

warning level: **CAUTION**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations



No. 456



**General Situation during September 2016
Forecast until mid-November 2016**

(4.10.2016)

The Desert Locust situation remained very serious in Yemen during September and there were signs that an outbreak was developing in Mauritania. In Yemen, hopper groups, bands and adult groups continued to form. More adult groups and perhaps a few small swarms are expected and will move to the Red Sea coast, into adjacent areas of Saudi Arabia and perhaps to the Horn of Africa where breeding will cause a further increase in locust numbers. Ground and aerial control operations were carried out in adjacent coastal areas of Saudi Arabia against hopper groups, bands and adult groups. In Mauritania, there was a sudden increase in locust densities in the summer breeding areas, causing adult groups to form. An increasing number of adults and groups subsequently appeared in the northwest and laid eggs. This is expected to develop into an outbreak by mid-October. As vegetation dried out, a few groups also formed in western Mali, northeast Chad and the interior of Sudan. Large numbers of grasshoppers were present in several countries. Elsewhere, the situation remained calm.

Western Region. Scattered locusts were distributed widely throughout the summer breeding areas in the northern Sahel of West Africa because of good rains and green vegetation in September. Adult groups formed in **Mauritania**, western **Mali** (mixed with grasshoppers) and **Chad**. Control operations were undertaken in Mali (810 ha) and Mauritania (263 ha). An outbreak is expected to develop by mid-

October in northwest Mauritania where an increasing number of adults and groups appeared during September and laid eggs. There was a report of a very small swarm on the 30th near Nouakchott. In **Niger**, small-scale breeding occurred on the Tamesna Plains. In Northwest Africa, isolated adults were present in southern **Algeria**.

Central Region. The situation continued to remain serious in **Yemen** during September where hopper and adult groups formed in the interior and hopper bands formed on the southern coast. An increasing number of adults arrived on the Red Sea coast and at least one adult group was seen in the highlands moving towards the coast. Only limited survey and control operations could be undertaken due to insecurity. Good rains fell in all areas that will allow more groups, bands and perhaps a few small swarms to form. Most of these are likely to move to the Red Sea coast of Yemen and Saudi Arabia while some could stay in the Yemeni interior and others could migrate to the Horn of Africa. Limited control operations were carried out against hopper groups and bands in eastern **Ethiopia** and northwest **Somalia**. Hopper groups and bands and adult groups formed on the southern Red Sea coast in **Saudi Arabia**, and ground and aerial control operations treated 3,000 ha. In **Sudan**, hoppers and adults were forming groups at a few places in the Baiyuda Desert north of Khartoum.

Eastern Region. The situation remained calm in the region during September. Only low numbers of solitary adults were present in Cholistan, **Pakistan** near the border of India. 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 September 2016

Breeding conditions remained favourable in much of the northern Sahel in West Africa and Sudan. Good rains fell and breeding conditions were favourable in northwest Mauritania and along both sides of the southern Red Sea. The Indo-Pakistan monsoon ended but conditions remained favourable.

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) began its seasonal retreat southwards in September. By mid-month, it was some 100 km further north than usual between Mauritania and Niger while in Chad it was located at its long-term average position. Consequently, good rains fell in most areas but less so when compared to August. Nevertheless, breeding conditions remained favourable over a widespread area of the northern Sahel in West Africa but were starting to dry out in parts of southeastern Mauritania and in Chad. Good rains fell for the second consecutive month in north and northwest Mauritania and adjacent areas of Western Sahara and southern Morocco. As a result, ecological conditions became favourable for breeding in west and northwest Mauritania. Light rain fell in parts of central and southern Algeria.

In the **Central Region**, the Inter-Tropical Convergence Zone (ITCZ) continued its southward retreat over the interior of Sudan and by the end of the month it was nearly south of the summer breeding areas. At mid-month, the ITCZ was some 150 km further south than usual. Nevertheless, good rains fell throughout most of the summer breeding areas in Sudan and western Eritrea. As a result, ecological conditions remained favourable for breeding. Heavy rains fell along both sides of the southern Red Sea in Yemen and Eritrea, extending to Djibouti and the Jizan area of Saudi Arabia. Good rains fell elsewhere on the coastal plains of Saudi Arabia as far north as Lith, and in the Eritrean Highlands that could runoff onto the coastal plains north of Massawa. Ecological conditions were favourable for breeding on the eastern side of the Red Sea from Qunfidah to Bab Al Mandab and were likely to improve on the western side. Good rains also fell in Ethiopia from the Afar region to Jijiga and

adjacent areas of northwest Somalia where conditions were favourable for breeding. Conditions also remained favourable in the interior of Yemen.

In the **Eastern Region**, the southwest monsoon began to withdraw from west Rajasthan, India in mid-September, which is about two weeks later than normal. Consequently, rainfall ended in the summer breeding areas along both sides of the Indo-Pakistan border but vegetation is expected to remain green slightly longer than normal due to the late monsoon withdrawal.



Area Treated

Ethiopia	1 ha (September)
Mali	810 ha (September)
Mauritania	263 ha (September)
Saudi Arabia	3,000 ha (September)
Somalia	53 ha (September)
Yemen	50 ha (September)



Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• SITUATION

During September, isolated mid to late instar solitarious hoppers were present in the southeast between Aioun El Atrous (1639N/0936W) and Nema (1636N/0715W) and at one place on the Trarza coast as a result of small-scale breeding in August. Immature and mature solitarious adults were also present at densities less than 200 adults/ha. As the month progressed, an increasing number of mature solitarious adults appeared in the western portion of the country, particularly in southwest Adrar. During the last week, there was a sudden increase in densities in the southeast to 1,500 adults/ha as vegetation dried out and a few small groups formed near Nema. Other immature and mature groups formed at densities up to 7,000 adults/ha in the west between Aguilal Faye (1827N/1444W) and Atar (2032N/1308W), some of which were laying eggs. On the 30th, a very small swarm of 50 ha was reported near Nouakchott. Ground teams treated 263 ha in September.

• FORECAST

As vegetation dries out in the south, more adults will appear in the west and northwest where small groups

will continue to form and breed in areas of recent rainfall that is likely to lead to an outbreak.

Mali

• SITUATION

During September, immature and mature solitary and *transiens* adults mixed with high densities of grasshoppers were present north of Nara (1510N/0717W) near the Mauritanian border at densities up to 700 adults/ha. Some adults were copulating and laying eggs. Ground teams treated 810 ha.

• FORECAST

Low numbers of adults are likely to be present and breeding in the Adrar des Iforas, Tilemsi Valley, Timetrine and Tamesna, causing locust numbers to increase slightly.

Niger

• SITUATION

During September, scattered immature and mature solitary adults were present on the Tamesna Plains between Tassara (1650N/0550E) and In Abangharit (1754N/0559E). Small-scale breeding occurred at a few places and low numbers of third and fourth instar solitary hoppers were seen.

• FORECAST

Low numbers of adults are likely to be present and breeding on a small scale elsewhere on the Tamesna and Tadress plains and in the Filingué area. Breeding will decline as conditions dry out.

Chad

• SITUATION

During September, isolated immature and mature solitary adults were scattered throughout the northern Sahel between Nokou (1435N/1446E) in the west to Fada (1714N/2132E) in the northeast. Small-scale breeding continued near Salal (1448N/1712E) and between Kalait (1550N/2054E) and Fada. During the last decade, vegetation began to dry out and small groups of mature adults formed and were copulating north of Fada.

• FORECAST

As vegetation continues to dry out, adults will concentrate in areas that remain green and form a limited number of small groups.

Senegal

• SITUATION

No reports were received in September

• FORECAST

No significant developments are likely.

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

• FORECAST

No significant developments are likely.

Algeria

• SITUATION

During September, isolated mature solitary adults were present southwest of Tamanrasset (2250N/0528E) in the south. No locusts were seen in the central Sahara near Adrar (2753N/0017W), in the east near Illizi (2630N/0825E) and in the extreme south near the Mali border.

• FORECAST

No significant developments are likely.

Morocco

• SITUATION

No locust activity was reported during September.

• FORECAST

An increasing number of adults are likely to appear in the Adrar Settouf of the extreme south and breed on a small scale in areas of recent rainfall.

Libya

• SITUATION

No locust activity was reported during September.

• FORECAST

No significant developments are likely.

Tunisia

• SITUATION

No locust activity was reported during September.

• FORECAST

No significant developments are likely.

CENTRAL REGION

Sudan

• SITUATION

During September, low numbers of solitary mature adults were present in the summer breeding areas in North Kordofan near Sodiri (1423N/2906E), and in a few places of the Nile Valley near Shendi (1641N/3322E) and Dongola (1910N/3027E). At the end of the month, mature adult groups were laying eggs in the Baiyuda Desert and groups of first and second instar solitary and *transiens* hoppers were present. No locusts were seen elsewhere in the Nile



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Valley or between Atbara (1742N/3400E) and the Red Sea Hills.

- **FORECAST**

As vegetation begins to dry out in summer breeding areas, locusts could concentrate between the Nile Valley and the Red Sea Hills towards the end of the forecast period and perhaps a few small groups could form. Low numbers of adults are likely to appear in winter breeding areas along the Red Sea coast.

Eritrea

- **SITUATION**

During September, no locusts were seen on the southern Red Sea coast between Massawa (1537N/3928E) and Assab (1301N/4247E).

- **FORECAST**

Low numbers of adults are likely to be present and breeding on a small scale in the western lowlands but will decline as conditions dry out. There is a low risk that adult groups and perhaps a small swarm could appear on the southern coastal plains from Yemen. Small-scale breeding will commence on the Red Sea coast in areas of recent rainfall.

Ethiopia

- **SITUATION**

In September, a few small hopper groups and bands persisted in the railway area near Ayasha (1045N/4234E). Ground teams treated 1 ha. In the Afar Region, low numbers of solitary hoppers and adults persisted near Sifani (1216N/4021E).

- **FORECAST**

Breeding will cause locust numbers to increase along the railway where small groups, bands and perhaps swarmlets could form. There is a low to moderate risk that adult groups and perhaps a few small swarms could appear from Yemen.

Djibouti

- **SITUATION**

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

- **FORECAST**

There is a low to moderate risk that adult groups and perhaps a few small swarms could appear from Yemen in coastal or interior areas.

Somalia

- **SITUATION**

During September, an immature swarm was seen on the northwest escarpment near the Ethiopian on the 6th. A few third to fifth instar hopper bands were present in the Jidhi (1037N/4304E) area where breeding occurred in August. On the plateau, adult groups were seen copulating near the Ethiopian border west of Boroma (0956N/4313E). Ground teams treated 53 ha with Green Muscle.

- **FORECAST**

A few groups and perhaps a small swarm could form on the escarpment near the Ethiopian border. There is a low to moderate risk that a few adult groups and perhaps a small swarm could appear from Yemen.

Egypt

- **SITUATION**

During September, no locusts were seen near Lake Nasser in the Tushka (2247N/3126E) and Abu Simbel (2219N/3138E) areas, and on the Red Sea coast between Abu Ramad (2224N/3624E) and the Sudanese border.

- **FORECAST**

No significant developments are likely.

Saudi Arabia

- **SITUATION**

During September, a few small hopper groups, bands and immature adult groups formed on the southern coastal plains of the Red Sea coast north of Jizan (1656N/4233E) where breeding occurred in August. Control operations treated 3,000 ha of which 400 ha were by air. Low numbers of solitary hoppers were present nearby. No locusts were seen further north near Mecca (2125N/3949E).

- **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. There is a moderate risk that a few small swarms could appear in areas adjacent to Yemen.

Yemen

- **SITUATION**

During September, limited ground control operations treated 50 ha of scattered immature and mature adults and groups of low to medium densities of mid-instar *transiens* and gregarious hoppers in the interior of Shabwah region to the north of Nisab (1430N/4629E) and Ataq (1435N/4649E). Small groups of immature *transiens* and gregarious adults were seen between Bayhan (1452N/4545E) and Marib (1527N/4519E). Nine very small second and third instar hopper bands mixed with low numbers of immature and mature

transiens and gregarious adults were present on the coastal plains northwest of Aden (1250N/4503E). On the Red Sea coast, low numbers of immature and mature solitary adults were seen between Bayt Al Faqih (1430N/4317E) and Suq Abs (1600N/4312E). On the 27th, there was an unconfirmed report of immature groups flying west in the central highlands north of Sana'a (1521N/4412E).

• **FORECAST**

More groups and small swarms are likely to form in the interior between Marib, Ataq and Thamud as well as on the Aden coastal plains. Some of these are expected to remain in areas of recent rainfall while others will move into the central highlands and continue to the Red Sea coast. Breeding is expected to occur in both areas and band formation is likely.

Oman

• **SITUATION**

No locusts were seen in the Musandam Peninsula, in the north near Buraimi (2415N/5547E) and in the south near Thumrait (1736N/5401E) in early September.

• **FORECAST**

There remains a low risk that a few small swarms from Yemen may appear in adjacent areas of the south.

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 September, no locusts were seen on the southeast coast near Chabahar (2517N/6036E) and Jask (2540N/5746E), and in the Jaz Murian Basin of the interior near Ghale Ganj (2731N/5752E).

• **FORECAST**

No significant developments are likely.

Pakistan

• **SITUATION**

During September, low numbers of mature solitary adults were present in Cholistan south of Bahawalpur (2924N/7147E) near the border of India.

• **FORECAST**

Locust numbers will decline as vegetation dries out in the summer breeding areas.

India

• **SITUATION**

No locusts were seen during September.

• **FORECAST**

Low numbers of adults may be present in parts of Rajasthan but will decline as vegetation dries out.

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 (ecllo@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)



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

- **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)
- **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:

- **eLocust3 good practice fact sheet.** Activities – DLIS – eLocust3
- **1972-2005 upsurge and plague maps.** Archives – Upsurges & Plagues

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)

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.



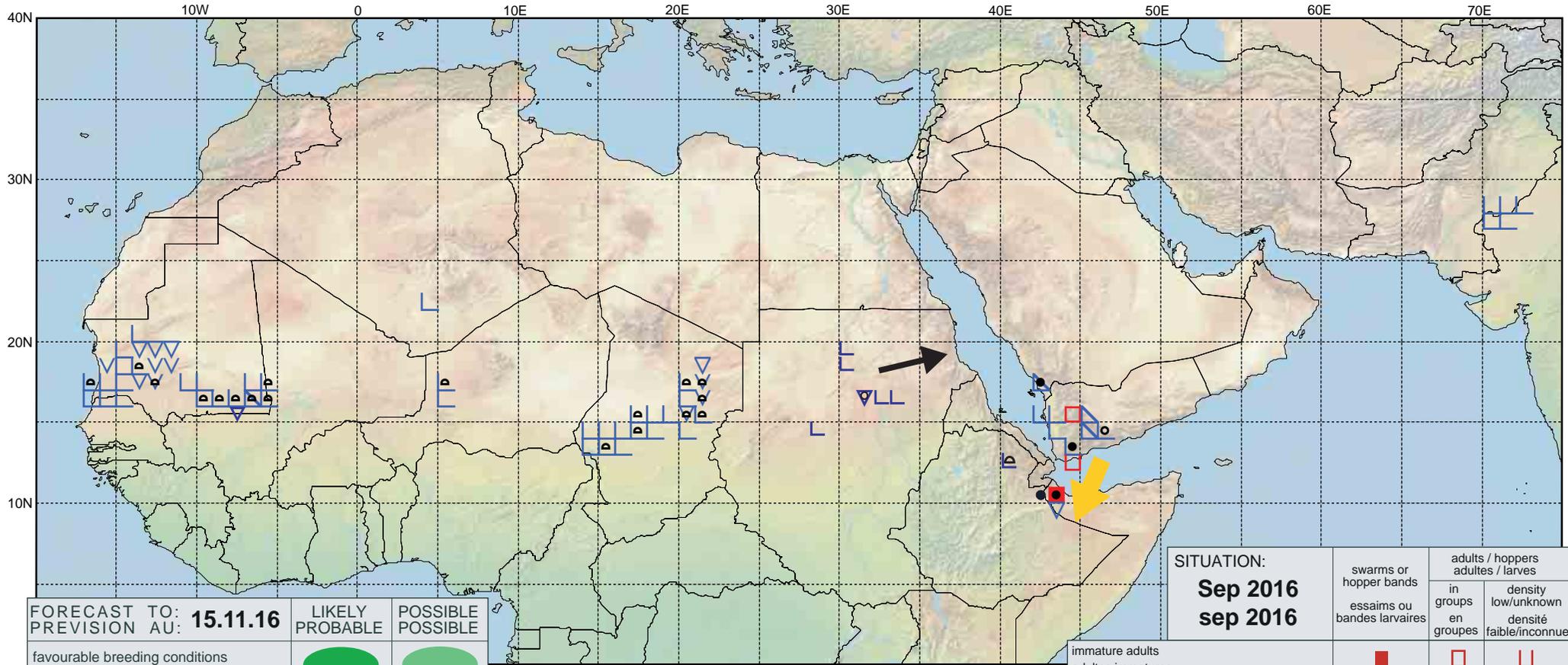
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Desert Locust Summary

Criquet pèlerin - Situation résumée



FORECAST TO:
PREVISION AU: **15.11.16**

LIKELY PROBABLE 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:
Sep 2016
sep 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)			