMT)
- **CRC.** 32nd session, Jeddah, Saudi Arabia (20–24 February 2022, tbc)
- **DLCC.** 42nd session, Nairobi, Kenya (8–11 March 2022, tbc)
- **CLCPRO.** 10th session, Algiers, Algeria (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

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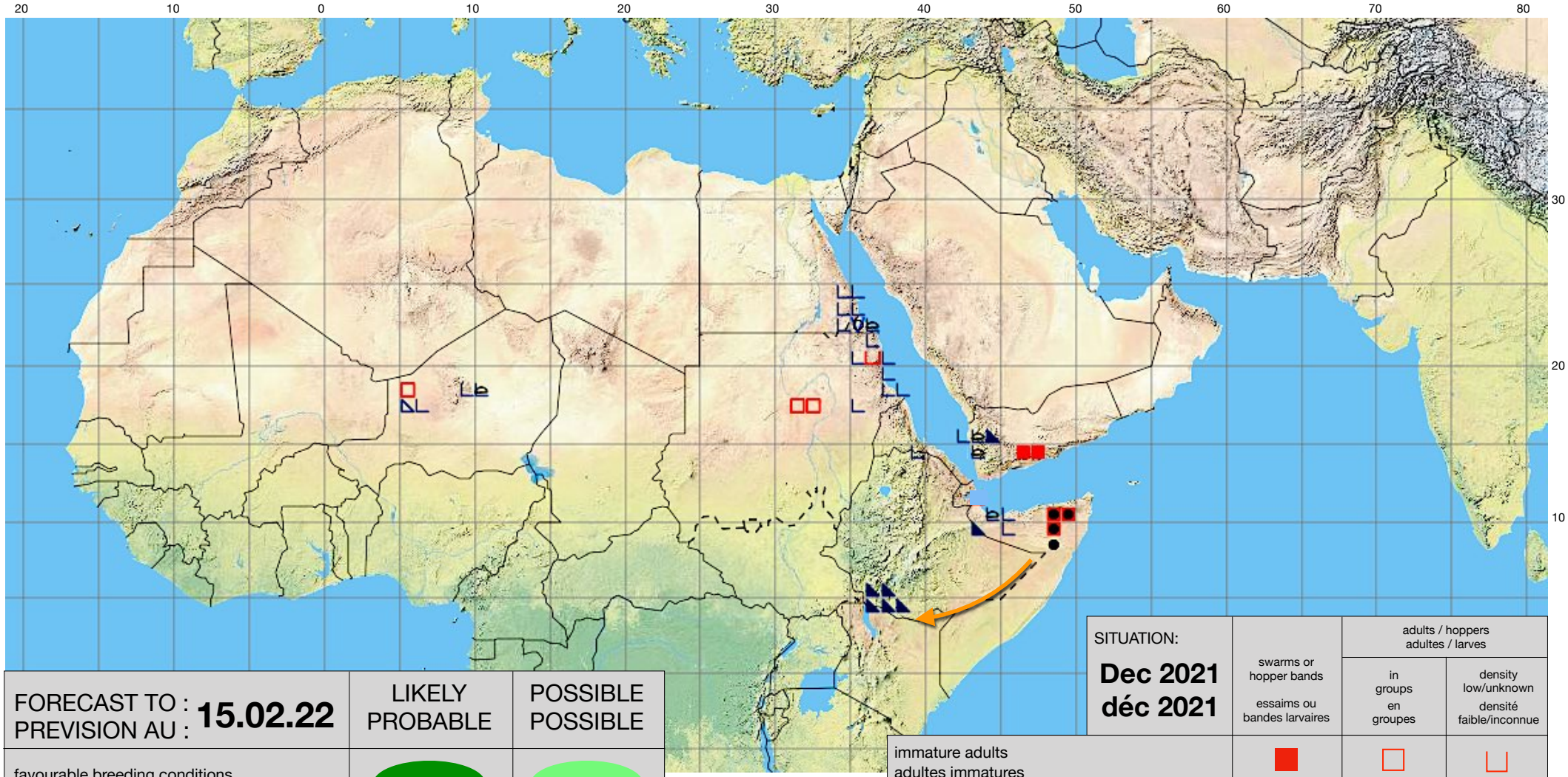

FORECAST TO : PREVISION AU : **15.02.22**	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarms(s) essaim(s) limité(s)		
non swarming adults adults non essaimant		

SITUATION: **Dec 2021 déc 2021**	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)	●■	○□	⌓⊔