

warning level: **THREAT**

# DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations



No. 414



**General Situation during March 2013  
Forecast until mid-May 2013**

(3 Apr 2013)

The Desert Locust situation remained serious during March in the winter breeding areas along both sides of the Red Sea as control operations continued against hopper band and swarms. Locust numbers declined after mid-month due to control operations, dry vegetation and migration to the Nile Valley in Sudan and Egypt, and northwards to the Sinai Peninsula, Israel, Palestine, Jordan and Lebanon. Substantial egg laying, hatching and hopper band formation occurred near crops along a 1,000 km stretch of the Nile in northern Sudan. Swarms could form in May and threaten crops, and a second generation of breeding could take place before the summer. There is also a risk that breeding will occur in the interior of the Arabian Peninsula where good rains fell during March. In Northwest Africa, locust numbers increased in Algeria and Morocco where breeding will occur during the forecast period.

**Western Region.** The locust situation remained generally calm in the region during March. A few small swarms formed in **Western Sahara** where breeding had nearly ended. An increasing number of adults, including a few small groups and a swarmlet appeared in the spring breeding areas south of the Atlas Mountains in **Morocco** and **Algeria**, and started to lay eggs in the central Sahara of Algeria. Isolated adults were present in northwest **Mauritania** and southwest **Libya**. Limited control operations were undertaken in Morocco and Algeria. Small-scale breeding will cause

locust numbers to increase further in Morocco and Algeria during the forecast period.

**Central Region.** As vegetation dried out along both sides of the Red Sea during March, adult groups and swarms formed, some of which moved north along the Red Sea in **Egypt**, reaching Cairo and continuing to the Sinai Peninsula, **Israel**, **Palestine**, **Jordan** and **Lebanon**. Egg laying was reported in Israel and Palestine. Swarms that reached the Nile Valley in northern **Sudan** in February and early March, matured and laid eggs that hatched, causing numerous small but dense hopper bands to form near crops. More hopper bands will form during April and swarms could form in May that would threaten crops and probably remain along the Nile to mature and lay eggs. Groups and swarms that moved north along the Red Sea coast in **Saudi Arabia** also laid eggs that hatched, causing hopper bands to form. Good rains in the interior of Saudi Arabia and **Yemen** may allow a generation of breeding to occur during the spring that could lead to swarms forming by June. Control operations were carried out in all affected countries.

**Eastern Region.** No locusts were reported in the region during March. Low numbers of adults are probably present in parts of Baluchistan in western **Pakistan** and southeast **Iran**, and will breed on a small scale in areas of recent rainfall. 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 March 2013

**Vegetation dried out in winter breeding areas along both sides of the Red Sea. Good rains fell in the spring breeding areas of the Arabian Peninsula and in the Horn of Africa during March.**

In the **Western Region**, no significant rain fell during March but light showers occurred at times along the southern side of the Atlas Mountains in Morocco and Algeria. Consequently, breeding conditions were improving in parts of the Draa and Ziz-Ghris valleys in Morocco, and in adjacent areas of northwest Algeria near Bechar. Ecological conditions also became favourable in parts of the central Sahara in Algeria near Beni Abbes, Adrar, In Salah and Tamanrasset. Vegetation was drying out in western Algeria near Tindouf and in the Adrar Settouf region in the southern part of Western Sahara. Ecological conditions were unsuitable for breeding in southwest Libya except near irrigated agricultural areas. In West Africa, dry conditions prevailed in the northern Sahel from Mauritania to Chad.

In the **Central Region**, good rains fell in the interior of Arabia and the Horn of Africa during the second half of March. In Saudi Arabia, low to moderate rains fell in the spring breeding areas of the interior near Al Jawf, Buraydah, Wadi Dawasir, Wadi Najran and in the Empty Quarter, extending to the interior of Yemen from Marib and Shabwah to Thamud, Hadhramaut and the Oman border. Good rains also fell in northeast Oman, in eastern Ethiopia, and throughout northern Somalia. No significant rain fell along both sides of the Red Sea and, consequently, vegetation was drying out on the coastal plains.

In the **Eastern Region**, light rain fell at times during March in parts of the spring breeding areas in southeast Iran and western Pakistan. As a result, ecological conditions were favourable for small scale breeding in some coastal and interior areas of both countries.



### Area Treated

During March, control operations treated nearly 67,000 ha, compared to 87,000 ha in February.

Algeria	2,910 ha (March)
Egypt	10,634 ha (March)
Israel	2,000 ha (estimated, March)
Morocco	290 ha (March)
Palestine	16 ha (March)
Saudi Arabia	10,939 ha (March)
Sudan	44,948 ha (March)



### Desert Locust Situation and Forecast

( see also the summary on page 1 )

#### WESTERN REGION

##### **Mauritania**

###### • SITUATION

During March, the situation remained calm and only isolated immature solitarious adults were seen at a few places in the northwest to the east of Nouadhibou (2056N/1702W) along the border of Western Sahara.

###### • FORECAST

*Isolated adults may persist in parts of Dakhlet Nouadhibou. Small-scale breeding could occur in parts of Tiris-Zemmour if rain falls during the forecast period.*

##### **Mali**

###### • SITUATION

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

###### • FORECAST

*Low numbers of adults are likely to be present and will persist in a few areas of the Adrar des Iforas. No significant developments are likely.*

##### **Niger**

###### • SITUATION

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

###### • FORECAST

*Low numbers of locusts are likely to be present and will persist in parts of the Air Mountains. No significant developments are likely.*

##### **Chad**

###### • SITUATION

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

###### • FORECAST

*No significant developments are likely.*

## Senegal

### • SITUATION

No reports were received in March.

### • 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 March, locust numbers increased in the central and western Sahara. On the 6<sup>th</sup>, an immature swarm fragment was seen near Beni Abbes (3011N/0214W) in Wadi Saoura. During the remainder of the month, groups of immature and mature solitarious and *transiens* adults were reported near Beni Abbes, Bechar (3135N/0217W), Adrar (2753N/0017W), and In Salah (2712N/0229E). Copulating and egg laying were seen after mid-month. Immature and mature solitarious adults were also present south of Ain Sefra (3245N/0035W) and between In Salah and Ghardaia (3225N/0337E).

### • FORECAST

*Small-scale breeding will cause locust numbers to increase in the central and western Sahara. Breeding may also extend to parts of the eastern Sahara. Hatching is likely to commence in early April and hoppers may form small groups that will fledge from mid-May onwards.*

## Morocco

### • SITUATION

During the first week of March, three small immature swarms were seen in the northern part of the Western Sahara near Boujdour (2607N/1429W). Solitarious and *transiens* adults were maturing near Guelta Zemmur (2508N/1222W) and in the Adrar Settouf area of the south between Bir Anzarane (2353N/1431W) and Ma'Tallah (2223N/1502W). Small groups of fifth instar *transiens* hoppers were present near Aousserd (2233N/1419W). Ground teams treated 290 ha during March.

Immature and mature solitarious adults increased slightly in the Draa Valley south of the Atlas Mountains near Tan-tan (2826N/1106W), and in the northeast between Erfoud (3128N/0410W) and Figuig (3207N/0113W).

### • FORECAST

*Small-scale breeding will cause locust numbers to increase along the southern side of the Atlas Mountains in the Draa and Ziz-Ghris valleys and in the northeast near Figuig. Hatching is likely to occur*

*in April. Scattered adults may persist in parts of the Western Sahara.*

## Libya

### • SITUATION

During March, low numbers of immature and mature solitarious adults were seen in the southwest near the Algerian border and northwest of Ghat (2459N/1011E). Some of the adults were seen laying eggs near irrigated agricultural areas.

### • FORECAST

*Small-scale breeding will cause locust numbers to increase slightly in the southwest. Hatching is likely to occur in April.*

## Tunisia

### • SITUATION

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

### • FORECAST

*No significant developments are likely.*

## CENTRAL REGION

### Sudan

### • SITUATION

During March, locust infestations declined in coastal and subcoastal areas of the northeast due to control operations, migration and drying vegetation. A few immature swarms were seen on the coast near the Egyptian border during the first week while a few fledglings and immature adults were seen in Wadi Diib during the last week. Hopper groups, bands, adult groups and swarms continued to form on the southern coastal plains near the Eritrean border in early March. An immature and mature swarm moved to Tokar Delta (1827N/3741E) at mid-month where solitarious immature and mature adults were present. The situation deteriorated in the Northern and River Nile States where swarms matured and laid eggs near crops along a 1,000 stretch of the Nile between Wadi Halfa (2147N/3122E) and Ed Damer (1734N/3358E) and along about a 50 km stretch of the Atbara River. Hatching began during the second week and small, dense hopper bands formed in many areas, reaching third instar by the end of March. A few mature gregarious adults moved west of the Nile and were seen between Dongola (1910N/3027E) and Jebel Uweinat (2154N/2458E). Control teams treated 44,948 ha, including 36,152 ha by air, in March.



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### • FORECAST

*Locust numbers will decline on the southern coast of the Red Sea. Hatching will continue along the Nile in Northern and River Nile States during the first half of April, and hopper bands will form. Fledging is expected to commence after mid-month and new swarms could form by early May. It is likely that these swarms will remain in cropping areas, mature and be ready to lay eggs by late May. All efforts are required to monitor and control the infestations.*

### Eritrea

#### • SITUATION

On 7 March, a few swarms appeared on the northern Red Sea coastal plains and moved towards the escarpment near Afabet (1612N/3841E). Further details are awaited.

#### • FORECAST

*Locust numbers will decline on the northern coastal plains of the Red Sea as vegetation dries out. No significant developments are likely.*

### Ethiopia

#### • SITUATION

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

#### • FORECAST

*No significant developments are likely.*

### Djibouti

#### • SITUATION

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

#### • FORECAST

*No significant developments are likely.*

### Somalia

#### • SITUATION

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

#### • FORECAST

*No significant developments are likely.*

### Egypt

#### • SITUATION

During March, locust numbers declined along the southern coast and subcoastal areas of the Red Sea from the Sudanese border to Berenice (2359N/3524E)

due to control operations, drying vegetation and migration. A few late instar hopper bands and immature swarms were present in the first week and, thereafter, groups of immature adults remained. Several small immature groups and swarms moved north along the coast, reaching eastern Cairo on 2 March and then continuing to the northern coast of the Sinai Peninsula between Bir El Abd (3101N/3300E) and El Arish (3108N/3348E) where they were seen during most of the month. Other groups and small swarms are thought to have reached the interior of the Sinai where surveys were not possible. Immature groups also moved from the southern coast of the Red Sea west into the Nile Valley between Abu Simbel (2219N/3138E) and Sohag (2633N/3142E), and one group reached Farafra oasis (2710N/2818E) in the Western Desert. Control teams treated 10,634 ha during March.

#### • FORECAST

*Locust numbers will continue to decline on the southern coast of the Red Sea, in the northeast, and in the Sinai Peninsula. Small groups of adults are likely to mature along the Nile River south of Sohag and lay eggs near cropping areas. Hatching is likely to occur during April and small groups may form in some areas.*

### Israel

#### • SITUATION

On 4-6 March, isolated immature gregarious adults from the Sinai Peninsula appeared on the coastal plains from south of Tel Aviv (3204N/3446E) to north of Haifa (3248N/3459E). At least one small immature group arrived in the northern Negev Desert at Be'er Milka (3056N/3424E) on the 4<sup>th</sup>, and a small immature swarm crossed the nearby border at Nitzana (3053N/3425E) on the 5<sup>th</sup>. More immature groups appeared from the 10<sup>th</sup> onwards, dispersing across the northern Negev between Nitzana, Ze'elim (3112N/3432E), and Arad (3115N/3512E). From mid-month onwards, mainly mature adults were reported and laying eggs in the northern Negev. Ground and aerial control operations treated at least 2,000 ha during March.

#### • FORECAST

*Hatching and the formation of small hopper groups and bands are likely to occur during April from any adult infestations that are not detected or controlled in the northern Negev.*

### Palestine

#### • SITUATION

On 5 March, small groups of immature adults arrived in southern Gaza on farms near Khan Yunes (3121N/3418E). On the 27<sup>th</sup>, two small mature swarms appeared on the West Bank near Hebron

(3132N/3506E) and were seen copulating. Ground teams treated 16 ha.

- **FORECAST**

*Limited hatching may occur near Hebron during April, and hoppers may form small groups or bands.*

### **Jordan**

- **SITUATION**

On 10 March, low numbers of immature gregarious adults appeared in the Araba Valley north of Aqaba (2932N/3500E). A few small swarms were reported in the same area from 14 to 17 March. Low numbers of immature gregarious adults were seen on the edge of Amman (3157N/3554E) on the 16<sup>th</sup>. A very small immature swarm was seen about 40 km northeast of Aqaba on the 27<sup>th</sup> and ground teams treated 16 ha.

- **FORECAST**

*No significant developments are likely.*

### **Lebanon**

- **SITUATION**

On 16 March, low numbers of immature gregarious adults arrived in coastal areas, extending from Tyre (3316N/3512E) in the south to Tripoli (3426N/3549E) in the north, including Beirut. Locusts continued to be reported for several days in the Akar district northeast of Tripoli.

- **FORECAST**

*No significant developments are likely.*

### **Saudi Arabia**

- **SITUATION**

During March, a second generation of breeding occurred on the northern Red Sea coastal plains near Masturah (2309N/3851E) where egg laying, hatching and band formation took place mainly in Wadi Al Qahah. Breeding also continued to a lesser extent on the central coast near Lith (2008N/4016E) where late instar hopper groups and bands were present. Groups of adults were maturing in both areas. A few immature and mature groups and swarms moved north along the coast towards Umm Lajj (2501N/3716E) and Duba (2719N/3546E) and in the interior towards Khaybar (2542N/3917E) and laid eggs in early March. Hatching and band formation occurred near Umm Lajj. Immature adults appeared on the central coast near Qunfidah (1909N/4107E). Control operations treated 10,939 ha, including 1,500 ha by air, in March.

- **FORECAST**

*Hatching and hopper band formation will occur along the northern coast and in subcoastal areas between Umm Lajj, Khaybar and Tabuk from early April onwards, causing locust numbers to increase. Residual infestations are likely to remain near Masturah, Lith and Qunfidah. Groups of adults are likely to appear in the spring breeding areas of*

*the interior and lay eggs in areas of recent rainfall. Hatching is likely to occur in early May, and hoppers may form small groups or bands.*

### **Yemen**

- **SITUATION**

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

- **FORECAST**

*Low to moderate numbers of adults may appear in the interior from Marib to Thamud and the Oman border, and breed on a small scale in areas of recent rainfall.*

### **Oman**

- **SITUATION**

During March, no locusts were seen during surveys carried out on the Musandam Peninsula, in the northern interior near Nizwa (2255N/5731E), on the central coast north of Duqm (1939N/5743E), and in the extreme south near Maziuna (1750N/5239E) and the Yemeni border.

- **FORECAST**

*Low numbers of adults may appear on the Batinah and Al Wusta coast where small-scale breeding may occur. Scattered adults may also appear and breed in recent areas of rainfall in Dhofar near the Yemeni border.*

### **Bahrain, Iraq, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, Uganda and UAE**

- **FORECAST**

*No significant developments are likely.*

## **EASTERN REGION**

### **Iran**

- **SITUATION**

No reports were received in March.

- **FORECAST**

*Low numbers of adults are expected to be present in a few areas on the southeastern coastal plains and in the Jaz Murian Basin where small-scale breeding may occur in areas of recent rainfall, causing locust numbers to increase slightly.*

### **Pakistan**

- **SITUATION**

No reports were received in March.



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- **Forecast**

*Low numbers of adults are expected to be present in a few areas on the coast and interior of Baluchistan where small-scale breeding may occur in areas of recent rainfall, causing locust numbers to increase slightly.*

### India

- **SITUATION**

No locusts were seen during surveys carried out during March.

- **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](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://www.devcoast.eu/user/images/dl/Form.do>)
- **FAODLIS Google site.** A platform for sharing problems, solutions, tips and files for eLocust2, eLocust2Mapper, RAMSES and remote sensing (<https://sites.google.com/site/faodlis>)
- **FAOLOLUST 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>)

**SWAC website.** The FAO Commission for Controlling the Desert Locust in South-West Asia (SWAC) website (<http://www.fao.org/ag/locusts/SWAC>) is now available in French.

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

- **Desert Locust situation updates.** Archives Section – Briefs
- **NE Egypt invasion.** Information section
- **Sudan threat.** Information section

**2013 events.** The following activities are scheduled or planned:

- **CRC/SWAC.** Inter-regional Locust information officers workshop, Cairo, Egypt (22-25 April)
- **CLCPRO/EMPRES-RO.** Western Region Locust information officers workshop, Niamey, Niger (May)



## 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**

- July - September/October

#### **WINTER RAINS AND BREEDING**

- October - January/February

#### **SPRING RAINS AND BREEDING**

- February - June/July

#### **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.

#### **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.

#### **RECESSION**

- period without widespread and heavy infestations by swarms.

#### **REMISSION**

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

### **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.



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### 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.

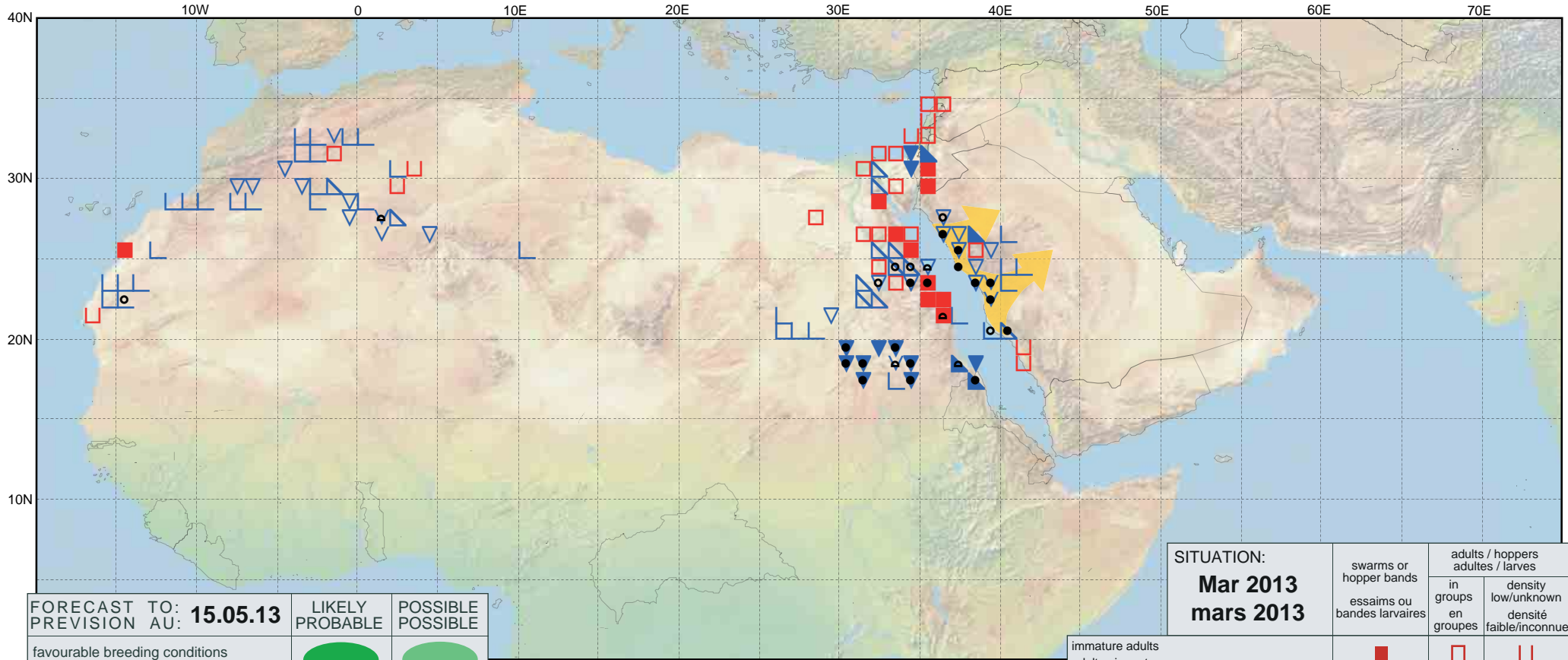




# Desert Locust Summary

## Criquet pèlerin - Situation résumée

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FORECAST TO: PREVISION AU: <b>15.05.13</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>Mar 2013</b> <b>mars 2013</b>	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)		