

warning level: **CAUTION (Central Region)**

# DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations



No. 339

(3 January 2007)



## General Situation during December 2006 Forecast until mid-February 2007

A small, localized outbreak developed in early December on the Red Sea coast in Eritrea where hoppers and adults were forming small groups. Control operations were immediately mounted and more than 11,000 ha were treated. Only scattered adults were present in other winter breeding areas on the coast of Sudan, Egypt, Saudi Arabia, Yemen and northern Somalia. Locust numbers will increase along both sides of the Red Sea during the forecast period, especially in Eritrea where intensive survey and control efforts should continue. The situation improved in northwest Mauritania and Western Sahara where limited control operations were undertaken. Control was also carried out in northern Mali and Niger. Locust populations are expected to decline further in the Western Region where only scattered adults are likely to persist during the forecast period.

**Western Region.** There was a steady decline in locust populations during December in previously infested areas in northwest Mauritania and Western Sahara. Ground control operations were conducted against small hopper bands, treating 20 ha in Mauritania and 770 ha in Western Sahara. Control teams also treated about 1,000 ha of locust concentrations in one area of northern Mali. In Niger, solitary and *transiens* hoppers and adults formed small groups in Tamesna where ground control teams treated more than 1,800 ha. As vegetation is drying out and there was no significant rain during December, another generation of breeding is unlikely

to occur and, instead, only low numbers of adults are expected to persist in the above-mentioned areas. Some of these adults could move north towards the Draa Valley in Morocco, to northern Mauritania and to southern Algeria during periods of warm southerly winds.

**Central Region.** As a result of good rains and runoff, undetected breeding occurred in November and an outbreak developed locally on the Red Sea coastal plains of Eritrea near Massawa in early December. Although ground control teams treated solitary and *transiens* hoppers that were forming small groups, there is a risk that outbreaks may develop elsewhere along the coast where hopper bands and perhaps a few small swarms could form. A second generation of breeding is likely to occur during January and February, causing locust numbers to increase further that may pose a threat to neighboring countries. Scattered adults were present along the Red Sea coastal plains in Sudan, southeast Egypt, Saudi Arabia and Yemen as well as in northern Somalia. Small-scale breeding will occur in these areas during the forecast period.

**Eastern Region.** Low numbers of solitary adults persisted in a few places in Rajasthan, India during December. Good rains fell in the spring breeding areas of Baluchistan in southeast Iran and western Pakistan where small-scale breeding could start by the end of the forecast period.

The FAO Desert Bulletin is issued monthly, supplemented by Updates during periods of increased Desert Locust activity, and is distributed by e-mail, FAO pouch and airmail by the Locusts and Other Migratory Pests Group, AGP Division, FAO, 00153 Rome, Italy. It is also available on the Internet.

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### Weather & Ecological Conditions in December 2006

**Vegetation started to dry out in Northwest Africa but continued to improve in winter breeding areas along both sides of the Red Sea where sporadic rains fell during December. Good rains fell in the spring breeding areas along the Iran/Pakistan border.**

In the **Western Region**, very little rainfall occurred in the winter and spring breeding areas in Northwest Africa during December. Light rain fell in northeast Morocco near Bouarfa and on the Atlantic coast near Tan-tan. Vegetation was green on the southern side of the Atlas Mountains in Morocco along the Algerian border south of Errachidia and Zagora and in Draa Valley south of Tata. In Western Sahara, ecological conditions were generally favourable in the Awsard region although some vegetation was drying out. No significant rain fell in Mauritania. Consequently, vegetation was drying out in most of the northwest except for a few localized areas where it was still green enough to allow limited locust survival. Vegetation was also drying out in northern Mali and Niger due to a lack of rainfall.

In the **Central Region**, light to moderate showers fell during December in the winter breeding areas along both sides of the Red Sea. Most days were cloudy on the northern and central Red Sea coastal plains Eritrea and light to moderate rain fell at times; for example, Massawa reported 40 mm on 6 December. Rain also fell in the highlands causing runoff to occur in most of the wadis on the coast. Consequently, much of the coastal plains contained large expanses of green vegetation, mainly near Shelshela, Shieb and Mehimet, and conditions were favourable for breeding. On the eastern side of the Red Sea, light to moderate rains fell at times along parts of the coast from Jizan, Saudi Arabia and to the Gulf of Aden in Yemen. Vegetation was becoming green or was already green along most of the Tihama coast in Yemen but it was drier along the Gulf of Aden. Good rains fell in northern Oman on 2-3 December, extending from the Wahiba Sands and Sharqiya to the Batinah coast. Good rains also fell at times over the Persian Gulf affecting mainly Qatar and UAE but

these are not expected to have an impact on Desert Locust. In northern Somalia, breeding conditions improved along the northwestern coastal plains due to good rains in late November and early December. Light rain also fell on the coast of Djibouti during two days in December.

In the **Eastern Region**, good rains fell in spring breeding areas along the coast and in the interior of Baluchistan in southeastern Iran and western Pakistan on 1-3 December. The rains extended from Bander-e Lengheh to Zahedan in Iran and from Jiwan to Karachi and Quetta in Pakistan. The heaviest showers were concentrated in Pakistan near the coast (Turbat 73 mm, Lasbela 31 mm), in the central interior (Panjgur 75 mm, Kharan 50 mm) and in the north (Nushki 48 mm, Dalbandin 35 mm). Breeding conditions will improve in these areas despite low temperatures during the winter.



### Area Treated

Eritrea	11,418 ha (9-27 December)
Mali	1,000 ha (November - early December)
Mauritania	20 ha (1-10 December)
Morocco	280 ha (29-30 November)
	770 ha (1-18 December)
Niger	1,838 ha (1-16 December)



### Desert Locust Situation and Forecast

( see also the summary on page 1 )

#### WESTERN REGION

##### **Mauritania**

##### • SITUATION

During December, there was a steady decline in locust numbers in the northwest. Nevertheless, some small infestations persisted. In Inchiri, solitary and *transiens* hoppers of all instars and a few small groups, at densities up to 25 hoppers/m<sup>2</sup>, were present in a few places. During the first week, mechanical control operations were undertaken near the Banc d'Arguin National Park against 46 very small second to fifth instar hopper patches and bands. The infestations varied in size from a few square metres to less than 1 ha with densities of up to 60-220 hoppers/m<sup>2</sup>. In all, about 20 ha were treated. In southwest Adrar, scattered immature and mature adults were present south of Oujeft (2003N/1301W) and Chinguetti (2027N/1221W). By the end of the month, only low numbers of scattered solitary hoppers and adults

remained in the above areas.

• **FORECAST**

*Unless rainfall occurs, small-scale breeding should end in the northwest and only scattered adults are likely to persist during the forecast period. During periods of warm southerly winds, some adults could move further north to Tiris-Zemmour and eventually breed if rainfall occurs.*

**Mali**

• **SITUATION**

During late November and early December, a few small locust concentrations persisted north of Tombouctou (1649N/0259W) at densities varying from a few individuals per site to 15 locusts/m<sup>2</sup>. Control operations were carried out against the denser infestations and teams treated 1,000 ha. By mid-December, locust numbers had declined to less than 100 solitary adults/ha. No surveys were carried out and no locusts were reported during the third decade.

• **FORECAST**

*Low numbers of locusts are likely to be present in parts of Timetrine, Tilemsi Valley, Adrar des Iforas and Tamesna and should persist during the forecast period in any areas that remain green.*

**Niger**

• **SITUATION**

During December, solitary and *transiens* hoppers and maturing adults persisted in the central Tamesna, primarily west of In Abangharit (1754N/0559E) in the Azaouak Valley. As vegetation was drying out, the hoppers and adults formed small groups at densities of 5-50 hoppers/m<sup>2</sup> and 25-2,000 adults/ha. Ground control teams treated 1,838 ha on 1-16 December.

• **FORECAST**

*As vegetation continues to dry out, any locusts that escape control operations are expected to concentrate in the few areas that remain green and form a few small groups. These are likely to remain in the Tamesna except during periods of warm southerly and southwesterly winds when they could move east to the Air Mountains or north towards central Algeria.*

**Chad**

• **SITUATION**

No reports were received during December.

• **FORECAST**

*No significant developments are likely.*

**Senegal**

• **SITUATION**

No reports were received during December.

• **FORECAST**

*No significant developments are likely.*

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

• **FORECAST**

*No significant developments are likely.*

**Algeria**

• **SITUATION**

No reports were received during December.

• **FORECAST**

*Low numbers of adults could appear in the west and in the south during periods of warm southerly winds.*

**Morocco**

• **SITUATION**

During the first decade of December, an individual solitary mature adult was seen south of Tata (2944N/0758W) in Draa Valley along the border with Algeria. In Western Sahara, small bands of *transiens* and gregarious fifth instar hoppers persisted during the month in the Adrar Souttoug region southwest of Awssard (2240N/1410W) but at lower densities (an average of 15 hoppers/m<sup>2</sup>) than in November. Some hoppers had fledged and immature adults were present. The infestations varied from 30 to 100 ha in size. Ground control teams treated 770 ha on 1-18 December. During the last decade of the month, no locusts were seen during surveys in the Draa Valley south of Tata and near Zag (2800N/0920W), or in Western Sahara near Laayoune (2708N/1313W) and Awssard.

• **FORECAST**

*Unless rainfall occurs, small-scale breeding should end in Western Sahara and only scattered adults are likely to persist in parts of the Adrar Souttoug during the forecast period. During periods of warm southerly winds, some adults could move further north towards the Draa Valley in Morocco.*

**Libyan Arab Jamahiriya**

• **SITUATION**

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

• **FORECAST**

*Scattered adults may be present in parts of the Al Hamada Al Hamra and near Ghat where small-scale breeding could occur in areas of previous rainfall.*



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### Tunisia

#### • SITUATION

No locusts were reported during December.

#### • FORECAST

*No significant developments are likely.*

### CENTRAL REGION

#### Sudan

#### • SITUATION

During December, scattered immature and mature adults persisted on the Red Sea coastal plains in the Tokar Delta at densities of 50-200 adults/ha. Small-scale breeding occurred and isolated third and fourth instar hoppers were present in one area of Tokar in the first week of the month. Isolated solitary mature adults were also seen at one place near Suakin (1908N/3717E) at mid-month. No locusts were seen during surveys carried on the northern coast or in Wadi Diib. Elsewhere, scattered maturing adults were seen west of the Red Sea Hills at two places along the Atbara River on 1 December near 1721N/3430E.

#### • FORECAST

*Locust numbers will increase slightly as small-scale breeding continues along the Red Sea coastal plains and in Wadi Oko/Diib. Fledgling should commence by the beginning of the forecast period.*

#### Eritrea

#### • SITUATION

A local outbreak developed from undetected laying and hatching that occurred during the first half of November on the Red Sea coast between Shelshela (1553N/3906E) and Shieb (1551N/3903E). By 8 December, solitary and *transiens* first to fifth instar hoppers and maturing adults were present within an area of about 20 km by 25 km. Some of the hoppers and fledglings were reported to be forming small groups and adults were seen laying eggs. Ground control operations started on the 9<sup>th</sup> and teams treated 11,418 ha up to 27 December.

Further north on the coast near the Sudanese border, small-scale breeding was in progress between Meleet (1730N/3845E) and Mersa Teklay (1734N/3851E) where solitary hoppers of all instars and immature and mature adults were present. Adults were copulating and laying eggs and, at one location, hoppers were fledging and adults were starting to form small groups. Between Shelshela and Meleet,

scattered adults were present on the coastal plains, mainly near Mersa Gulbub (1633N/3908E) where adults were laying eggs and solitary first to third instar hoppers were present.

On the southern coast, isolated mature solitary adults were seen during the last week about 50 km south of Massawa (1537N/3928E), near Tio (1441N/4057E) and further inland near the Ethiopian border.

#### • FORECAST

*A second generation of breeding will occur on the Red Sea coastal plains between Massawa and the Sudanese border, causing locusts to increase in number, gregarize and form small groups, bands and perhaps a few swarmlets. Small-scale breeding is also expected to occur on the southern coastal plains near Tio with hatching in January. All efforts should be made to monitor the situation closely and undertake the necessary control operations.*

#### Ethiopia

#### • SITUATION

No reports were received during December.

#### • FORECAST

*No significant developments are likely.*

#### Djibouti

#### • SITUATION

No locusts were reported during December.

#### • FORECAST

*No significant developments are likely.*

#### Somalia

#### • SITUATION

Isolated mature adults were seen at three places along the northwestern coastal plains west of Berbera (1028N/4502E) during surveys carried out on 11-16 December. No locusts were seen elsewhere along the escarpment.

#### • FORECAST

*Low numbers of locusts will persist along the northwest coast and perhaps on the escarpment. Small-scale breeding is expected to occur in areas of recent rainfall.*

#### Egypt

#### • SITUATION

During December, isolated mature adults were seen on the Red Sea coast between Halaib (2212N/3635E) and the Sudanese border on the 2<sup>nd</sup>. No locusts were seen in the northwest near Salum (3131N/2509E) and Siwa (2912N/2531E), in the southern part of the Western Desert near Sh. Oweinat (2219N/2845E), along the Lake Nasser shoreline, and near the Red Sea coast south of Marsa Alam (2504N/3454E).

• **FORECAST**

*Small-scale breeding is expected to occur locally on the Red Sea coastal plains between Abu Ramad and the Sudanese border.*

**Saudi Arabia**

• **SITUATION**

During December, low numbers of solitarious locusts were scattered along the Red Sea coastal plains. North of Jeddah, solitarious adults were reported about 50 km north of Masturah (2309N/3851E) at four places on the coast mixed with isolated second to fourth instar hoppers. Isolated solitarious fourth instar hoppers and adults were seen near Mecca at Wadi Al-Nuaman (2120N/4004E), and adults were present further south near Qunfidah (1909N/4107E) and Jizan (1656N/4233E).

• **FORECAST**

*Scattered adults will persist along parts of the Red Sea coastal plains between Yenbo and Jizan where small-scale breeding will occur in areas of recent rainfall. Consequently, locust numbers will increase slightly during the forecast period. All efforts should be made to monitor the situation closely.*

**Yemen**

• **SITUATION**

In mid-December, scattered immature solitarious adults persisted at a few places on the northern Red Sea coast between Suq Abs (1600N/4312E) and Al Zuhrah (1541N/4300E) and on the central coast near Bayt Al Faqih (1430N/4317E). No locusts were seen elsewhere on the Tihama plains or along the Gulf of Aden coast.

• **FORECAST**

*Low numbers of locusts will persist on the Red Sea coastal plains and breed on a small-scale. Limited breeding could also occur in areas of recent rainfall on the Gulf of Aden coastal plains. Consequently, locust numbers will increase slightly during the forecast period. All efforts should be made to monitor the situation closely.*

**Oman**

• **SITUATION**

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

No locusts were seen during surveys carried out in December on the southern coast near Bander-e Lengheh (2634N/5452E) and Jask (2540N/5746E).

• **FORECAST**

*Low numbers of adults could appear and small-scale breeding may commence by the end of the forecast period in areas of recent rainfall along the southeastern coast between Bandar Abbas and Gwatar.*

**Pakistan**

• **SITUATION**

No locusts were reported during the first half of December.

• **FORECAST**

*Low numbers of adults could appear and small-scale breeding may commence by the end of the forecast period in areas of recent rainfall along the coast and perhaps in the interior of Baluchistan.*

**India**

• **SITUATION**

During the first week of December, scattered mature adults were present at a few locations in Rajasthan between Jaisalmer (2652N/7055E) and the Pakistani border. Thereafter, no locusts were seen.

• **FORECAST**

*No significant developments are likely.*

**Afghanistan**

• **SITUATION**

No reports received.

• **FORECAST**

*No significant developments are likely.*



**Announcements**

**Locust reporting.** During recession periods, countries should report at least once/month and send RAMSES data with a brief interpretation. During locust outbreaks, upsurges and plagues, RAMSES output files with a brief interpretation should be sent twice/week and affected countries are encouraged to prepare decadal bulletins summarizing the situation.



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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.

**eLocust2.** FAO has developed a new version of eLocust in collaboration with affected countries and the French Space Agency (CNES/Novacom) that allows field officers to enter survey and control data directly in the field and transmit it in real time via satellite to their national locust centre. Data can also be downloaded to a PC and visualized on GoogleEarth. The software is in both English and French. FAO DLIS has distributed units to nearly all of the frontline countries. Photos and more information are available at: [www.fao.org/ag/locusts/en/activ/DLIS/index.html](http://www.fao.org/ag/locusts/en/activ/DLIS/index.html)

**Desert Locust warning levels.** A colour-coded scheme has been established to indicate the seriousness of the current Desert Locust situation: green for *calm*, yellow for *caution* 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. Your feedback on the usefulness of this scheme and any suggested improvements is welcome.

**EMPRES/CRC website.** Detailed information on EMPRES/CR and the FAO Central Region Commission as well as member country profiles can be found on the new EMPRES/CRC website at: [www.crc-empres.org](http://www.crc-empres.org).

**New information on Locust Watch.** DLIS launched a new initiative in October called *Desert Locust e-info news* as a means of keeping everyone informed on a weekly basis of new information on the Locust Group's web page, Locust Watch ([www.fao.org/ag/locusts](http://www.fao.org/ag/locusts)). The latest additions are:

- **DLCC.** Final report of 38<sup>th</sup> session held in Rome (September 2006)

- **SWAC.** Final report of the 25<sup>th</sup> session held in Tehran, Iran (November 2006)
  - **EMPRES/CR.** Final report of the 14<sup>th</sup> Liaison Officers meeting held in Muscat, Oman (November 2006)
  - **Eritrea outbreak.** Pictures of infestations and ground operations (December 2006)
  - **Niger photos.** Pictures of infestations and ground operations (November-December 2006)
  - **FAO Technical series No. 33.** Environmental impact of Barrier Treatments against Locusts
- Links to the above information can be found in the new *Latest Additions* section on Locust Watch.

**2007 events.** The following meetings are scheduled:

- **EMPRES/WR.** 2nd Session of the Steering Committee, Bamako (Mali), 22-24 January
- **Biopesticides.** Workshop on the future of biopesticides for Desert Locust management, Saly (Senegal), 12-15 February



## 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.

### **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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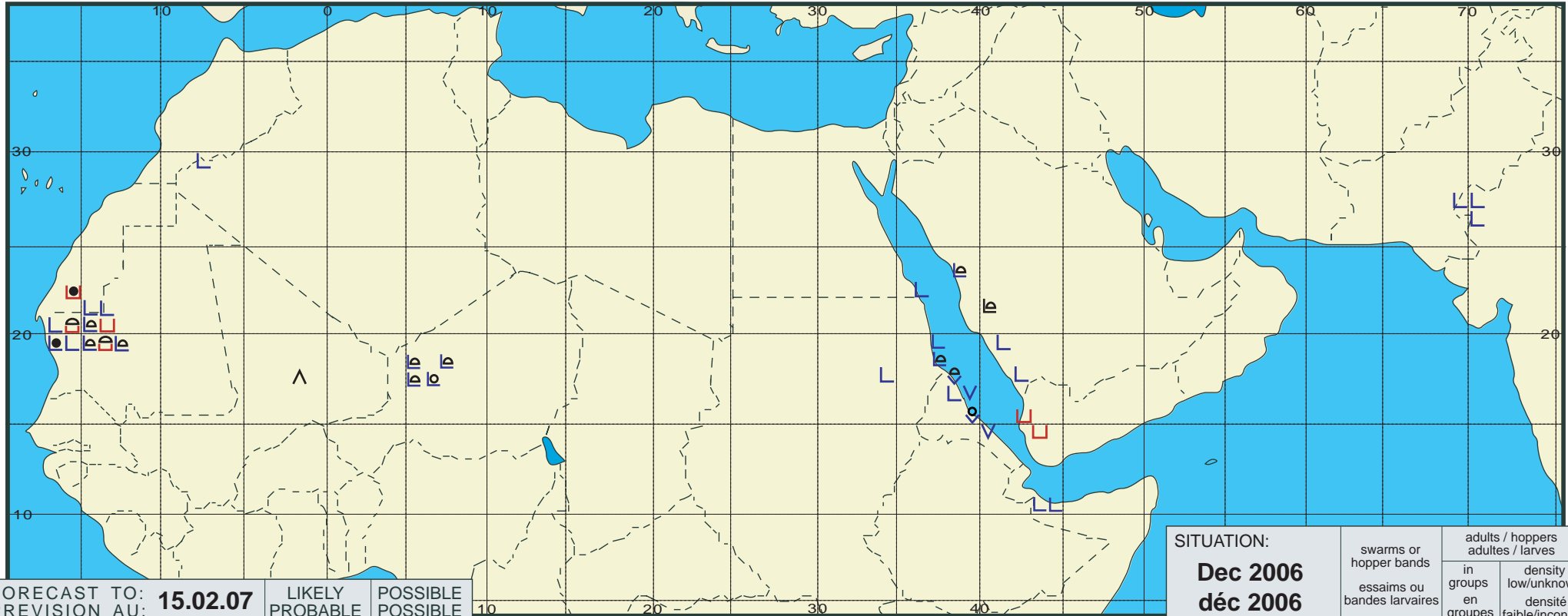
DESERT LOCUST BULLETIN



# Desert Locust Summary

## Criquet pèlerin - Situation résumée

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FORECAST TO: PREVISION AU:	<b>15.02.07</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 2006</b> <b>déc 2006</b>	swarms or hopper bands	adults / hoppers adultes / larves	
	essaims ou bandes larvaires	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)			