

warning level: **CAUTION**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations



No. 458



**General Situation during November 2016
Forecast until mid-January 2017**

(2.12.2016)

A Desert Locust outbreak continued in western Mauritania during November and breeding extended into adjacent areas of southern Morocco. Although control operations were in progress in both countries, another generation of breeding could occur if temperatures remain warm. This will cause more hopper groups and bands as well as adult groups and perhaps a few small swarms to form. The outbreak could spread to northern Mauritania and further north in the Western Sahara where good rains fell in October and breeding is likely. In the Central region, small local outbreaks developed on the Red Sea coast in Yemen and Eritrea while a short-lived outbreak from last month subsided in Sudan. Small-scale breeding will cause locust numbers to increase along both sides of the Red Sea and Gulf of Aden coasts during the forecast period.

Western Region. An outbreak in western Mauritania continued during November as ground teams treated 10,100 ha of hopper bands and groups of hoppers and adults. Hatching occurred in some adjacent areas of areas of **Western Sahara** in southern **Morocco** and limited control operations (75 ha) were undertaken against small hopper bands that formed. More groups, bands and perhaps a few small swarms are expected to form in the outbreak area. Adult groups and perhaps a few small swarms may move progressively northwards during periods of warm southerly winds and reach northern Mauritania and adjacent areas of the Western Sahara where

breeding will occur in areas that received heavy rains in October. Scattered adults persisted along the southern side of the Atlas Mountains in Morocco and in western **Algeria**. Small-scale breeding continued in the extreme south of Algeria near the Malian border and control was carried out on 422 ha. Elsewhere, local breeding occurred in Tamesna and the Air Mountains of northern **Niger** where teams treated 50 ha.

Central Region. Local outbreaks developed in early November on the Red Sea coast in **Eritrea** and **Yemen**. Hopper groups formed in both areas while bands also formed in Yemen. Control operations were undertaken in Eritrea (850 ha) but were limited in Yemen (40 ha) due to insecurity. Breeding will continue and more groups are expected to form in both countries as well as the possibility of a few small swarms in Yemen that could threaten adjacent areas in **Saudi Arabia**. The short-lived outbreak in the interior of **Sudan** last month subsided and so far, only low numbers of adults have appeared in winter breeding areas on the Red Sea coast in Sudan and southeast **Egypt**. Breeding will occur along the coast and in subcoastal areas, causing locust numbers to increase slightly. Elsewhere the situation remained calm.

Eastern Region. The situation remained calm in the region during November. No significant developments are likely.

The FAO Desert Locust Bulletin is issued every month by the Desert Locust Information Service, AGP Division (Rome, Italy). It is supplemented by Alerts and Updates during periods of increased Desert Locust activity. All products are distributed by e-mail and are available on the Internet.

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**Weather & Ecological Conditions in November 2016**

Although little rain fell during November, conditions were favourable for breeding in parts of Northwest Africa and along both sides of the Red Sea.

In the **Western Region**, very little rain fell during November in West and Northwest Africa. Light showers may have occurred at times in a few places of northwest Mauritania and adjacent parts in the extreme south of Morocco. Breeding conditions were favourable in both areas. In Algeria, light to moderate rain fell in the west and northwest, and breeding conditions were favourable near Tindouf, between Beni Abbes and Bechar, on the edge of irrigated perimeters in the Adrar area of the central Sahara and along the Malian border near Timeiaouine. Dry conditions prevailed in the northern Sahel of West Africa.

In the **Central Region**, only light showers fell at times in a few places of the Red Sea coast during November. Nevertheless, ecological conditions were improving during the month in the winter breeding areas along both sides of the Red Sea. Breeding conditions became favourable on the central coast in Eritrea, in the Tokar Delta and on the southern coastal plains near Aiterba of Sudan, on the coastal plains in southeast Egypt and probably in adjacent areas of northeast Sudan where good rains fell in late October. Conditions remained favourable on the Red Sea coast in Yemen but mainly dry on the central and northern coast of the Red Sea in Saudi Arabia.

In the **Eastern Region**, primarily dry conditions prevailed as very little rain fell during November except for light showers at mid-month in the mountains surrounding the Jaz Murian Basin in southeast Iran.

**Area Treated**

Algeria	422 ha (November)
Eritrea	850 ha (November)
Mauritania	8,252 ha (October, revised) 10,107 ha (1-28 November)
Morocco	112 ha (October, revised) 75 ha (November)
Niger	50 ha (November)
Sudan	4,525 ha (October, revised) 800 ha (November)
Yemen	40 ha (November)

**Desert Locust Situation and Forecast**

(see also the summary on page 1)

WESTERN REGION**Mauritania****• SITUATION**

During November, an outbreak continued in the west between Nouakchott (1809N/1558W) and Atar (2032N/1308W) within an area of about 300 x 200 km as well as along a 100 km stretch of coast south of Nouakchott. In both areas, egg-laying continued to about mid-month and hoppers continued to form groups and bands. As the month progressed, hoppers fledged and there was an increasing number of immature adult groups that formed, and some of these adults were becoming mature. No locusts were seen in the north. Ground teams treated 10,107 ha in November.

• FORECAST

Hopper groups and bands will decline as fledging occurs and new adult groups and perhaps a few small swarms form. Some of the adults are expected to move northwards during periods of warm southerly winds, reaching Inchiri and Tiris-Zemmour where breeding is likely while the remaining adults will stay in currently infested areas, mature and lay eggs that will hatch by the end of the forecast period if temperatures remain warm.

Mali**• SITUATION**

During the first decade of November, small groups of immature and mature adults mixed with scattered solitary hoppers of all instars were reported in the north in W. Igharghar (1944N/0037E), northwest of Aguelhoc (1927N/0052E).

• FORECAST

Adults and perhaps a few small groups may persist in parts of the Adrar des Iforas while others could

move northwards during periods of warm southerly winds.

Niger

• SITUATION

During November, small-scale breeding continued and low numbers of solitary hoppers of all instars persisted on the Tamesna Plains between Tassara (1650N/0550E) and In Abangharit (1754N/0559E), and in the southeastern Air Mountains near Timia (1809N/0846E). As vegetation dried out, locust densities increased in Tamesna, reaching 1,200 adults/ha and a few mature adult groups formed south of In Abangharit. Ground teams treated 50 ha.

• FORECAST

Low numbers of adults are likely to persist in the Air Mountains and in a few places of Tamesna.

Chad

• SITUATION

No locust activity was reported during November.

• FORECAST

No significant developments are likely.

Senegal

• SITUATION

No reports were received in November.

• FORECAST

No significant developments are likely.

Benin, Burkina Faso, Cameroon, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Nigeria, Sierra Leone and Togo

• FORECAST

No significant developments are likely.

Algeria

• SITUATION

During November, scattered immature and mature solitary adults persisted in the west near Tindouf and Beni Abbes (3011N/0214W), in the central Sahara near Adrar (2753N/0017W) and irrigated crops, and west of Tamanrasset (2250N/0528E) in the south. Small-scale breeding continued in the extreme south along the Malian border near Timeiaouine (2026N/0148E) where third to fifth instar hoppers and mature solitary adults at densities up to 500 adults/ha were present. Hopper densities had declined from 50–100 hoppers/m² in October to 5–15 hoppers/m². Ground teams treated 422 ha near Adrar and Timeiaouine.

• FORECAST

Locust numbers are expected to increase in the western and central Sahara as adults and perhaps a few small groups arrive during periods of warm southerly and southwesterly winds. This will be

supplemented by limited breeding in areas of recent rainfall if temperatures remain unusually warm.

Morocco

• SITUATION

During November, hatching commenced during the second week in the extreme south near Bir Gandouz (2136N/1628W) where egg-laying was reported during the second half of October. By late November, first to third instar hoppers had formed numerous but small groups up to 400 m² in size at densities of up to 150 hoppers/m². Low numbers of mature solitary and transiens adults and a few small groups were seen copulating nearby. Ground teams treated 75 ha. Scattered immature and mature adults were present between Bir Gandouz and Aousserd (2233N/1419W). In the northeast, isolated immature solitary adults persisted near Figuig (3207N/0113W).

• FORECAST

Small-scale breeding will cause locust numbers to increase further in central and southern portions of Western Sahara where groups and perhaps small bands will form. If temperatures remain warm, fledging could commence in late December and groups of immature adults are likely to form. Additional groups and perhaps a few small swarms may appear from adjacent areas of Mauritania during periods of warm southerly winds and move progressively northwards. Scattered adults will persist along the southern side of the Atlas Mountains.

Libya

• SITUATION

No locust activity was reported during November.

• FORECAST

No significant developments are likely.

Tunisia

• SITUATION

No locust activity was reported during November.

• FORECAST

No significant developments are likely.

CENTRAL REGION

Sudan

• SITUATION

During the first week of November, scattered mature solitary were seen close to irrigated areas in the Nile Valley near Abu Hamed (1932N/3320E).



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No locusts were seen in previously infested areas of the Baiyuda Desert. In the remainder of the month, medium-density groups of immature adults mixed with solitary hoppers were treated by air (800 ha) north of Kassala (1527N/3623E). Scattered mature solitary adults were present on the Red Sea coast in the Tokar Delta, on the southern coast near Aiterba (1753N/3819E), on the central coast near Eit (2009N/3706E), and in a few places along the western side of the Red Sea Hills. Isolated third instar solitary hoppers were seen at one place in Tokar, suggesting that egg-laying commenced in late October.

- **FORECAST**

Small-scale breeding will cause locust numbers to increase slightly on the Red Sea coastal plains. Locusts may be present and breeding in the northeast (Wadi Oko/Diib).

Eritrea

- **SITUATION**

During November, an outbreak developed on the central Red Sea coast where small groups of hoppers of all stages formed north of Shelshela (1553N/3906E) on the Akbanazouf Plain from laying during October. Hatching continued throughout November. A few small groups of immature adults started to form during the last decade of the month. Ground teams treated 850 ha.

- **FORECAST**

Groups of hoppers and adults and perhaps a few small hopper bands will continue to form on the central Red Sea coast. A second generation of breeding could commence by the end of the year, causing a further increase in locust numbers.

Ethiopia

- **SITUATION**

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

- **FORECAST**

No significant developments are likely.

Djibouti

- **SITUATION**

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

- **FORECAST**

No significant developments are likely.

Somalia

- **SITUATION**

No locust reports were received during November.

- **FORECAST**

Small-scale breeding is likely to take place in areas that receive rainfall on the northwest coast, causing locust numbers to increase slightly.

Egypt

- **SITUATION**

During November, low numbers of mature solitary adults were seen on the Red Sea coast between the Sudanese border and Marsa Alam (2504N/3454E), and isolated immature adults were present in subcoastal areas near El Sheikh El Shazly (2412N/3438E) and in the Nile Valley near Aswan (2405N/3256E). No locusts were seen elsewhere in the Red Sea Hills, near Lake Nasser and in the northwest near Siwa (2912N/2531E) and Salum (3131N/2509E).

- **FORECAST**

Small-scale breeding will cause locust numbers to increase slightly on the Red Sea coast south of Berenice.

Saudi Arabia

- **SITUATION**

During November, no locusts were seen on the central and northern coast of the Red Sea between Lith (2008N/4016E) and Al Wajh (2615N/3627E).

- **FORECAST**

Small-scale breeding will occur in areas of recent rainfall on the Red Sea coast, causing locust numbers to increase slightly. There is a moderate risk that a few small groups or swarms could appear in coastal areas adjacent to Yemen.

Yemen

- **SITUATION**

A local outbreak developed during the first decade of November when mid to late instar small hopper groups and bands formed at densities up to 50 hoppers/m² on the northern Red Sea coast between Al Zuhrah (1541N/4300E) and Midi (1619N/4248E). Fledging was reported at two places. Some areas could not be surveyed due to insecurity. Limited ground control operations were conducted by farmers and treated 40 ha. Low numbers of immature and mature solitary adults were present on the central Red Sea coast between Bajil (1458N/4314E) and Zabid (1410N/4318E). Scattered mature solitary adults were present on the southern coastal plains

and local breeding was in progress near Aden (1250N/4503E).

- **FORECAST**

Groups of adults and perhaps a few very small swarms are expected to form on the northern coast of the Red Sea. Breeding will continue along the Red Sea and Gulf of Aden coasts, causing locust numbers to increase further.

Oman

- **SITUATION**

During November, no locusts were seen in the Musandam Peninsula, on the northern Batinah coast north of Sohar (2421N/5644E) and in the northern interior near Buraimi (2415N/5547E).

- **FORECAST**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, Syria, Tanzania, Turkey, UAE and Uganda

- **FORECAST**

No significant developments are likely.

EASTERN REGION

Iran

- **SITUATION**

During November, no locusts were seen on the southeast coast near Chabahar (2517N/6036E).

- **FORECAST**

No significant developments are likely.

Pakistan

- **SITUATION**

No locust reports were received during November.

- **FORECAST**

No significant developments are likely.

India

- **SITUATION**

No locusts were seen during November in Rajasthan and Gujarat.

- **FORECAST**

No significant developments are likely.

Afghanistan

- **SITUATION**

No reports received.

- **FORECAST**

No significant developments are likely.

Announcements

Desert 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 bulletin's header. 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. During calm (green) periods, countries should report at least once/month and send RAMSES data with a brief interpretation. During caution (yellow), threat (orange) and danger (red) periods, often associated with locust outbreaks, upsurges and plagues, RAMSES output files with a brief interpretation should be sent at least twice/week within 48 hours of the latest survey. Affected countries are also encouraged to prepare decadal bulletins summarizing the situation. All information should be sent by e-mail to the FAO/ECLO Desert Locust Information Service (eclo@fao.org). Information received by the end of the month will be included in the FAO Desert Locust Bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Locust tools and resources. FAO has developed a number of tools that National locust information officers and other interested individuals can use for Desert Locust early warning and management:

- **MODIS.** Vegetation imagery every 16 days (http://iridl.ldeo.columbia.edu/maproom/.Food_Security/Locusts/Regional/.MODIS/index.html)
- **MODIS.** Daily rainfall imagery in real time (http://iridl.ldeo.columbia.edu/maproom/.Food_Security/Locusts/index.html)
- **RFE.** Rainfall estimates every day, decade and month (http://iridl.ldeo.columbia.edu/maproom/.Food_Security/Locusts/index.html)
- **Greenness maps.** Dynamic maps of green vegetation evolution every decade (http://iridl.ldeo.columbia.edu/maproom/Food_Security/Locusts/Regional/greenness.html)



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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 of rainfall.

MODERATE

- 21 - 50 mm of rainfall.

HEAVY

- more than 50 mm of rainfall.

OTHER REPORTING TERMS

BREEDING

- the process of reproduction from copulation to fledging.

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)

- **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 updates.** Updates can be downloaded from <https://sites.google.com/site/rv4elocust3updates/home>
- **FAOLOCUST Twitter.** The very latest updates are posted on Twitter (<http://www.twitter.com/faolocust>)
- **FAOLocust Facebook.** A social means of information exchange using Facebook (<http://www.facebook.com/faolocust>)
- **Slideshare.** Locust presentations and photos available for viewing and download (<http://www.slideshare.net/faolocust>)
- **eLERT.** A dynamic and interactive online database of resources for locust emergencies (<http://sites.google.com/site/elertsite>)

New information on Locust Watch. Recent additions to the web site (www.fao.org/ag/locusts) are:

- **Locust situation updated.** Archives – Briefs
- **Current threats updated.** Locust Watch home page
- **Mauritania outbreak.** Archives – Threats

2016 events. The following activities are scheduled or planned:

- **SWAC.** 30th session, Islamabad, Pakistan (12–14 December)

Zafar Ali Khan. It is with deep regret that we announce the death of Zafar Ali Khan who was the former Locust Head of the Department of Plant Protection in Karachi, Pakistan from 1997 to 2010. We would like to express our sincere condolences to his family and government.

RECESSION

- period without widespread and heavy infestations by swarms.

REMISSION

- period of deep recession marked by the complete absence of gregarious populations.

OUTBREAK

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

UPSURGE

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

PLAGUE

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

DECLINE

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

WARNING LEVELS

GREEN

- Calm. No threat to crops. Maintain regular surveys and monitoring.

YELLOW

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

ORANGE

- Threat. Threat to crops. Survey and control operations must be undertaken.

RED

- Danger. Significant threat to crops. Intensive survey and control operations must be undertaken.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Niger, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guinea and Guinea-Bissau.

CENTRAL

- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues

only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.



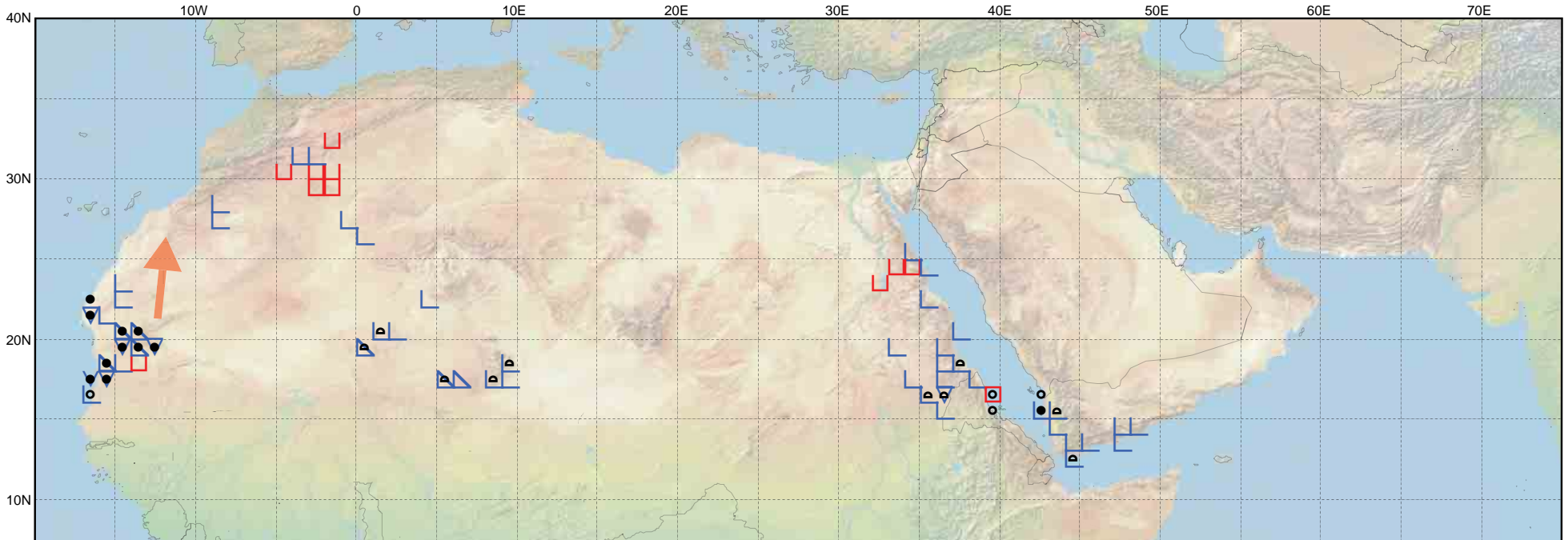
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Desert Locust Summary

Criquet pèlerin - Situation résumée



FORECAST TO:
PREVISION AU: **15.01.17**

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

SITUATION: Nov 2016 nov 2016	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves	
		in groups en groupes	density faible/inconnue

immature adults adultes immatures			
mature or partly mature adults adultes matures ou partiellement matures			
adults, maturity unknown adultes, maturité inconnue			
egg laying or eggs pontes ou œufs			
hoppers larves			
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)			