

warning level: **CAUTION**

# DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations



No. 459



General Situation during December 2016  
Forecast until mid-February 2017

(3.1.2017)

**Desert Locust infestations declined during December in the areas affected by the current outbreaks in Mauritania, extending to southern Morocco, and Eritrea due to ongoing control operations. Nevertheless, strict vigilance should be maintained as ecological conditions continue to remain favourable and another generation of breeding is likely to take place during the forecast period. Small-scale breeding occurred in Sudan, Saudi Arabia and Yemen where limited control operations were undertaken. Elsewhere, low numbers of adults were present in Algeria, Niger and northern Somalia.**

**Western Region.** Although groups of hoppers and adults as well as some hopper bands formed in northwest **Mauritania**, infestations declined and less control was required in December compared to the previous month. However, another generation of breeding is likely to occur in the northwest and breeding should commence in the north. Numerous hopper groups and small bands formed, control operations increased slightly, and relatively large areas of vegetation became green during December in adjacent areas of **Western Sahara** in southern **Morocco**. Consequently, locust numbers could increase further in both areas and countries should remain alert. Once temperatures increase, small-scale breeding is expected to commence in western and central **Algeria** where solitarious adults are present. Isolated adults persisted in northern **Niger** where local breeding was reported.

**Central Region.** An outbreak on the central Red Sea coast of **Eritrea** continued during December and hoppers and adults formed numerous small groups. By mid-month, control operations had reduced the infestations, preventing crop damage but breeding occurred further north near the Sudanese border where hatchlings were forming small bands late in the month. Several adult groups appeared in adjacent coastal areas of **Sudan** and laid eggs while small-scale breeding was in progress further north along the coast. Small-scale breeding was also underway in a few places on the Red Sea coast in **Yemen** and **Saudi Arabia** where limited control was carried out. Scattered adults were seen on the coast in northwest **Somalia**. During the forecast period, small-scale breeding will continue on both sides of the Red Sea, causing locust numbers to increase slightly. Breeding will also occur on the northwest coast of Somalia in areas that receive rainfall.

**Eastern Region.** The situation remained calm in the region during December. No significant developments are likely. A few adults could appear at the end of the forecast period in spring breeding areas along the coast of southeast **Iran** and southwest **Pakistan**.

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 December 2016

**Although little rain fell for a second consecutive month in December, breeding conditions remained favourable in parts of Northwest Africa and along both sides of the Red Sea.**

In the **Western Region**, very little rain fell during December in West and Northwest Africa. In Mauritania, light rain fell at times in parts of the northwest (Adar, Inchiri) where ecological conditions remained favourable for breeding. Further north, conditions were improving in Tiris Zemmour where vegetation became green between southwest of Bir Moghreïn to Tamreiket. Vegetation also became green within relatively large areas of Western Sahara between Aousserd and Haouza, including Wadi As Saquia Al Hamra. Vegetation was also green south of the Atlas Mountains in parts of the Draa, Ziz and Ghis valleys and in northeast Morocco. In Algeria, light to moderate rains fell in parts of the northern Sahara where temperatures remained low. Breeding conditions remained favourable in the west near Tindouf, between Beni Abbes and Bechar, and on the edge of irrigated perimeters in the Adrar area of the central Sahara. In the northern Sahel, green vegetation persisted in some wadis of the Adrar des Iforas in northeast Mali and in adjacent border areas of southern Algeria near Timeiaouine as well as on the Tamesna Plains between In Abangharit and Agadez in northern Niger and in some wadis of the Air Mountains.

In the **Central Region**, very little rain fell in the winter breeding areas along both sides of the Red Sea and Gulf of Aden during December but breeding conditions were favourable in many areas. In Sudan, ecological conditions remained favourable on the Red Sea coast between Tokar Delta and the Eritrean border, and improved further north along the coast to Suakin. Conditions were mainly dry in subcoastal areas of the northeast. In Egypt, green vegetation was present in coastal and subcoastal areas of the southeast. In Eritrea, breeding conditions remained favourable on the central and northern coastal plains. In Saudi Arabia, light rains fell in early December

on the coast between Jeddah and Yenbo. Breeding conditions remained favourable in most coastal areas. In Yemen, ecological conditions were favourable for breeding on the northern Tihama coast while drier conditions prevailed on the central coast as well as on the southern coast in Al Maharah. Light rain fell on the northwest coastal plains of Somalia where breeding conditions were improving. Generally dry conditions prevailed in eastern Ethiopia and in Oman.

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

Eritrea	7,818 ha (December)
Mauritania	7,380 ha (November, revised) 1,167 ha (December)
Morocco	189 ha (1-28 December)
Saudi Arabia	10 ha (December)
Sudan	115 ha (December)
Yemen	120 ha (December)



### Desert Locust Situation and Forecast

*( see also the summary on page 1 )*

#### WESTERN REGION

##### **Mauritania**

##### • SITUATION

On 1 December, an immature swarm was reported near Oujft (2003N/1301W). During the remainder of the month, breeding continued mainly between Akjoujt (1945N/1421W) and Oujft and to a lesser extent in Dakhlet Nouadhibou near the southern Morocco border. Although some hopper groups, a few bands and groups of immature and mature adults continued to form, infestations declined and mainly solitary and *transiens* adults remained between Akjoujt and Bennichab (1932N/1512W), Chinguetti (2027N/1221W) and Oudane (2056N/1137W) at the end of the month. In Tiris Zemmour, immature adults appeared between Zouerate (2244N/1221W) and Bir Moghreïn (2510N/1135W). Ground teams treated 1,167 in December.

##### • FORECAST

*A few adult groups are likely to persist in the northwest and north while moving back and forth in*

adjacent areas of southern Morocco and Western Sahara. Another generation of breeding will occur in Adrar and Inchiri, causing locust numbers to increase slightly. Breeding is also expected to commence in Tiris Zemmour. Hatching and the formation of small hopper groups are likely in the three regions.

#### **Mali**

- **SITUATION**

No locust activity was reported during December.

- **FORECAST**

*Low numbers of adults may be present and will persist in parts of the Adrar des Iforas.*

#### **Niger**

- **SITUATION**

During December, isolated immature and mature solitary adults persisted at a few places on the Tamesna Plains between Tassara (1650N/0550E), the Mali border and the Tazerzait Plateau (1832N/0449E). Low numbers of third instar solitary hoppers were seen near In Abangharit (1754N/0559E). No locusts were seen in the northern Air Mountains.

- **FORECAST**

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

#### **Chad**

- **SITUATION**

No locust activity was reported during December.

- **FORECAST**

*No significant developments are likely.*

#### **Senegal**

- **SITUATION**

A late report indicated that a few adults arrived in the north along the Senegal River Valley and Lac de Guiers southwest of Dagana (1631N/1530W) from adjacent areas of Mauritania during October. No locusts were reported thereafter.

- **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 December, scattered mature solitary adults persisted in the west near Tindouf (2741N/0811W) and northwest of Beni Abbes (3011N/0214W), near irrigated crops in the Adrar

(2753N/0017W) area of the central Sahara, and in the southern Sahara to the west of Tamanrasset (2250N/0528E).

- **FORECAST**

*Scattered adults will persist in the western and central Sahara, and are likely to be supplemented by additional adults and perhaps a few small groups appearing during periods of warm southerly and southwesterly winds. As temperatures begin to warm up at the end of the forecast period, small-scale breeding will commence, causing locust numbers to increase.*

#### **Morocco**

- **SITUATION**

During December, some 60 hopper groups and small bands were reported in the extreme south where hatching continued near Bir Gandouz (2136N/1628W). The bands varied in size from 1 to 200 m<sup>2</sup> at densities up to 430 hoppers/m<sup>2</sup> and were mixed with scattered immature and mature solitary and *transiens* adults and groups at densities up to 1,000 adults/ha. Fledgling commenced during the last decade, giving rise to groups of immature *transiens* adults at densities up to 4,800 adults/ha. Ground teams treated 189 ha on 1-28 December.

- **FORECAST**

*Small-scale breeding will cause locust numbers to increase further in central and southern portions of Western Sahara where groups, small bands and perhaps a few small swarms will form. Additional groups are likely to move back and forth in adjacent areas of Mauritania during periods of warm southerly winds and move progressively northwards. Scattered adults are likely to be present and will persist along the southern side of the Atlas Mountains.*

#### **Libya**

- **SITUATION**

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

- **FORECAST**

*Low numbers of adults may appear in the southwest.*

#### **Tunisia**

- **SITUATION**

No locust activity was reported during December.



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• **FORECAST**

*No significant developments are likely.*

**CENTRAL REGION**

**Sudan**

• **SITUATION**

During December, small-scale breeding continued on the Red Sea coast in Tokar Delta (1827N/3741E) and to a lesser extent on the plains as far north as Port Sudan (1938N/3713E) where scattered solitary adults were present. Several medium-density groups of mature gregarious adults arrived on the southern coastal plains between Karora (1745N/3820E) and Aiterba (1753N/3819E) from adjacent areas in Eritrea on the 9<sup>th</sup>. Some of the adults were copulating. Ground teams treated 115 ha. Isolated mature solitary adults were seen at one location in Wadi Diib north of Tomala (2002N/3551E). In the Nile Valley, adult groups were copulating near Abu Hamed (1932N/3320E) at densities up to 1,000 adults/ha and scattered immature and mature solitary adults were present between Shendi (1641N/3322E) and Dongola (1910N/3027E) and in W. Muqaddam in the Baiyuda Desert.

• **FORECAST**

*Small-scale breeding will cause locust numbers to increase slightly on the Red Sea coastal plains, mainly between Suakin and Karora, and in subcoastal areas in the northeast. There is a low to moderate risk that a few small groups may appear from Eritrea.*

**Eritrea**

• **SITUATION**

During December, an outbreak continued on the central Red Sea coast where groups of hoppers and immature adults were present between Shelshela (1553N/3906E) and Mersa Cuba (1616N/3911E) until mid-month; thereafter, infestations declined and only a few immature adult groups remained. On the northern coastal plains, hatching commenced in the last week near the Sudanese border east of Karora (1745N/3820E) where groups of first instar hoppers and small bands formed mixed with groups of gregarious adults that were seen copulating. Ground teams treated 7,818 ha in December and no crop damage was reported.

• **FORECAST**

*Hopper groups and bands will continue to form on the northern coast near the Sudanese border with fledging starting by mid-February, which could cause small immature groups to form. A small-scale second generation of breeding may occur on the central coast.*

**Ethiopia**

• **SITUATION**

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

• **FORECAST**

*Low numbers of adults may appear along the railway area between Dire Dawa and Ayasha.*

**Djibouti**

• **SITUATION**

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

• **FORECAST**

*No significant developments are likely.*

**Somalia**

• **SITUATION**

During December, scattered mature solitary adults were present at a few places on the northwest coast and at the base of the escarpment between Lughaye (1041N/4356E) and Bulhar (1023N/4425E). A small group of adults were seen copulating at one place.

• **FORECAST**

*Small-scale breeding will cause locust numbers to increase slightly on the northwest coast. Limited hatching will occur early in the forecast period and perhaps a few small groups could form.*

**Egypt**

• **SITUATION**

During December, no locusts were seen during surveys on the Red Sea coast between the Sudanese border and Shalatyn (2308N/3535E), in subcoastal areas near El Sheikh El Shazly (2412N/3438E) and near Lake Nasser in the Abu Simbel (2219N/3138E), Tushka (2247N/3126E) and Garf Husein (2317N/3252E) areas.

• **FORECAST**

*Small-scale breeding is likely to occur on the Red Sea coast south of Berenice, causing locust numbers to increase slightly.*

**Saudi Arabia**

• **SITUATION**

During December, scattered immature and mature solitary adults were seen on the Red Sea coast near Lith (2008N/4016E), Qunfidah (1909N/4107E)

and Jizan (1656N/4233E). Small-scale breeding occurred on the coast north of Jizan where scattered late instar solitary hoppers were present. Ground teams treated 10 ha of adult groups that were laying eggs near Qunfidah. No locusts were seen on the northern coast between Jeddah (2130N/3910E) and Yenbo (2405N/3802E).

- **FORECAST**

*Small-scale breeding will continue in areas of recent rainfall on the Red Sea coast, causing locust numbers to increase slightly.*

### **Yemen**

- **SITUATION**

During December, small-scale breeding was in progress on the Red Sea coastal plains between Al Zuhrah (1541N/4300E) and the Saudi Arabia border where hopper groups that formed in November were fledging and immature and mature solitary and *transiens* adults were present at densities of less than 900 adults/ha. Ground teams treated 120 ha. Limited breeding occurred further south near Al Qutai (1454N/4312E) and north of Zabid (1410N/4318E). No locusts were seen along the southern coast during a survey in Al Maharah from west of Sayhut (1512N/5115E) to the Omani border.

- **FORECAST**

*Another generation of breeding is expected to occur along the Red Sea coast that will cause locust numbers to increase further.*

### **Oman**

- **SITUATION**

No locusts were seen during surveys carried out in interior and coastal areas of the north during December.

- **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 December, no locusts were seen on the southeast coast near Chabahar (2517N/6036E) and in the Jaz Murian Basin of the interior.

- **FORECAST**

*Low numbers of adults may start to appear on the southeast coast and in Jaz Murian Basin at the end of the forecast period.*

### **Pakistan**

- **SITUATION**

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

- **FORECAST**

*Low numbers of adults may start to appear in coastal areas of Baluchistan at the end of the forecast period.*

### **India**

- **SITUATION**

No locusts were seen during December 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/ECLC Desert Locust



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Information Service (ecl@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](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](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](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](http://iridl.ldeo.columbia.edu/maproom/Food_Security/Locusts/Regional/greenness.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 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](http://www.fao.org/ag/locusts)) are:

- **WMO/FAO Weather and Desert Locusts booklet.** Publications – Documents
- **SWAC 30<sup>th</sup> session report.** Publications – Reports

**2017 events.** The following activities are scheduled or planned:

- **EMPRES/WR.** 15<sup>th</sup> Liaison Officer meeting and 12<sup>th</sup> Consultative Committee, Ouagadougou, Burkina Faso (30 January – 4 February)
- **CRC.** 50<sup>th</sup> anniversary and 30<sup>th</sup> session, Muscat, Oman (19–23 February)
- **CLCPRO.** Desert Locust Information Officer workshop, Algiers, Algeria (March, tbc)
- **CRC/SWAC.** Desert Locust Information Officer workshop, Egypt (May, 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<sup>2</sup>      • band: 1 - 25 m<sup>2</sup>

##### **SMALL**

- swarm: 1 - 10 km<sup>2</sup>      • band: 25 - 2,500 m<sup>2</sup>

##### **MEDIUM**

- swarm: 10 - 100 km<sup>2</sup>      • band: 2,500 m<sup>2</sup> - 10 ha

##### **LARGE**

- swarm: 100 - 500 km<sup>2</sup>      • band: 10 - 50 ha

##### **VERY LARGE**

- swarm: 500+ km<sup>2</sup>      • 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)

#### 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.



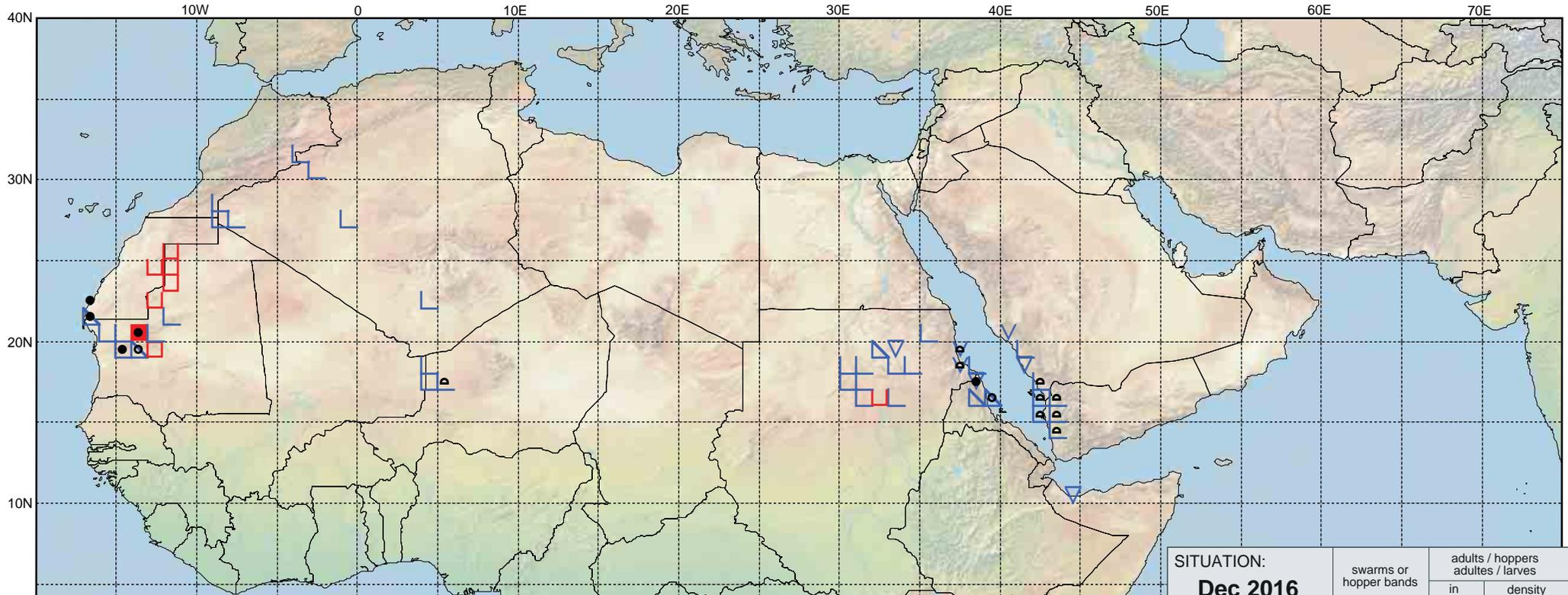
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# Desert Locust Summary

## Criquet pèlerin - Situation résumée

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FORECAST TO: PREVISION AU:	<b>15.2.17</b>	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: <b>Dec 2016</b> <b>déc 2016</b>	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 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)			