

warning level: **CAUTION**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations



No. 457



**General Situation during October 2016
Forecast until mid-December 2016**

(3.11.2016)

As a result of summer breeding, two Desert Locust outbreaks developed during October, one in western Mauritania and one in northern Sudan. In both countries, additional survey teams were immediately mobilized and control operations were launched. It is likely that the Mauritanian outbreak will extend into areas of recent heavy rains in the north of the country as well as in Western Sahara where further breeding is expected. A failure to control the outbreak combined with unusually heavy and widespread rainfall might eventually lead to an upsurge in northwest Africa next spring but this is far from certain. In Sudan, adult groups and perhaps a few small swarms are expected to form and move to winter breeding areas along the Red Sea coast, especially in northeast Sudan and southeast Egypt where heavy rains fell in late October. Elsewhere, the situation remained calm.

Western Region. An outbreak developed in western Mauritania in early October as a result of widespread egg-laying and hatching by summer-bred gregarizing adults, including a few swarms that may have originated from undetected areas or from northern Mali where insecurity prevents regular surveys. Control operations intensified in Mauritania, treating more than 8,100 ha of hopper and adult groups, and small bands and swarms. Smaller infestations were seen in adjacent areas of Western Sahara in southern Morocco where limited control operations were carried out against adult groups. A

new generation of adult groups and small swarms is likely to form from about mid-November onwards in western Mauritania and are likely to move into Western Sahara and northern Mauritania where good rains fell and further breeding could occur. Scattered adults were present along the southern side of the Atlas Mountains in Morocco and in western Algeria. Control operations were undertaken along the Mali border in southern Algeria against high densities of hoppers. Locust numbers declined in the summer breeding areas of northern Niger and Chad where primarily low numbers of adults persisted.

Central Region. An outbreak developed in North Kordofan and the Baiyuda Desert of northern Sudan as a result of summer breeding and drying conditions. The outbreak may extend east of the Nile Valley. Ground and aerial control operations were immediately mounted, treating nearly 3,000 ha of hopper groups and bands. Some of the hoppers have already fledged and immature adults are forming groups and perhaps a few small swarms that will move to the winter breeding areas along the Red Sea, initially to northeast Sudan and southeast Egypt where good rains will allow adults to mature and lay eggs that should hatch by the end of the forecast period. Breeding was in progress on the southern Red Sea coast of Saudi Arabia where control operations treated 3,400 ha and on the Gulf of Aden coast in southern Yemen. A few adult groups were breeding on the Red Sea coast of Eritrea while locust numbers declined in eastern Ethiopia. During the forecast period, breeding will occur along both sides of the Red Sea as well as in coastal areas of southern Yemen and northwest Somalia if rains occur.

Eastern Region. The situation remained calm in the region during October. 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.

Telephone: +39 06 570 52420 (7 days/week, 24 hr)

Facsimile: +39 06 570 55271

E-mail: eclo@fao.org

Internet: www.fao.org/ag/locusts

Facebook: www.facebook.com/faolocust

Twitter: twitter.com/faolocust



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Weather & Ecological Conditions in October 2016

Vegetation dried out in summer breeding areas in the northern Sahel in West Africa and Sudan and along the Indo-Pakistan border. Breeding conditions remained favourable in northwest Mauritania. Good rains fell in northern Mauritania and Western Sahara.

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) retreated further south and was located south of the summer breeding area in the northern Sahel during September. Consequently, no significant rain fell, annual vegetation continued to dry out and conditions became unfavourable for breeding. Nevertheless, there were relatively small areas where vegetation remained green, primarily in parts of northern Mali and Niger, in southern Algeria near the border of Mali, and in northeast Chad. In Mauritania, breeding conditions remained very favourable in the centre and west of the country. Good rains fell in northern Mauritania several times during the month, including heavy showers and flooding between Zouerate, Bir Moghrein and Ain Ben Tili where some 150 mm fell on 25-26 October. The rains extended to the Western Sahara as well as along the southern side of the Atlas Mountains in Morocco. As a result, breeding conditions are expected to become favourable in these areas. Summer breeding declined in northern Niger and Chad where only scattered adults were present.

In the **Central Region**, the Inter-Tropical Convergence Zone (ITCZ) continued its southward retreat during September over the interior of Sudan where it was south of Nyala, Ed Nahud and Gedaref, which is outside of the summer breeding area. Nevertheless, a few showers continued to fall in North Kordofan between El Obeid and Sodiri. More importantly, good rains fell in northeast Sudan near Sufiya and in adjacent areas of southeast Egypt on the Red Sea coast as far north as Shalatyn on 26-27 October. This should allow annual vegetation to start to become green and could provide suitable breeding conditions. Showers fell at times in the highlands of Yemen and Eritrea that may have extended to coastal areas, which should allow ecological conditions to

remain favourable for breeding in Yemen and improve in Eritrea.

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



Area Treated

Algeria	280 ha (October)
Ethiopia	30 ha (October)
Mauritania	8,187 ha (October)
Morocco	72 ha (October)
Saudi Arabia	3,420 ha (October)
Sudan	2,900 ha (October)



Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• SITUATION

During October, hatching commenced in areas of previous egg laying in the west, causing an outbreak to develop between Nouakchott, Tidjikja (1833N/1126W) and Atar (2032N/1308W) where hopper groups and small bands were forming. Widespread egg laying by scattered adults and groups continued within this large area as well as along the coast south of Nouakchott where two swarms were also seen laying eggs on the 2nd and 11th. There were reports of an immature swarm southwest of Oujeft (2003N/1301W) on the 4th and a mature swarm laying eggs nearby on the following day. In the southeast, immature and mature adults continued to form small groups between Nema (1636N/0715W) and Oualata (1717N/0701W) where some adults were seen laying eggs up until about mid-month. Ground control operations intensified during October and treated 8,187 ha.

• FORECAST

Hatching will continue in early November in the west where hopper groups and small bands will form until about mid-December. Fledgling should commence in early November and new adult groups and small swarms are likely to form from mid-month onwards. Some of these could mature and lay eggs before the end of the forecast period. Infestations will extend into areas of recent rainfall in Inchiri and Tiris-Zemmour.

Mali

• SITUATION

During October, no locusts were seen during surveys close to the Mauritanian border in the west near Nara (1510N/0717W) and Niore (1512N/0935W). The situation remains unclear in the north due to insecurity.

• FORECAST

Adults and perhaps a few small groups may be present in parts of the Adrar des Iforas where some may persist while other could move towards the north and northwest.

Niger

• SITUATION

During October, small-scale breeding continued and scattered solitary hoppers of all instars were present on the Tamesna Plains between Tassara (1650N/0550E) and In Abangharit (1754N/0559E), along the western side of the Air Mountains east of Arlit (1843N/0721E) and in parts of the Air Mountains between Timia (1809N/0846E) and north of Iferouane (1905N/0824E). Solitary adults were seen laying eggs and a group of mature adults was reported south of In Abangharit early in the month.

• FORECAST

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

Chad

• SITUATION

During the first decade of October, small-scale breeding continued in the northeast where solitary hoppers of all instars and a few very small hopper groups were present south of Fada (1714N/2132E). Thereafter, only low numbers of immature and mature solitary adults mixed with a few *transiens* adults were scattered throughout the Sahel between Fada and Mao (1406N/1511E).

• FORECAST

Locust numbers will continue to decline as vegetation dries out. No significant developments are likely.

Senegal

• SITUATION

No reports were received in 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.

Algeria

• SITUATION

During October, there was a slight increase in locust populations as scattered mature solitary adults appeared in the west near Tindouf and Beni Abbes (3011N/0214W), in the central Sahara near Adrar (2753N/0017W) and irrigated crops, and in the south near Tamanrasset (2250N/0528E). Small-scale breeding occurred along the Mali border between Bordj Badji Mokhtar (2119N/0057E) and Timeiaouine (2026N/0148E) where adults were copulating at densities up to 500 adults/ha and solitary hoppers of all instars were present at densities of 50–100 hoppers/m². Ground teams treated 280 ha in October.

• FORECAST

Groups of hoppers and adults are likely to form early in the forecast period along the Mali border. Locust numbers may increase from small-scale breeding in the west and centre, supplemented by adults arriving during periods of warm southerly winds.

Morocco

• SITUATION

During October, isolated immature solitary adults were seen along the southern side of the Atlas Mountains between Zag (2800N/0920W) and Zagora (3019N/0550W) as well as in the northeast near Bouarfa (3232N/0159W) and Figuig (3207N/0113W). In the extreme south, isolated mature solitary adults were present in the Adrar Settouf between Aousserd (2233N/1419W) and Bir Gandouz (2136N/1628W). Adult groups were first seen copulating near Bir Gandouz on the 22nd. Ground teams treated 72 ha in October.

• FORECAST

Small-scale breeding will cause locust numbers to increase in central and southern portions of Western Sahara where hatching will commence in early November, causing small groups to form. Breeding may extend further north in areas of recent rainfall. Local infestations may be supplemented by an increasing number of adults, including groups and perhaps a few small swarms, appearing from adjacent areas of northwest Mauritania. Scattered adults will persist along the southern side of the Atlas Mountains.

Libya

• SITUATION

No locust activity was reported during October.



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• FORECAST

No significant developments are likely.

Tunisia

• SITUATION

No locust activity was reported during October.

• FORECAST

No significant developments are likely.

CENTRAL REGION

Sudan

• SITUATION

During October, groups of second to fifth instar hoppers and late instar hopper bands formed in the Baiyuda Desert, primarily in the Wadi Muqaddam (1653N/3139E) area northwest of Khartoum, and in North Kordofan near Abu Uruq (1554N/3027E) early in the month. Similar hopper groups were also seen west of the Red Sea Hills between Kassala (1527N/3623E) and Derudeb (1731N/3607E). Scattered immature and mature solitary adults were seen in more places in North Kordofan between Sodiri (1423N/2906E) and the Nile Valley, in the Baiyuda Desert, along the Nile Valley from Atbara (1742N/3400E) to north of Dongola (1910N/3027E), and in the east between Kassala and Derudeb. By the end of the month, immature groups were forming and aerial control operations commenced in North Kordofan. Control operations treated 2,900 ha in October of which 2,200 ha were by air.

• FORECAST

Hopper and adult groups, small bands and perhaps a few small swarms are likely to form in North Kordofan and the Baiyuda Desert, and possibility extend east of the Nile Valley to the Red Sea Hills. As vegetation dries out, adult groups and perhaps a few small swarms will appear on the Red Sea coast and in subcoastal areas of the northwest, and breed in areas of recent rainfall.

Eritrea

• SITUATION

During October, isolated mature solitary adults were present on the central coastal plains of the Red Sea between Sheib (1551N/3903E) and Mersa Gulbub (1633N/3908E). Groups of adults were seen laying at two locations.

• FORECAST

Small-scale breeding on the Red Sea coastal plains will cause locust numbers to increase slightly. Hatching will commence by mid-November and a few small hopper groups could form.

Ethiopia

• SITUATION

During October, scattered immature solitary adults were present in the eastern region near Aysha. In the Afar region, scattered immature and mature adults mixed with low numbers of second to fourth instar hoppers were present at a few places on the Danakil Plain where ground teams treated 30 ha.

• FORECAST

Isolated adults may persist in few areas of previous breeding near Ayasha and in the Afar region.

Djibouti

• SITUATION

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

• FORECAST

No significant developments are likely.

Somalia

• SITUATION

No locust reports were received during October.

• FORECAST

Small residual populations may be present in areas of previous breeding on the northwest plateau and escarpment.

Egypt

• SITUATION

During October, isolated mature solitary adults were seen at two places near El Sheikh El Shazly (2412N/3438E) in the Red Sea Hills of the southeast. No locusts were seen on the Red Sea coast, near Lake Nasser and in the northwest near Siwa (2912N/2531E) and Salum (3131N/2509E).

• FORECAST

Scattered adults and perhaps few groups or small swarms are likely to appear near Lake Nasser and on the southeast coastal plains of the Red Sea. Small-scale breeding will occur if rains fall.

Saudi Arabia

• SITUATION

During the first half of October, ground teams treated 3,420 ha of scattered solitary hoppers of all instars mixed with immature and mature solitary and gregarizing adults on the Red Sea coast north of Jizan (1656N/4233E). Scattered mature solitary adults were present near Lith (2008N/4016E) and to a lesser extent near Qunfidah (1909N/4107E).

• **FORECAST**

Small-scale breeding will occur in areas of recent rainfall on the Red Sea coast between Lith and Jizan, causing locust numbers to increase with the possibility of group and band formation in some areas. There is a moderate risk that a few small groups could appear in areas adjacent to Yemen.

Yemen

• **SITUATION**

During October, there were confirmed and unconfirmed reports of hopper groups on the northern Red Sea coast between Al Zuhrah (1541N/4300E) and Midi (1619N/4248E). On the Gulf of Aden coast, low numbers of mature solitarious and *transiens* adults were copulating at one place northwest of Aden (1250N/4503E). Surveys could not be undertaken elsewhere in the country due to insecurity.

• **FORECAST**

Small-scale breeding will occur in areas of recent rainfall on the Red Sea and Gulf of Aden coastal plains, causing locust numbers to increase and small groups to form. Residual populations are likely to be present in parts of the interior in Marib, Shabwah and Hadhramaut.

Oman

• **SITUATION**

During October, no locusts were seen in the Musandam Peninsula and in the south near Thumrait (1736N/5401E).

• **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 October, no locusts were seen on the southeast coast near Chabahar (2517N/6036E).

• **FORECAST**

No significant developments are likely.

Pakistan

• **SITUATION**

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

• **FORECAST**

No significant developments are likely.

India

• **SITUATION**

No locusts were seen during October.

• **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 Information Service (eclc@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:



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- **MODIS.** Vegetation imagery every 16 days (http://iridl.Ideo.columbia.edu/maproom/.Food_Security/Locusts/Regional/MODIS/index.html)
- **MODIS.** Daily rainfall imagery in real time (http://iridl.Ideo.columbia.edu/maproom/.Food_Security/Locusts/index.html)
- **RFE.** Rainfall estimates every day, decade and month (http://iridl.Ideo.columbia.edu/maproom/.Food_Security/Locusts/index.html)
- **Greenness maps.** Dynamic maps of green vegetation evolution every decade (http://iridl.Ideo.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-oGpFHEdv1jAPaF02TCfpcnYoFQQT>
- **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.** Regional contingency planning workshop, Tehran, Iran (5-9 November)
- **SWAC.** 30th session, Islamabad, Pakistan (12-14 December)



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)

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.

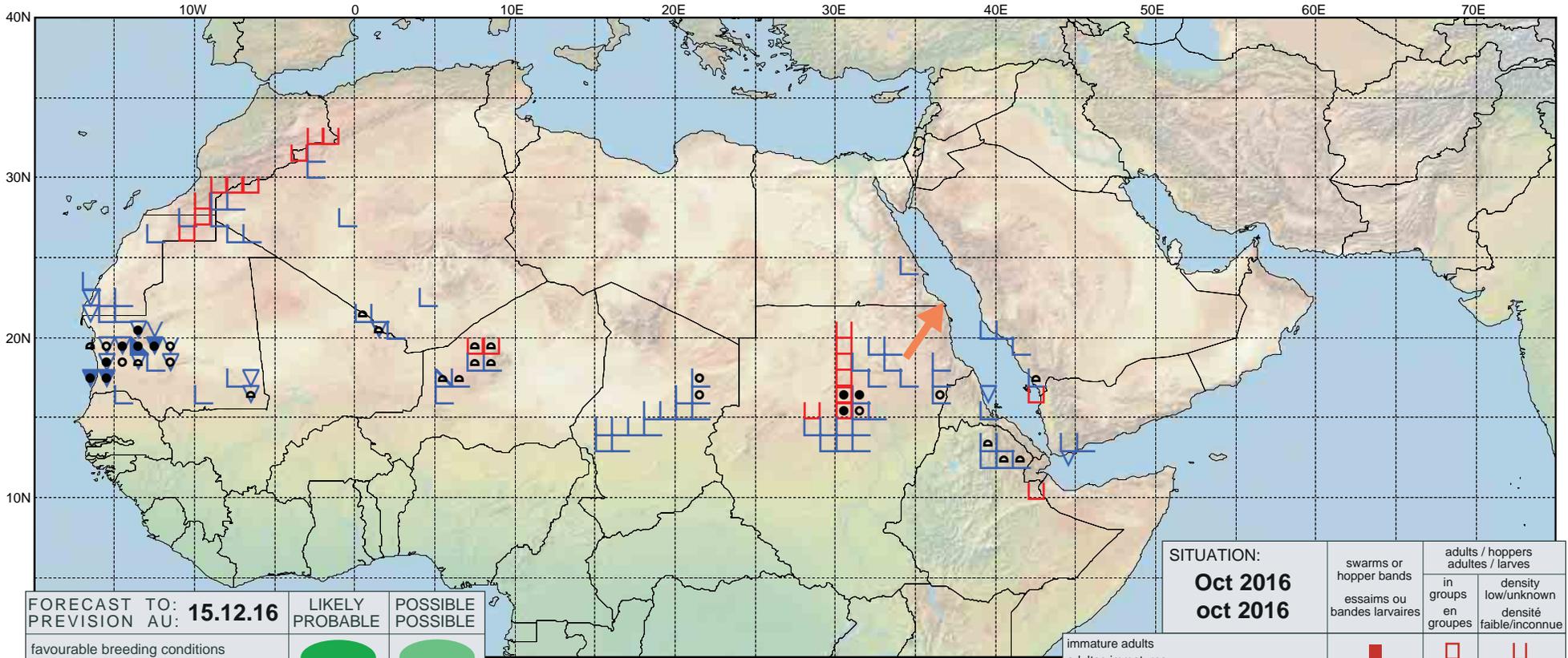


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Desert Locust Summary

Criquet pèlerin - Situation résumée



FORECAST TO: PREVISION AU:	15.12.16	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: Oct 2016 oct 2016	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)			