

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations



No. 292

(3 Feb 2003)



General Situation during January 2003 Forecast until mid-March 2003

The Desert Locust situation remained calm during January. Although conditions continued to be favourable in the winter breeding areas, no locusts have been reported in these places. Only isolated adults were present in Niger, southern Algeria and northern Somalia. There was an unconfirmed report of adults and hoppers in northern Mali. During the forecast period, small-scale breeding could occur along the Red Sea coasts. No significant developments are expected.

Western Region. Low numbers of adults persisted in southern Algeria and in Niger during January where they will slowly mature in the few areas that remain green. There is a slight possibility that adults may move into southern Algeria during periods of warm southerly winds from northern Mali where there were unconfirmed reports from nomads and travelers of locust adults and hoppers. No locusts were reported elsewhere in the region and the situation is expected to remain calm during the forecast period.

Central Region. Conditions continued to remain favourable for breeding in many places along both sides of the Red Sea during January but no locusts were reported. Nevertheless, small-scale breeding could occur during the forecast period on the coasts of Yemen, Saudi Arabia, Sudan and Eritrea. Isolated adults were reported in northwestern Somalia where they will mature and breed if conditions remain favourable. No significant developments are expected.

Eastern Region. No locusts were reported in the region. Conditions are improving in the spring breeding areas of western Pakistan and eastern I.R. Iran where light rains fell during January. Low numbers of adults are expected to appear in the spring breeding areas during the forecast period. No significant developments are expected.

The FAO Desert Bulletin is issued monthly, supplemented by Updates during periods of increased Desert Locust activity, and is distributed by fax, e-mail, FAO pouch and airmail by the Locusts and Other Migratory Pests Group, AGP Division, FAO, 00100 Rome, Italy. It is also 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

DLIS: www.fao.org/news/global/locusts/locuhome.htm



No. 292

DESERT LOCUST BULLETIN



Weather & Ecological Conditions in January 2003

Although only a few isolated showers fell in the winter breeding areas along the Red Sea coastal plains, conditions continued to be favourable for breeding in many places. Very little rain fell elsewhere and conditions were generally dry except for parts of northwestern Mauritania, northern Mali, Niger and southern Algeria where localized patches of vegetation were present to allow low numbers of locusts to survive.

In the **Western Region**, very little rain was reported or is thought to have occurred in the locust breeding areas during January. Light rain associated with eastward Mediterranean depressions fell at times during the first half of the month along the Atlantic coast in Morocco near Sidi Ifni and Tan-Tan, and north of the Sahara in Algeria near Ghardaia and Ouargla. Rain was heaviest in southern Tunisia. A few light showers may have fallen in northern Mauritania and southwestern Morocco where scattered clouds were present during the first, third and fourth weeks of January. Clouds were present for several days and isolated showers were reported in southeastern Mauritania (Nema), northern Mali (Aguelhoc and Tessalit) and in eastern Niger (Bilma). Despite the poor rainfall, conditions remained favourable on a localized scale for locust survival near Tamanrasset, Algeria, in parts of northern Mali and in a few wadis in the northern and central Air Mountains, Niger. Vegetation was reported to be nearly dry in Tamesna, Niger.

In the **Central Region**, isolated showers fell in a few places along both sides of the Red Sea. In Eritrea, light rain was reported on the northern coast. Light to moderate rains fell during the first and third weeks of January on the northern Red Sea coast in Yemen and moderate rains fell in early January in adjacent areas of Saudi Arabia in Jizan. Consequently, breeding conditions are favourable in most of these areas as well as on the Red Sea coast of Sudan from Tokar to just south of Mohamed Qol. Unfavourable conditions persisted on the coast further north to Shalatein, Egypt. Clouds were present over the Western Desert in Egypt on several days throughout January. On one

occasion, these clouds extended to Jebel Uweinat and the Chad/Libya/Sudan border. This is one of the driest regions of the Sahara. Clouds were also seen on the Red Sea coast near the Sudan/Egypt border and along the Yemen/Saudi Arabia border in the Empty Quarter north of Wadi Hadhramaut. There is a low possibility that light showers may have occurred in some of these places. Light rainfall was reported in Djibouti Town and in northern Oman and. In northern Somalia, conditions were favourable for breeding on the escarpment and coastal plains west of Berbera where moderate rains fell during the first week of January.

In the **Eastern Region**, isolated showers fell in a few places along the coast in the spring breeding areas of I.R. Iran and Pakistan where vegetation is becoming green. The showers were reported at Jask, I.R. Iran and at Jiwani and Pasni, Pakistan. Light rain also fell in Rajasthan, India at Bikaner and Jaisalmer where temperatures were unusually cold and conditions were generally dry and unfavourable for locusts.



Area Treated

No control operations were reported during January.



Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• SITUATION

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

• FORECAST

Isolated adults may be present in the northwest in Inchiri and perhaps further north in a few places in Adrar and Tiris-Zemmour. No significant developments are likely.

Mali

• SITUATION

There were unconfirmed reports of adult and hopper concentrations at a few places west of Tessalit (2011N0102E) in the Tilemsi Valley and Timetrine during the first three weeks of January.

• **FORECAST**

As vegetation continues to dry out in the Timetrine, Tilemsi Valley and the Adrar des Iforas, locusts are likely to become concentrated and may form a few small groups. During periods of warm southerly winds, there is a low possibility that some adults could move north into southern Algeria.

Niger

• **SITUATION**

On 13-24 December, scattered first to fifth instar hoppers and immature adults were seen on the Talak Plains (1826N/0746E) north of Agadez and in a few wadis in the northern Air Mountains. In two of these places, drying vegetation forced the locusts to concentrate and increase in density, reaching up to 7 hoppers per 10 sq. metres and 4,000 adults per ha.

During the first three weeks of January, scattered immature adults declined on the Talak Plains but persisted at four locations in the central Air Mountains.

• **FORECAST**

Locust numbers will continue to decline in Tamesna and Air as vegetation dries out and breeding conditions become unfavourable. Nevertheless, isolated adults may persist in a few places near Talak. No significant developments are likely.

Chad

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Senegal

• **SITUATION**

No locusts were reported during December.

• **FORECAST**

No significant developments are likely.

Algeria

• **SITUATION**

A few individual immature adults were reported to be persisting in a few wadis near Tamanrasset during January.

• **FORECAST**

Isolated adults will persist and slowly mature near Tamanrasset where small-scale breeding could occur if rains fall during the forecast period. These may be augmented by any adults arriving from northern Mali during periods of warm southerly winds.

Morocco

• **SITUATION**

No locusts were reported during January.

• **FORECAST**

No significant developments are likely.

Libyan Arab Jamahiriya

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Tunisia

• **SITUATION**

No locusts were reported during January.

• **FORECAST**

No significant developments are likely.

Burkina Faso, Cape Verde, Gambia, Guinea Bissau and Guinea Conakry

• **FORECAST**

No significant developments are likely.

CENTRAL REGION

Sudan

• **SITUATION**

No locusts were seen during surveys carried out on the Red Sea coastal plains between Tokar (1827N/3741E) and Bir Salalah (2034N/3701E) in the first three weeks of January.

• **FORECAST**

Isolated adults are likely to be present on the Red Sea coastal plains where small-scale breeding could occur in areas that continue to remain green during the forecast period. Other locusts may be present and breeding in the northern subcoastal areas in Wadi Oko/Diib. Regular monitoring should continue in all of these areas.

Eritrea

• **SITUATION**

No locusts were seen during surveys carried out on 17-18 January on the Red Sea coast between Massawa (1537N/3928E) and the Sudanese border at Karora (1745N/3820E).

• **FORECAST**

Isolated adults may be present in some areas along the Red Sea coastal plains between Massawa and Karora. Small-scale breeding could occur in areas of recent rainfall but no significant developments are expected.



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Somalia

• SITUATION

Isolated immature adults were seen at two locations on the coastal plains west of Berbera (1028N/4502E) at the base of the escarpment on 7 January. No other locusts were seen in nearby areas during surveys carried out on 6-9 January.

• FORECAST

Low numbers of adults will mature and breed on a small scale on the northwest coastal plains. Consequently, locust numbers will increase slightly but remain well below threatening levels.

Ethiopia

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Djibouti

• SITUATION

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

• FORECAST

No significant developments are likely.

Egypt

• SITUATION

No locusts were reported during December and the first three weeks of January along the Red Sea coast or in the Western Desert.

• FORECAST

No significant developments are likely.

Saudi Arabia

• SITUATION

During the first joint border survey between Saudi Arabia and Yemen, one mature adult was seen near Jizan at Wadi Al-Rubah (1649N/4255E) on 17 December.

No locusts were reported during January.

• FORECAST

Scattered adults are likely to be present in areas of recent rainfall along the Red Sea coastal plains near Jizan where small-scale breeding is expected during the forecast period.

Yemen

• SITUATION

During the first joint border survey between Saudi Arabia and Yemen, one mature adult was seen south of Hodeidah at Al-Bunniah (1442N/4312E) on 15 December. No locusts were seen further north between Hodeidah and the border.

No locust surveys were carried out during January.

• FORECAST

Small-scale breeding is expected to occur during the forecast period along parts of the Red Sea coastal plains. Regular monitoring of these areas is recommended.

Oman

• SITUATION

No locusts were seen during surveys carried out in the north and on the Musandam Peninsula on 8-20 January.

• FORECAST

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• FORECAST

No significant developments are likely.

EASTERN REGION

Iran

• SITUATION

No locusts were seen during surveys carried out in Hormozgan and Kerman provinces on 26-27 January.

• FORECAST

No significant developments are likely.

Pakistan

• SITUATION

No reports received.

• FORECAST

Isolated adults may start to appear in a few places along the coast in Baluchistan where rainfall occurs.

India

• SITUATION

No locusts were reported up to 23 January.

• FORECAST

No significant developments are likely.

Afghanistan

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.



Announcements

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO 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.

Reporting by e-mail. After each survey or control operation, affected countries should send completed *FAO Desert Locust Survey and Control Forms* with a brief interpretation of the results by e-mail to eclo@fao.org.

Desert Locust Guidelines. The revised edition in English was issued in September 2001 and is now available from FAO. French and Arabic versions will be released later this year. Please contact the Locust Group for more information.

eLocust. Details of a new system under evaluation for recording and transmitting locust survey and control data collected in the field can be found on the Internet at: www.fao.org/news/2001/010601-e.htm

Publications on the Internet. More reports of FAO locust-related meetings are available for downloading at www.fao.org/news/global/locusts/reports1.htm:

- CLCPANO: 31st session of the Executive Committee (French, Arabic)
- CLCPRO: 1st session of the Western Region Commission (French)
- CRC: 23rd session and 2002-2003 workplans (English, Arabic)
- CRC/EMPRES/DLCO-EA: 1st and 2nd Technical Forums (English)
- EMPRES/CR: 9th and 10th Liaison Officers Meetings (English); 4th Consultative Committee (English)
- FAO: Expert Consultation and Risk Assessment on the Importation and Large-Scale Use of Mycotoxicides against Locusts (English)
- SW Asia Commission: 23rd session (English)

Desert Locust research award. The FAO Commission for Controlling the Desert Locust in the Central Region (CRC) is pleased to announce a cash award for outstanding research on Desert Locust. For more details, please contact the CRC Office in Cairo (munir.butrous@fao.org).

Master Trainer Course. Details and photos of a FAO training-of-trainers course on Desert Locust survey, control and training skills held in Oman in

October 2002 are available at:

www.fao.org/news/global/locusts/omntot/totmain.htm

2003 events. The following are provisionally scheduled:

- **EMPRES.** 6th Consultative Committee and Phase III Planning Workshop, Luxor (Egypt), 18-22 May
- **CRC.** 24th Session of the Executive Committee, Beirut (Lebanon), 10-15 April
- **CLCPANO.** Extraordinary Session, Alger (Algeria), 6-7 June
- **CLCPRO.** 2nd Session, Alger (Algeria), 8-12 June
- **DLCC Technical Group.** FAO Rome, June
- **DLCC.** 37th Session, FAO Rome, 22-26 September
- **EMPRES/CR.** 11th Liaison Officers meeting, Djibouti (or Egypt), December



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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

- 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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guidea Bissau and Guinea Conakry.

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

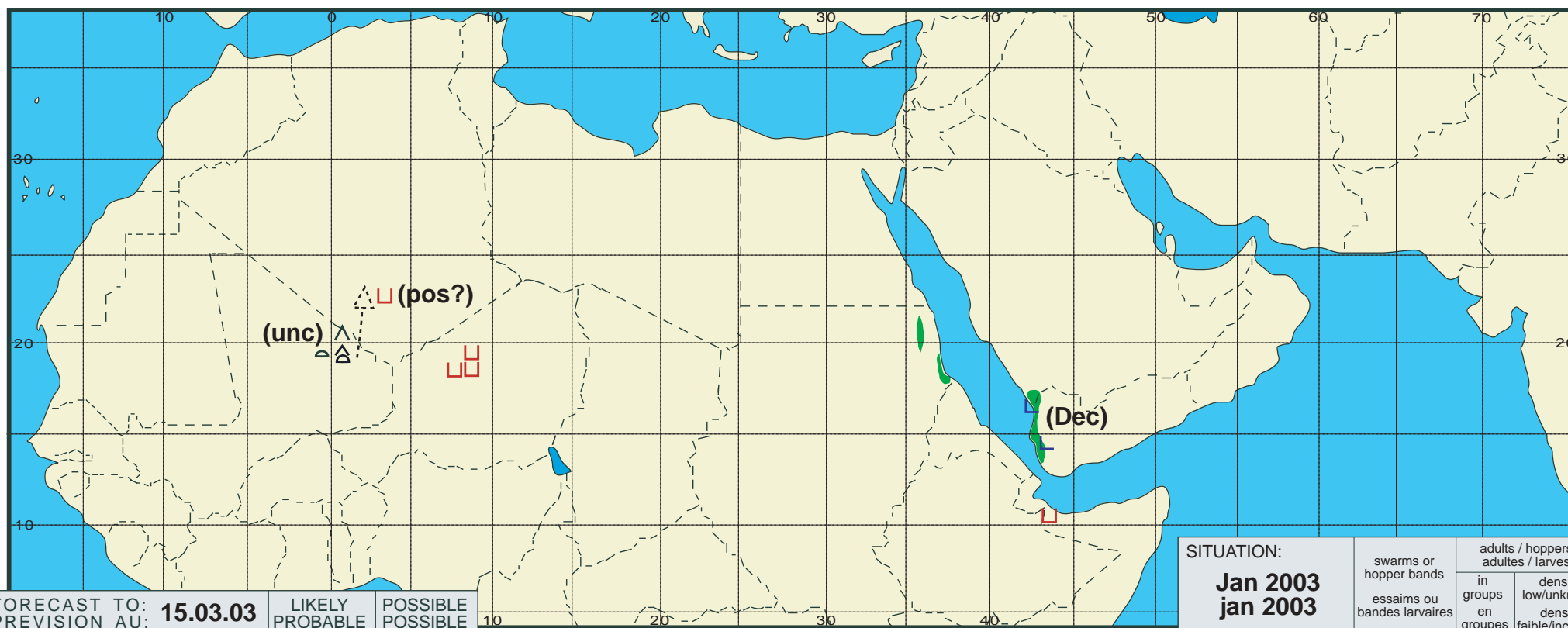
- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.



Desert Locust Summary

Criquet pèlerin - Situation résumée

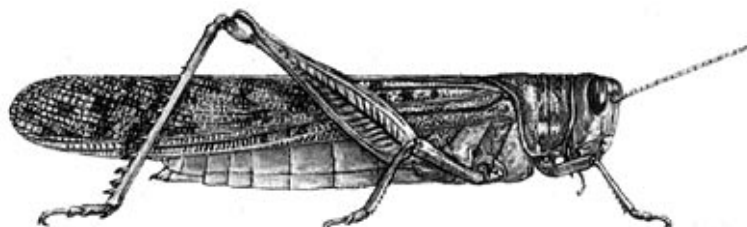
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FORECAST TO: PREVISION AU: 15.03.03	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favorables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: Jan 2003 jan 2003	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)			

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)			



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FAO Emergency Centre for Locust Operations



No. 293

(4 March 2003)



General Situation during February 2003 Forecast until mid-April 2003

The Desert Locust situation remained calm during February. Small-scale breeding occurred near the Red Sea coast in Sudan. There were also unconfirmed reports of adults and hoppers in northern Mali. Breeding conditions were generally dry throughout the recession area because of poor rainfall. In South-West Asia, unprecedented rains occurred in southern Pakistan, including Baluchistan where small-scale breeding is expected during the forecast period.

Western Region. Very little rain fell in the region during February. Consequently, dry conditions prevailed except for localized areas of green vegetation in a few parts of northwestern Mauritania, northern Mali, Niger and central Algeria. No locusts were reported although there were unconfirmed sightings from travellers and nomads of locust adults and hoppers in northern Mali. No significant developments are expected.

Central Region. Small-scale breeding occurred near the Red Sea coast in northeastern Sudan where heavy rains fell in November and isolated hoppers and adults were present in a few wadis. Elsewhere, no locusts were reported in the region. Very little rain fell during February except for light showers along the Red Sea coast in Yemen as well as in the interior. Regular surveys should be conducted in these places during the forecast period. Poor rainfall in most of the winter breeding areas along both sides of the Red Sea has resulted in conditions becoming dry and further breeding is unlikely. No significant developments are expected.

Eastern Region. Unusually heavy and widespread showers fell for four days in southern Pakistan, extending to adjacent areas of Iran, Afghanistan and Rajasthan, India. As a result, conditions are expected to improve in the spring breeding areas along the coast and in the interior of Baluchistan in Iran and Pakistan. Although locusts have not been reported in Baluchistan, they are likely to be present or will appear and breed on a small scale from March onwards. Regular monitoring should continue in all of these areas during the forecast period.

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Weather & Ecological Conditions in February 2003

Green vegetation persisted in a few areas in West and North-West Africa despite poor rainfall. Breeding conditions declined along the Red Sea coastal plains because of a lack of rain. Conditions will improve in the spring breeding areas in western Pakistan where unusually heavy rains fell, extending to Rajasthan, India and to parts of Iran and Afghanistan.

In the **Western Region**, very little rain was reported or is thought to have occurred in the locust breeding areas during February, the second consecutive month of poor rain. Light rain fell in northern Mauritania at Bir Moghreïn early in the month. Some of this may have extended into neighbouring areas of southern Morocco. Isolated showers, associated with a frontal system over the Sahara, fell at mid-month in central and southern Algeria as far south as Timimoun on the Mali border. Light rains also fell at the end of the month along the Atlantic coast of Morocco near Sidi Ifni and Tan-tan. Because of these showers and rainfall during January, vegetation remained green in parts of southwestern Morocco, in the low-lying areas in Inchiri in northwestern Mauritania, north of the Hoggar Mountains in central Algeria, in a few places in Timetrine and the Adrar des Iforas in northern Mali, and in the southern Air in Niger. Elsewhere, conditions were unfavourable for breeding or for locust survival.

In the **Central Region**, no significant rainfall was reported in the region. In Sudan, vegetation remained green in the northern subcoastal areas near Tomala in Wadi Diib/Okò and in a few places on the coastal plains between Port Sudan and Tokar Delta from the heavy rains that fell in November 2002. Vegetation was also reported to be green in Tokar Delta where light rains occurred on 11 February. In Eritrea, vegetation was dry along the coastal plains from Tio to Karora except for a few places near Tio and Shieb. Poor rains this year have allowed only small areas to be cultivated near Shieb, Wekiro and Mehimet. In northern Somalia, green vegetation was present on the escarpment between Berbera and Hargeisa from rains that fell during December and January. Light rains fell on the Red Sea coastal plains near

Hodeidah, Yemen during the last week of February. Good rains may have also fallen in the summer breeding areas during the same period, with floods being reported near Al-Jawf. Nevertheless, vegetation is drying out in the winter breeding areas along the coastal plains of Yemen and Saudi Arabia. In northern Oman, low to moderate rains fell in a few places along the coast and in adjacent areas of the interior, extending to adjacent parts of the UAE.

In the **Eastern Region**, unusually heavy rain fell over a large area of southern Pakistan and adjacent areas of southeastern Iran, southern Afghanistan and Rajasthan, India on 15-18 February. The showers were associated with a low-pressure system over southeastern Pakistan and were said to be the heaviest in 30 years. Hyderabad received 106 mm, surpassing the previous record of 37 mm. Good rains were reported throughout the spring breeding areas along the coast and in the interior of Baluchistan where conditions are likely to improve and become favourable for breeding during March. Although good rains fell in the summer breeding areas along the Indo-Pakistan border (Chhor 20 mm, Jaisalmer 28 mm, Bikaner 25 mm), these are less important because locusts are not present in these areas during the winter and spring.



Area Treated

No control operations were reported during February.



Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• SITUATION

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

• FORECAST

Isolated adults may be present in the northwest in Inchiri. No significant developments are likely.

Mali

• SITUATION

Although no surveys were undertaken during February, there were unconfirmed reports from travellers and nomads of locust adults and hoppers

west of Tessalit (2011N0102E) in the Tilemsi Valley and Timetrine in late January and throughout February.

• **FORECAST**

As vegetation continues to dry out in the Timetrine, Tilemsi Valley and the Adrar des Iforas, locusts are likely to become concentrated and may form a few small groups. During periods of warm southerly winds, there is a low possibility that some adults could move north into southern Algeria.

Niger

• **SITUATION**

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

• **FORECAST**

Isolated adults may be present in a few places near Talak and in southern Air. No significant developments are likely.

Chad

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Senegal

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Algeria

• **SITUATION**

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

• **FORECAST**

Isolated adults may be present near Tamanrasset where small-scale breeding could occur in areas of recent rainfall and as temperatures increase. These may be augmented by any adults arriving from northern Mali during periods of warm southerly winds.

Morocco

• **SITUATION**

No locusts were reported during February.

• **FORECAST**

No significant developments are likely.

Libyan Arab Jamahiriya

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Tunisia

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Burkina Faso, Cape Verde, Gambia, Guinea Bissau and Guinea Conakry

• **FORECAST**

No significant developments are likely.

CENTRAL REGION

Sudan

• **SITUATION**

Isolated late instar hoppers and immature adults were present at a few places in Wadi Oko on the western side of the northern Red Sea Hills near Tomala (2002N/3551E) and Gabatit (2020N/3547E) on 16-17 February. No locusts were seen during surveys carried out on the coastal plains between Mohamed Qol (2054N/3709E) and the Tokar Delta during February.

• **FORECAST**

Locust numbers will decline on the Red Sea coastal plains and adjacent subcoastal areas of Wadi Oko/Diib as vegetation dries out. Nevertheless, regular monitoring should continue in all of these areas during the forecast period.

Eritrea

• **SITUATION**

No locusts were seen during surveys carried out on the Red Sea coast between Mehimet (1723N/3833E) and Tio (1441N/4057E) on 19-25 February.

• **FORECAST**

No significant developments are likely.

Somalia

• **SITUATION**

No locusts were seen during surveys carried out on the escarpment between Hargeisa (0931N/4402E) and Berbera (1028N/4502E) on 1-3 February.

• **FORECAST**

No significant developments are likely.

Ethiopia

• **SITUATION**

No locusts were seen during surveys carried out between Dire Dawa (0935N/4150E) and Jijiga (0922N/



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4250E) in February.

• **FORECAST**

No significant developments are likely.

Djibouti

• **SITUATION**

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

• **FORECAST**

No significant developments are likely.

Egypt

• **SITUATION**

No locusts were reported during the last week of January along the Red Sea coast or in the Western Desert.

• **FORECAST**

No significant developments are likely.

Saudi Arabia

• **SITUATION**

No locusts were reported during February.

• **FORECAST**

Isolated adults may be present on the Red Sea coastal plains near Jizan. Unless additional rains occur, locust numbers will decline as vegetation dries out. No significant developments are likely.

Yemen

• **SITUATION**

No locust surveys were carried out during February.

• **FORECAST**

Isolated adults may be present in a few places on northern and central Red Sea coastal plains. Unless additional rains occur, locust numbers will decline as vegetation dries out. No significant developments are likely.

Oman

• **SITUATION**

No locusts were seen during surveys carried out in the northern interior (Dhahira) and on the Musandam Peninsula on 19-23 February.

• **FORECAST**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• **FORECAST**

No significant developments are likely.

EASTERN REGION

Iran

• **SITUATION**

No locusts were seen during surveys carried out in Hormozgan and Sistan-Baluchistan provinces on 17-18 February.

• **FORECAST**

Isolated adults may be present or appear in areas of recent rainfall along the coast near Chabahar and in the interior near Bampur and Saravan. Regular monitoring should continue in all of these areas during the forecast period.

Pakistan

• **SITUATION**

No locusts were reported during January and the first half of February.

• **FORECAST**

Isolated adults are almost certainly present in those places that received recent rainfall along the coast and in the interior of Baluchistan. Small-scale breeding is likely to occur from March onwards, causing locust numbers to increase but remain below threatening levels. Regular monitoring should continue in all of these areas during the forecast period.

India

• **SITUATION**

No locusts were reported during February.

• **FORECAST**

No significant developments are likely.

Afghanistan

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.



Announcements

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO 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.

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- **CLCPRO.** 2nd Session, Alger (Algeria), 8-12 June
- **DLCC Technical Group.** FAO Rome, 18-20 June
- **DLCC.** 37th Session, FAO Rome, 22-26 September
- **EMPRES/CR.** 11th Liaison Officers meeting, Djibouti (or Egypt), 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.



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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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only:

Burkina Faso, Cape Verde, Gambia, Guinea Bissau and Guinea Conakry.

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

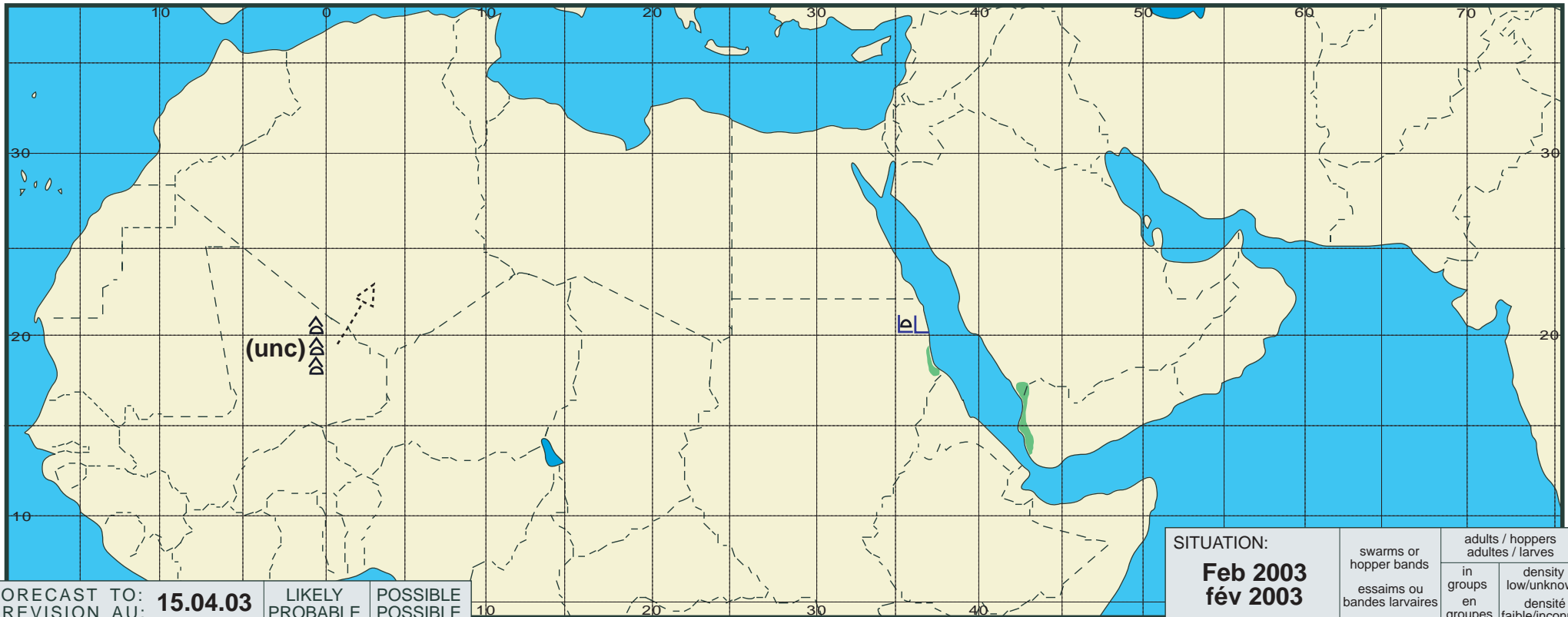
- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.



Desert Locust Summary

Criquet pèlerin - Situation résumée

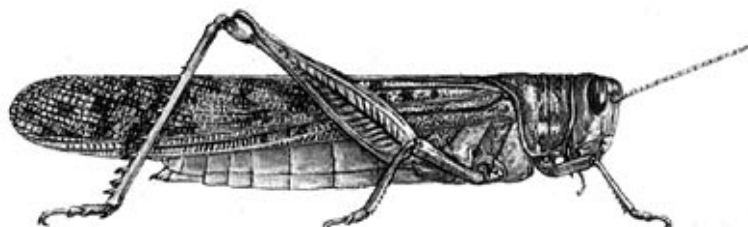
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FORECAST TO: PREVISION AU: 15.04.03	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favorables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: Feb 2003 fév 2003	swarms or hopper bands	adults / hoppers	
	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)			



DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations



No. 294

(1st April 2003)



General Situation during March 2003 Forecast until mid-May 2003

The Desert Locust situation remained calm during March. Small-scale breeding occurred in Western Hoggar, in Algeria. A few solitary adults and hoppers were reported from one location in western Mauritania. There were again unconfirmed reports of adult and hopper populations in northern Mali. Only scattered adults were reported from Sudan and Egypt. There was an unconfirmed report of adults close to Aden, in Yemen. In South-West Asia, only isolated adults were seen in Pakistan where the ecological conditions were locally improving. No significant developments are likely during the forecast period.

Western Region. Very little rain fell in the region during March. Consequently, dry conditions prevailed except in a few parts of southeastern Morocco and of southeastern Algeria where small-scale breeding occurred and some control operations were carried out. A few adults and hoppers were present at one location close to Akjoujt, Mauritania where the conditions are reported as generally unsuitable for breeding and survival except in some restricted areas. Elsewhere, no locusts were reported although there were again unconfirmed sightings of locust adults and hoppers in northern Mali.

Central Region. As a result of small-scale breeding which occurred in February near the Red Sea coast in northeastern Sudan, edglings and mature adults were present in a few wadis. Scattered isolated adults were reported from a farm in southeastern Egypt. There was an unconfirmed report of solitary mature adults in Lahij, Yemen. Elsewhere, no locusts were reported in the region. However, regular surveys should be conducted in these places as well as in areas of recent rains in Ethiopia and Yemen during the forecast period.

Eastern Region. Dry weather conditions prevailed during March and only localised changes in the ecological conditions resulted from the heavy rains registered in southern Pakistan in mid-February. Small-scale breeding is expected to occur during the forecast period in the spring breeding areas along the coast and in the interior of Baluchistan in Pakistan with a likely extension to adjacent areas of Iran. However, locust numbers are expected to remain below threatening levels. The joint border survey of the spring breeding areas between Iran and Pakistan is due to start on 1 April. Thereafter, if necessary, regular monitoring should continue in all of these areas during the forecast period. No locusts were reported elsewhere in the region and no significant developments are likely.

The FAO Desert Bulletin is issued monthly, supplemented by Updates during periods of increased Desert Locust activity, and is distributed by fax, e-mail, FAO pouch and airmail by the Locusts and Other Migratory Pests Group, AGP Division, FAO, 00100 Rome, Italy. It is also 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

DLIS: www.fao.org/news/global/locusts/locuhome.htm



No. 294

DESERT LOCUST BULLETIN



Weather & Ecological Conditions in March 2003

Only a few patches of green vegetation persisted in the Western Region where the conditions were generally unsuitable for locust breeding and survival. Conditions were improving in the spring breeding areas in Ethiopia and on the southern Red Sea coastal plains in Yemen. Despite heavy rains in southern Pakistan in mid-February, conditions did not significantly improve in the spring breeding areas of South-West Asia.

In the Western Region, little rain was reported or is thought to have occurred in the locust breeding areas during March, the third consecutive month of poor rain. Ecological conditions are reported to be only suitable for locust survival in restricted areas of central Mauritania and to be unsuitable for survival and breeding in the North. As a result of frontal systems which successively affected Morocco, Algeria and northern Libya from mid-March, light to moderate rains fell over the eastern side of the Atlas Mountains, in Morocco (Ouarzazate 33 mm, Errachidia 5 mm on 17 March). During the same period, moderate rains fell over central Algeria. Consequently, except in some parts of southeastern Morocco and of western Hoggar where there were still patches of green vegetation, conditions were unsuitable for breeding or for locust survival in most of the Desert Locust habitats and the vegetation was drying out.

In the Central Region, no significant rainfall was reported in the region. In Sudan, vegetation was drying out in the northern coastal plains, except in some places near Tomala in wadi Muharak/Okko, and on the coastal plains between Port Sudan and Tokar Delta. Vegetation is thought to be slowly developing south of Tokar Delta. In Eritrea, vegetation was dry along the coastal plains between Hirgigo and Kezan except for two surveyed places in Gedged and Hirgigo. In Ethiopia, the short rains season started in the third dekad of February (Harar received 77.2 mm in four consecutive days) but during the first half of March only isolated showers fell over the winter-spring breeding areas. From mid-March, widespread, heavy and frequent rainfalls were reported in the winter breeding area, at Shider, Leffesa, Teferi Ber and

Dire Dawa (24 mm on 18 March). Consequently, the vegetation was greening in these areas. In Djibouti, surveys as well as satellite imagery indicated that vegetation was locally greening. In northern Somalia, vegetation is drying out on the escarpment between Cunaqabad and Haleya. Light rains fell on the Red Sea coastal plains near Hodeidah, Yemen, on 1 and 20-21 March. As a result, vegetation was slightly developing in this area as well as in the summer breeding areas, where rains occurred in February. Vegetation is drying out elsewhere along the coastal plains of Yemen and Saudi Arabia. In northern Oman, vegetation was developing along the coast and in adjacent areas of the interior, extending to adjacent parts of the UAE.

In the Eastern Region, dry weather prevailed throughout March. During the first half of the month, light rains were only reported from Panjgur and Quetta respectively on 1 and 2 March, in Pakistan. Despite the unusually heavy rains which fell over a large area of southern Pakistan and adjacent areas in mid-February, there was no significant development of the vegetation except in the interior of Baluchistan, near Turbat, and in the southeastern part of the Thar Parkar desert, Pakistan, and in the Rajasthan, India, near Jaisalmer and Bikaner. Consequently, favourable conditions for breeding were mainly restricted to some parts of the interior of Baluchistan.



Area Treated

Algeria 550 ha



Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• SITUATION

No surveys were carried out in March. However, 30 adults and 34 L1 to L5 hoppers were reported by a locust scout at one location (1945N/1423W) close to Akjoujt on 24 March.

• FORECAST

No significant developments are likely.

Mali

• SITUATION

No surveys were undertaken during March.

However, there were unconfirmed reports of adult and hopper populations in the wadis Tilemsi (2035N/0055E), Amachach (2021N/0046E) and Tachalrhe (2020N/0043E).

• FORECAST

Isolated adults may persist in remaining patches of green vegetation in the Timetrine, Tilemsi Valley and the Adrar des Iforas, and could become concentrated. However, no significant developments are likely.

Niger

• SITUATION

No reports received.

• FORECAST

Isolated adults may be present in a few places in western Air. No significant developments are likely.

Chad

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Senegal

• SITUATION

No locusts were observed by the agricultural monitoring and warning bases.

• FORECAST

No significant developments are likely.

Algeria

• SITUATION

Mature locust populations, most of which were copulating, reported as solitary to transiens were seen at densities varying from a few up to 600 adults/ha during surveys carried out in Western Hoggar on 9-17 March. The size of the infestations varied from 2 to 200 ha (average: 50 ha) and the total infested area was of 1062 ha. In one location (2225N/0347E), mature adults were mixed with L2; in another one (2242N/0357E), they were laying.

• FORECAST

Small-scale breeding may continue in western Hoggar in the remaining patches of green vegetation but is likely to diminish with the drying out of the conditions.

Morocco

• SITUATION

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

• FORECAST

No significant developments are likely.

Libyan Arab Jamahiriya

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Tunisia

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Burkina Faso, Cape Verde, Gambia, Guinea Bissau and Guinea Conakry

• FORECAST

No significant developments are likely.

CENTRAL REGION

Sudan

• SITUATION

Scattered mature adults and edglings at a density of 1200 individuals/ha, mixed with Migratory Locust, were present in an area of 100 ha on the western side of the northern Red Sea Hills in Wadi Muharak (2009N/3549E) on 13 March. Scattered mature adults at lower densities were also observed in four other places near Tomala (2012N/3549E) and Oko (2031N/3547E) the same day. No locusts were seen during surveys carried out on the northern part of the Red Sea coastal plains between Mohamed Qol (2054N/3709E) and Osaf (2146N/3641E) on 14-15 March

• FORECAST

Locust numbers will decline on the Red Sea coastal plains and adjacent subcoastal areas of Wadi Oko as vegetation dries out. Nevertheless, regular monitoring should continue in all of these areas during the forecast period.

Eritrea

• SITUATION

No locusts were seen during surveys carried out on the Red Sea coast between Hirgigo(1532N/3927E) and Kezan (1625N/3904E) on 21-22 March.

• FORECAST

No significant developments are likely.



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DESERT LOCUST BULLETIN



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Somalia

• SITUATION

No locusts were seen during surveys carried out on the escarpment between Cunaqabad (0931N/4402E) and Haleya (0926N/4410E) on 13-14 March.

• FORECAST

No significant developments are likely.

Ethiopia

• SITUATION

No locusts were seen during surveys carried out between Harmukale (0949N/4208E) and Aisha (1044N/4234E) in March.

• FORECAST

Although conditions may improve, the likelihood that locusts are present is low and consequently no significant developments are expected.

Djibouti

• SITUATION

No locusts were seen during a survey carried out on 19 March north-east Tadjoura (1145N/4250E). There was an unconfirmed report from nomads of isolated hoppers in early March in one of the visited places (1204N/4325E).

• FORECAST

No significant developments are likely. However, due to the improvement of the conditions, surveys should be carried out during the forecast period.

Egypt

• SITUATION

Immature and mature solitary adults were reported several times throughout the month from different points of a farm at Sharq Al-Owainat (2233N/2842E) at densities ranging from a few individuals up to 325 adults/ha. No other locusts were seen during surveys carried out in the Western Desert on 18-21 March.

• FORECAST

No significant developments are likely.

Saudi Arabia

• SITUATION

No locusts were reported during March.

• FORECAST

No significant developments are likely.

Yemen

• SITUATION

No locusts were seen during surveys carried out on 11-12 March in the Red Sea coastal plains and along the Gulf of Aden. A late and unconfirmed report indicated that solitary mature adults were seen near Lahij during previous surveys.

• FORECAST

Isolated adults may be present in a few places of central and southern Red Sea coastal plains close to Hodeida as well as along the Gulf of Aden near Lahij. Surveys to clarify the situation should be carried out in these areas during the forecast period.

Oman

• SITUATION

No locust surveys were carried out during March.

• FORECAST

Despite vegetation development in the North, no significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• FORECAST

No significant developments are likely.

EASTERN REGION

Iran

• SITUATION

No reports received.

• FORECAST

Isolated adults may be present in the spring breeding area and regular monitoring should be carried out along the coast near Chabahar and in the interior near Bampur and Saravan, where small-scale breeding is likely to occur during the forecast period.

Pakistan

• SITUATION

A late report indicated that immature solitary adults at densities of up to 4 per ha were present in a few places along the Baluchistan coast between Suntsar (2529N/6201E) and Gorani (2521N/6322E), at 4 locations in the interior of Baluchistan and at 2 locations between Karachi and Las Bela during the second half of February.

Only isolated solitary adults, mainly immature, at densities of up to 5 per ha were seen at 12 locations in coastal and interior areas of Baluchistan and at 2 locations in Bela district during the first half of March. The highest densities were reported from Bidrang (2603N/6429E) and Romra (2533N/6345E) on 7 March.

• **FORECAST**

Small-scale breeding is likely to occur during the forecast period in the areas of green vegetation along the coast and in the interior of Baluchistan. However, increased locust numbers are expected to remain below threatening levels. Regular monitoring should continue in all of these areas during the forecast period depending on the outcome of the joint border survey.

India

• **SITUATION**

No locusts were reported after extensive surveys carried out during the second half of February and the first half of March in the winter/spring breeding areas of Rajasthan and Gujarat.

• **FORECAST**

No significant developments are likely.

Afghanistan

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.



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No. 294

DESERT LOCUST BULLETIN



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LARGE

- swarm: 100 - 500 km² • band: 10 - 50 ha

VERY LARGE

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RAINFALL

LIGHT

- 1 - 20 mm of rainfall.

MODERATE

- 21 - 50 mm of rainfall.

HEAVY

- more than 50 mm of rainfall.

OTHER REPORTING TERMS

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- the process of reproduction from copulation to edging.

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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.

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- 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

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RECESSION

- period without widespread and heavy infestations by swarms.

REMISSION

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

REGIONS

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- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guidea Bissau and Guinea Conakry.

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

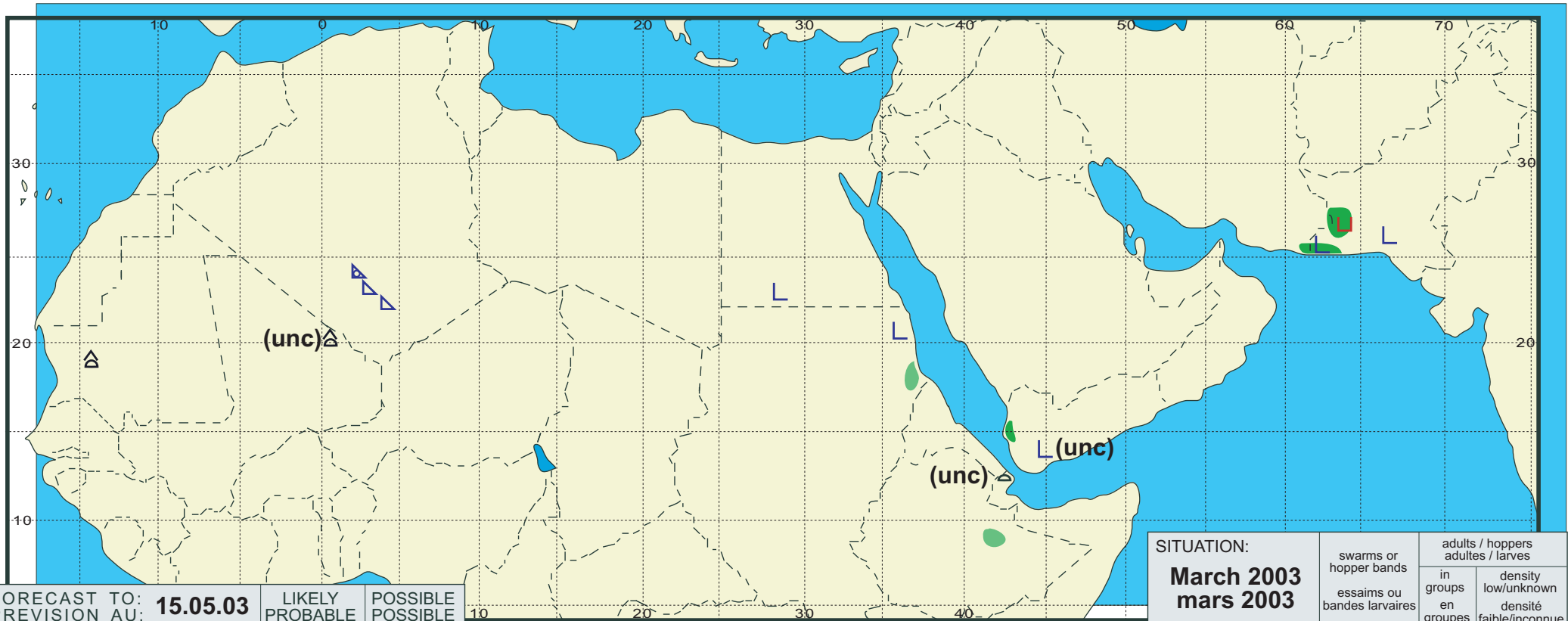
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Desert Locust Summary

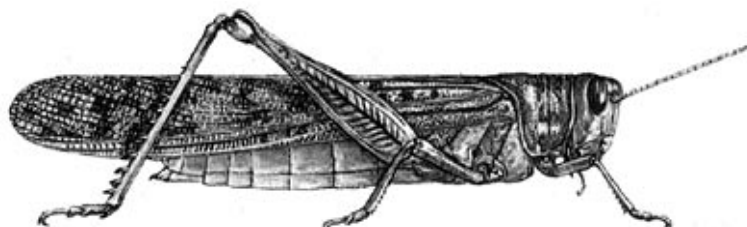
Criquet pèlerin - Situation résumée

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FORECAST TO: PREVISION AU: 15.05.03	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favorables à la reproduction		
major swarm(s) essaim(s) important(s)		
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non swarming adults adultes non essaimant		

SITUATION: March 2003 mars 2003	swarms or hopper bands	adults / hoppers	
	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 oeufs			
hoppers larves			
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)			



DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations



No. 295

(7 May 2003)



General Situation during April 2003 Forecast until mid-June 2003

The Desert Locust situation remained calm during April. No locusts were reported except for a few solitary adults in Morocco, Niger and in western Pakistan. Unfavourable breeding conditions prevailed throughout most of the recession area although vegetation is becoming green in parts of the Arabian Peninsula and the Horn of Africa where good rains fell in mid April. Because of poor rainfall in the spring breeding areas and very few locusts present, there is no indication that locust numbers have increased. Consequently, no significant developments are expected during the forecast period.

Western Region. No significant rainfall or locust infestations were reported during April. Isolated adults were seen in northeastern Morocco and northern Niger and may also be present in a few places in northern Mali and southern Algeria. Locusts are likely to decline in Morocco and Algeria while they will probably persist in Mali and Niger awaiting the start of the summer rains.

Central Region. No locusts were reported in the region during April. Good rains fell on the Red Sea coast near the Yemen/Saudi Arabia border, further inland and in northern Oman at mid month. Consequently, vegetation is likely to become green and there is a possibility that small-scale breeding could occur near Jizan, Saudi Arabia. Seasonal rains are in progress in northern Somalia and eastern Ethiopia where breeding conditions are improving.

Eastern Region. No locusts were seen during a joint survey during April in the spring breeding areas of Baluchistan in Iran and Pakistan where conditions were generally dry. Nevertheless, a few isolated adults were present in coastal and interior areas in western Pakistan.

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

Facsimile: +39 06 570 55271

E-mail: ecl@fao.org

Internet: www.fao.org

DLIS: www.fao.org/news/global/locusts/locuhome.htm



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DESERT LOCUST BULLETIN



Weather & Ecological Conditions in April 2003

Mainly dry and unfavourable breeding conditions persisted throughout the Desert Locust recession area during April. Vegetation was becoming green in a few places in eastern Africa and the Arabian Peninsula where good rains were reported.

In the **Western Region**, no significant rainfall was reported or is thought to have occurred during April. In Niger, light to moderate showers fell at mid month in the southern Air south of Agadez where conditions were mainly dry except for a few isolated patches of green vegetation. Similarly, in northern Mali, a few isolated patches of green vegetation were said to be present in parts of Timetrine and the central Adrar des Iforas although no rainfall was reported during the month. Conditions were dry and unfavourable for breeding in the other countries throughout the region.

In the **Central Region**, good rains fell during the third week of April in three areas of the Arabian Peninsula. On the 15-17th, light to moderate rains occurred in the summer breeding areas in the interior of Yemen near Al Jawf, Marib, and in northern Shabwah and western Hadhramout. On the 15-18th, two storms brought moderate to heavy rains to UAE and the northern coastal and interior areas of Oman. On the 19th and 22nd, showers fell on the Red Sea coastal plains near the Yemen / Saudi Arabia border between Midi and Jizan (42+ mm), extending into the interior on the edge of the Empty Quarter near Najran (21 mm) and Sharurah (61 mm). Conditions are expected to improve in these areas as vegetation becomes green. In the Horn of Africa, seasonal rains continued in eastern Ethiopia between Dire Dawa and Jiggiga and started in northern Somalia on the coast and the escarpment where light rains fell at times in April. Consequently, vegetation was becoming green in these places and breeding conditions were improving. Elsewhere in the region, conditions were dry and unfavourable for breeding.

In the **Eastern Region**, light rains fell in April in the spring breeding areas in the northeastern interior of Baluchistan near Nushki and on the coast at Pasni.

During the annual Iran/Pakistan joint survey, green vegetation was seen in a few places in the north between Dalbandin and Nushki while conditions were dry and unfavourable elsewhere in the interior and along the coast in both countries because of poor rainfall.



Area Treated

No control operations were reported during April.



Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• SITUATION

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

• FORECAST

Isolated adults are likely to appear between Aioun El Atrous and Nema once the summer rains start in the south. No significant developments are likely.

Mali

• SITUATION

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

• FORECAST

Low numbers of adults may be present in those few areas that are green in parts of Timetrine and the Adrar des Iforas. If so, these will mature and breed on a small scale once summer rains commence.

Niger

• SITUATION

During March, isolated immature and mature adults, at a density of 20 per ha and nine late instar hoppers were seen near Arlit (1843N/0721E) on the 28th. No locusts were reported elsewhere in the Air or Tamesna.

During April, isolated immature and mature adults persisted in the above-mentioned area where irrigated crops were present.

• FORECAST

Isolated adults will persist in a few places near Arlit. No significant developments are likely.

Chad

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Senegal

• SITUATION

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

• FORECAST

No significant developments are likely.

Algeria

• SITUATION

No reports received.

• FORECAST

Isolated adults may be present near Tamanrasset where small-scale breeding occurred in March and perhaps further north near Bechar. Locust numbers will decline as conditions become dry and unfavourable.

Morocco

• SITUATION

During the last week of April, isolated adults were reported in the extreme northeast at two places near Bouarfa (3230N/0159W).

• FORECAST

Locust numbers will decline in the northeast as conditions become unfavourable. No significant developments are likely.

Libyan Arab Jamahiriya

• SITUATION

No locusts were reported during March and April.

• FORECAST

No significant developments are likely.

Tunisia

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Burkina Faso, Cape Verde, Gambia, Guinea Bissau and Guinea Conakry

• FORECAST

No significant developments are likely.

CENTRAL REGION

Sudan

• SITUATION

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

• FORECAST

Isolated adults are likely to appear in a few places in Northern Kordofan and Northern Darfur once the summer rains start. No significant developments are likely.

Eritrea

• SITUATION

No locusts were seen during surveys carried out on the Red Sea coast between Massawa (1537N/3928E) and Mehimet (1723N/3833E) on 14-16 April.

• FORECAST

No significant developments are likely.

Somalia

• SITUATION

No locusts were seen during surveys carried out on the escarpment between Hargeisa (0931N/4402E) and Burao (0931N/4533E) on 20-22 April.

• FORECAST

Isolated adults may be present or appear on the escarpment in areas of recent rainfall and green vegetation. No significant developments are likely.

Ethiopia

• SITUATION

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

• FORECAST

No significant developments are likely.

Djibouti

• SITUATION

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

• FORECAST

No significant developments are likely.

Egypt

• SITUATION

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

• FORECAST

No significant developments are likely.

Saudi Arabia

• SITUATION

No locusts were reported during April.



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• FORECAST

Isolated adults may be present on the Red Sea coastal plains near Jizan and could breed on a small scale in areas that received good rainfall during April. No significant developments are likely.

Yemen

• SITUATION

No locusts were seen during surveys carried out in April along the Red Sea and Gulf of Aden coastal plains and in the interior near Al-Jawf and Marib.

• FORECAST

No significant developments are likely.

Oman

• SITUATION

No locusts were seen during surveys carried out on the northern coastal plains on 26-27 April.

• FORECAST

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• FORECAST

No significant developments are likely.

EASTERN REGION

Iran

• SITUATION

During a joint Iran/Pakistan survey carried out on 16-30 April, no locusts were seen along the coast between Bandar Abbas and the Pakistani border and in the interior as far north as Zahedan in Hormozgan and Sistan-Baluchistan provinces.

• FORECAST

No significant developments are likely.

Pakistan

• SITUATION

During the last half of March, isolated adults persisted in a few places near the coast and in the interior in Baluchistan.

During a joint Iran/Pakistan survey carried out on 1-15 April, no locusts could be found in these same areas but national teams reported individual mature adults in a few places during April.

• FORECAST

Although there is a slight possibility that a few adults may persist in areas of recent rainfall near Nushki, locust numbers throughout the spring breeding areas of Baluchistan will decline as conditions become dry. No significant developments are likely.

India

• SITUATION

No locusts were reported during the second half of March and in April.

• FORECAST

No significant developments are likely.

Afghanistan

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.



Announcements

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO 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.

Reporting by e-mail. After each survey or control operation, affected countries should send completed *FAO Desert Locust Survey and Control Forms* with a brief interpretation of the results by e-mail to ecl@fao.org.

Desert Locust Guidelines. The revised edition in English was issued in September 2001 and is now available from FAO. French and Arabic versions will be released later this year. Please contact the Locust Group for more information.

eLocust. Updated details of a new system for recording and transmitting locust survey and control data collected in the field can be found on the Internet at:

www.fao.org/news/global/locusts/elocust.htm

Publications on the Internet. More reports of FAO locust-related meetings are available for downloading at www.fao.org/news/global/locusts/reports1.htm:

- EMPRES/CR: 2002 Annual Report (English)
- EMPRES/CR and Central Region Commission: 2nd Joint Survey on the Egypt/Sudan border, January 2003 (English)
- SW Asia Commission: 9th Iran/Pakistan Joint Desert Locust Survey, 1-30 April 2003 (English)
- SPOT-VGT: form to be used in the field for validation of satellite vegetation imagery (English, Arabic)

Desert Locust research award. The FAO Commission for Controlling the Desert Locust in the Central Region (CRC) is pleased to announce a cash award for outstanding research on Desert Locust. For more details, please contact the CRC Office in Cairo (munir.butrous@fao.org).

Master Trainer Course. Details and photos of a FAO training-of-trainers course on Desert Locust survey, control and training skills held in Oman in October 2002 are available at:

www.fao.org/news/global/locusts/omntot/totmain.htm

Desert Locust Control Diploma. The Department of Crop Protection of the Faculty of Agriculture, University of Khartoum is offering a one-year post-graduate diploma course in Desert Locust Control that is expected to start in August 2003. Applications should be sent before the end of June to: Registrar of the Graduate College, University of Khartoum, POB 321, Khartoum, Sudan. For more details: selbashir@hotmail.com

2003 events. The following are provisionally scheduled:

- **EMPRES.** 6th Consultative Committee and Phase III Planning Workshop, Rome, 19-23 May
- **CLCPANO.** Extraordinary Session, Alger (Algeria), 7 June
- **CLCPRO.** 2nd Session, Alger (Algeria), 8-12 June
- **DLCC Technical Group.** FAO Rome, 18-20 June
- **DLCC.** 37th Session, FAO Rome, 22-26 September
- **EMPRES/CR.** 11th Liaison Officers meeting, Djibouti (or Egypt), 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

- July - September/October

WINTER RAINS AND BREEDING

- October - January/February

SPRING RAINS AND BREEDING

- February - June/July



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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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guidea Bissau and Guinea Conakry.

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

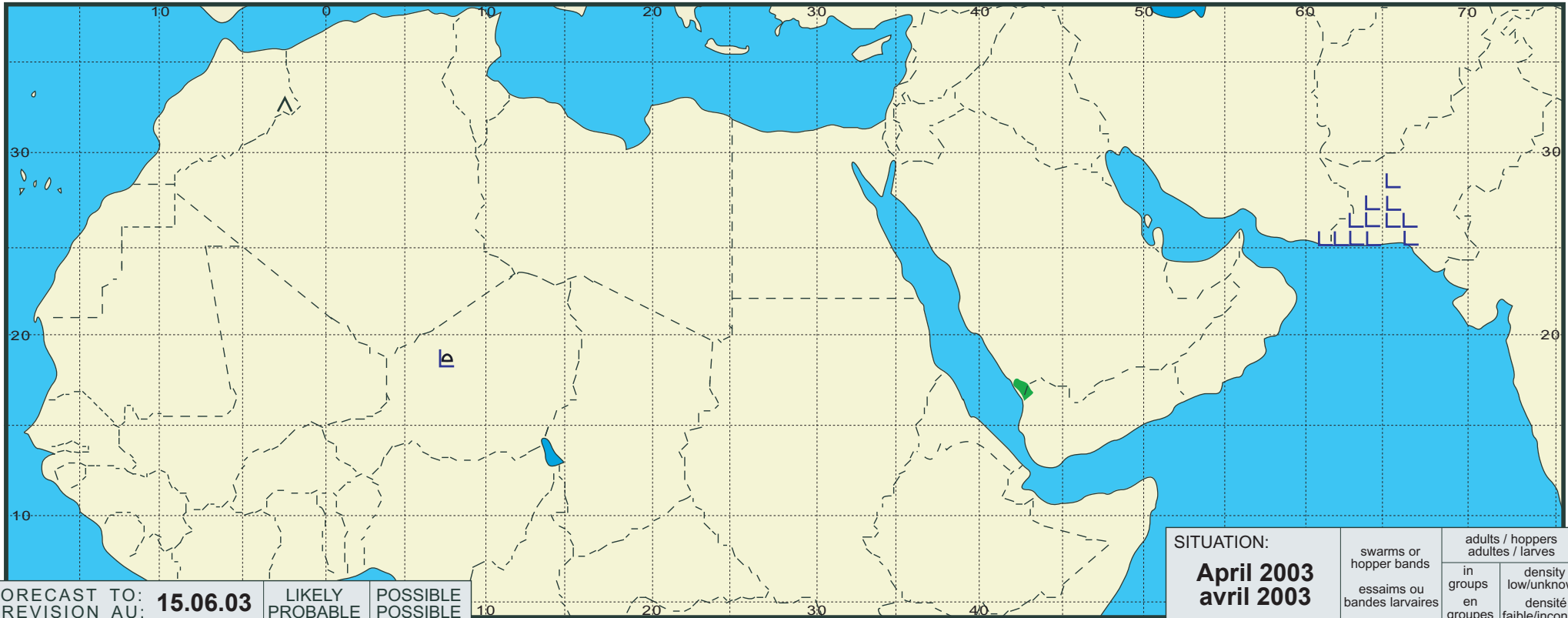
- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.



Desert Locust Summary

Criquet pèlerin - Situation résumée

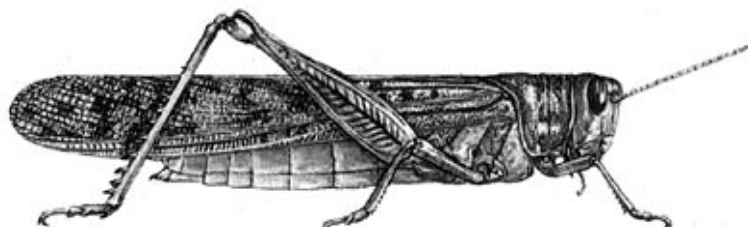
295



FORECAST TO: PREVISION AU:	LIKELY PROBABLE	POSSIBLE POSSIBLE
15.06.03		
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: April 2003 avril 2003	swarms or hopper bands	adults / hoppers adultes / larves	
	essaims ou bandes larvaires	in groups en groupes	density low/unknown 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)			



DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations



No. 296

(3 June 2003)



General Situation during May 2003 Forecast until mid-July 2003

The Desert Locust situation remained calm during May because of poor rainfall and unfavourable ecological conditions. Only isolated locusts were reported in southwestern Libya, northern Mali, southern Egypt and northern Oman. By the end of the month, there were indications that good rains had fallen in the summer breeding areas in Sudan and perhaps in the northern parts of Niger and Chad. Breeding conditions were also reported to be improving in northern Somalia and eastern Ethiopia. During the forecast period, rains are likely to commence in the summer breeding areas in the Sahel in West Africa and Sudan and along the Indo-Pakistan border. If sufficient rainfall occurs, small-scale breeding is expected to take place in these areas. Nevertheless, no significant developments are expected.

Western Region. Ground control operations finished in southern Algeria against hopper groups in mid April. During a joint Algerian-Libyan border survey in late April and early May, no locusts were seen in Algeria and only low numbers of adults were present in adjacent areas of southwestern Libya. A few adults were present near Gao in Mali. Elsewhere, conditions were dry and unfavourable except in northern Chad where significant cloud activity occurred at the end of May for five days, suggesting that good rains may have fallen in some places. During the forecast period,

small-scale breeding is likely to occur in the summer breeding areas in the Sahel once the seasonal rains start. Nevertheless, locust numbers will remain well below threatening levels.

Central Region. Only a few Desert Locust mixed with African Migratory Locust were reported breeding in an agricultural scheme in southern Egypt during May. Although conditions were generally dry in the region during the month, good rains fell in the summer breeding areas in Sudan during the last week. Breeding conditions were also improving in northern Somalia and eastern Ethiopia. Consequently, small-scale breeding could occur in Sudan and northern Somalia during the forecast period. No locusts were reported elsewhere in the region except for an isolated hopper in northern Oman.

Eastern Region. Dry conditions prevailed throughout the region and no locusts were reported in May. During the forecast period, low numbers of adults are likely to appear and breed on a small scale in Rajasthan, India and in adjacent areas of Pakistan once the monsoon rains start. No significant developments are expected.

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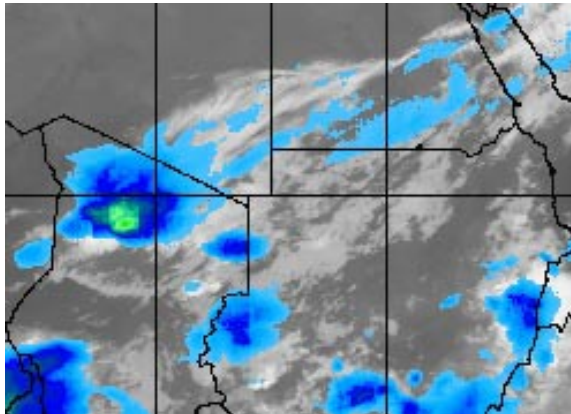
DESERT LOCUST BULLETIN



Weather & Ecological Conditions in May 2003

Ecological conditions were dry and unfavourable for breeding throughout the Desert Locust recession area during May because of poor rainfall. By the end of the month, good rains had fallen in the summer breeding areas in Sudan and perhaps in northern Niger and Chad. Some rain also occurred in northern Somalia and eastern Ethiopia where breeding conditions were improving.

In the **Western Region**, vegetation was dry and breeding conditions were unfavourable in the breeding areas of central and southern Mauritania, northern Mali and Niger because of a lack of rainfall and hot northeasterly winds that prevailed during May. A joint survey along the Algerian-Libyan border between Djanet and Ghat indicated that the soil was dry and vegetation was drying out. Conditions were also unfavourable for breeding in Morocco south of the Atlas Mountains as well as in the extreme southwest. At the end of the month, a northerly surge of the Inter-Tropical Convergence Zone (ITCZ) reached 21N over Niger on the 29th and oscillated between 15N and 18N over Mali and Niger on 30-31 May. Light to moderate showers may have fallen in northern Chad on 27-31 May where there was significant cloud activity over Tibesti and Ennedi. On the 28th, similar clouds were seen over the southern Sahara in Algeria,



A satellite image of estimated rainfall suggests that good rains may have fallen in northern Chad (Tibesti and Ennedi) and western (N. Darfur) and eastern (Kassala) Sudan on 31 May 2003. Heavier rainfall is indicated by dark colours.

extending from Tamanrasset to Ghat, Libya as well as in Niger from southern Tamesna to the Djado Plateau. Light rains were reported at Gao, Mali on the 31st.

In the **Central Region**, ecological conditions during most of May were dry and unfavourable in the summer breeding areas in Sudan. During the last week of the month, good rains fell in Northern Darfur, Northern Kordofan, Kassala and Khartoum (58 mm on the 24th). Breeding conditions are likely to improve in these areas in the coming weeks. In Egypt, light rain was reported in the Western Desert near Bahariya and Dakhla on 27-28. On the Red Sea coast, significant clouds were present over the coastal plains from north of Massawa, Eritrea to Aitarba, Sudan on 16 May and light rain may have occurred. Clouds persisted over eastern Ethiopia and northern Somalia during most of May. Light rain fell a few times on the coast near Berbera and on the escarpment between Boroma and Burao where green vegetation and favourable breeding conditions were reported east of Hargeisa. In eastern Ethiopia, vegetation was green near the Somali border because of good rains in late April. By mid month, southwesterly winds associated with the Indian monsoon became established over the Horn of Africa and continued for the remainder of May. In Saudi Arabia, moderate rains fell in the Asir Mountains during the second half of May and light rain fell in a few places of the interior near Hail but these are likely to have little impact on the locust situation. In Yemen, vegetation was green or becoming green in a few places in the summer breeding areas in the interior between Marib and Sayoun because of rainfall in April. In Oman, light rain fell in a few places of the northern interior on the 10th and 16th. Nevertheless, vegetation was dry and conditions were unfavourable for breeding.

In the **Eastern Region**, dry conditions prevailed in the summer breeding areas along the Indo-Pakistan border where seasonal rains associated with the monsoon have yet to commence. Nevertheless, there were isolated light showers reported at Bahawalpur, Pakistan and Bikaner in Rajasthan, India during the last week of May.



Area Treated

Algeria 650 ha (27 March – 12 April)



Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• SITUATION

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

• FORECAST

Isolated adults are likely to appear between Aioun El Atrous and Nema once the summer rains start in the south. No significant developments are likely.

Mali

• SITUATION

No surveys were carried out during May but there were reports of scattered immature adults near Gao at In Tahaka (1612N/0025W) and In Amaka (1642N/0044W).

• FORECAST

Low numbers of adults may be present in those few areas that are green in parts of Timetrine and the Adrar des Iforas. If so, these will mature and breed on a small scale once summer rains commence.

Niger

• SITUATION

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

• FORECAST

Low numbers of locusts are likely to appear and breed on a small-scale in parts of Tamesna and Air once summer rains commence. No significant developments are likely.

Chad

• SITUATION

No reports received.

• FORECAST

Low numbers of locusts could appear and breed in areas where rain is thought to have recently occurred in Tibesti and Ennedi.

Senegal

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Algeria

• SITUATION

A late report indicated that third to fifth instar hoppers continued to form small groups at densities of up to 20 hoppers per bush in late March and early April. The infestations were concentrated mainly

in one area between In Salah (2712N/0229E) and Tamanrasset (2250N/0528E) and, to a lesser degree, west of Tamanrasset in Wadi Amded (2244-2247N/0404-0412E). Ground control operations treated 650 ha from 27 March to 12 April.

No locusts were seen during a joint Algerian-Libyan survey in border areas in the extreme southeast from Illizi (2630N/0825E) to southeast of Djanet (2434N/0930E) from 27 April to 10 May.

• FORECAST

A few residual populations may be present between Tamanrasset and In Salah where small-scale breeding occurred in April. Unless further rains fall, locust numbers will decline as conditions become dry and unfavourable.

Morocco

• SITUATION

No locusts were reported during May.

• FORECAST

No significant developments are likely.

Libyan Arab Jamahiriya

• SITUATION

Scattered mature adults were seen at three places near Ghat (2459N/1011E) on 3-8 May during a joint Algerian-Libyan survey that was conducted in border areas in the extreme southwest from 27 April to 10 May.

• FORECAST

Locust numbers will decline near Ghat as natural vegetation continues to dry out and a few adults may persist in irrigated areas. No significant developments are likely.

Tunisia

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Burkina Faso, Cape Verde, Gambia, Guinea Bissau and Guinea Conakry

• FORECAST

No significant developments are likely.



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DESERT LOCUST BULLETIN



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DESERT LOCUST BULLETIN

CENTRAL REGION

Sudan

• SITUATION

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

• FORECAST

Isolated adults are likely to appear and breed on a small scale in areas of recent rainfall in Northern Kordofan, Northern Darfur and Kassala. No significant developments are likely.

Eritrea

• SITUATION

No locusts were seen during surveys carried out on the Red Sea coast between Massawa (1537N/3928E) and Mehimet (1723N/3833E) on 22-23 May.

• FORECAST

No significant developments are likely.

Somalia

• SITUATION

No locusts were seen during surveys carried out on the escarpment east of Hargeisa (0931N/4402E) and Burao (0931N/4533E) on 21-22 May.

• FORECAST

Isolated adults may be present or appear on the escarpment in areas of recent rainfall and green vegetation. No significant developments are likely.

Ethiopia

• SITUATION

No locusts were seen during surveys carried out on 18-21 May between Dire Dawa and the Somali border.

• FORECAST

No significant developments are likely.

Djibouti

• SITUATION

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

• FORECAST

No significant developments are likely.

Egypt

• SITUATION

During April, first to third instar hoppers and scattered immature and mature adults mixed with African Migratory Locust were present in an irrigated

agricultural scheme in the Western Desert near Sharq Oweinat (2219N/2845E). No locusts were reported elsewhere in the country.

During May, scattered Desert Locust mixed with African Migratory Locusts persisted at two farms near Sh. Oweinat where fifth instar hoppers, fledglings, immature and mature adults were reported on the 17th. Some copulating adults were seen.

• FORECAST

Locust numbers will increase in agricultural areas near Sh. Oweinat as breeding continues in irrigated crops. Nevertheless, this does not pose a threat to neighbouring areas and no significant developments are likely.

Saudi Arabia

• SITUATION

No locusts were reported during May in the spring breeding areas of the interior and on the Red Sea coastal plains near Qunfidah (1909N/4107E).

• FORECAST

Isolated adults may be present on the Red Sea coastal plains near Jizan. No significant developments are likely.

Yemen

• SITUATION

No locusts were seen during surveys carried out on 15-18 May in the interior summer breeding areas from Al-Jawf and Marib to Shabwah and Wadi Hadhramaut.

• FORECAST

Unless further rains fall in the interior, breeding conditions will become unfavourable and no significant developments are likely.

Oman

• SITUATION

An isolated third instar hopper was found on the northern coastal plains near Jama (2332N/5737E) on 13 May. No locusts were reported elsewhere in the country.

• FORECAST

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• FORECAST

No significant developments are likely.

EASTERN REGION

Iran

• SITUATION

No locusts were seen during surveys carried out on the coast near Bandar Lengeh (2634N/5452E) in Hormozgan Province on 24 May.

• **FORECAST**

No significant developments are likely.

Pakistan

• **SITUATION**

No reports received.

• **FORECAST**

Low numbers of locusts are likely to appear and breed on a small-scale in parts of Cholistan and Tharparkar deserts once summer rains commence. No significant developments are likely.

India

• **SITUATION**

No locusts were reported during May.

• **FORECAST**

Low numbers of locusts are likely to appear and breed on a small-scale in parts of Rajasthan once summer rains commence. No significant developments are likely.

Afghanistan

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.



Announcements

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Desert Locust Control Diploma. The Department of Crop Protection of the Faculty of Agriculture, University of Khartoum is offering a one-year post-graduate diploma course in Desert Locust Control that is expected to start in August 2003. Applications should be sent before the end of June to: Registrar of the Graduate College, University of Khartoum, POB 321, Khartoum, Sudan. For more details: selbashir@hotmail.com

2003 events. The following are provisionally scheduled:

- **CLCPANO.** Extraordinary Session, Alger (Algeria), 7 June
- **CLCPRO.** 2nd Session, Alger (Algeria), 8-12 June
- **DLCC Technical Group.** FAO Rome, postponed (tba)
- **CRC.** Executive Committee meeting, Beirut (Lebanon), 14-18 July
- **DLCC.** 37th Session, FAO Rome, 22-26 September
- **EMPRES/CR.** 11th Liaison Officers meeting, Djibouti, 12-16 October
- **EMPRES/WR.** 2nd Liaison Officers meeting, Agadir (Morocco), December



No. 296

DESERT LOCUST BULLETIN



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

- 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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guidea Bissau and Guinea Conakry.

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

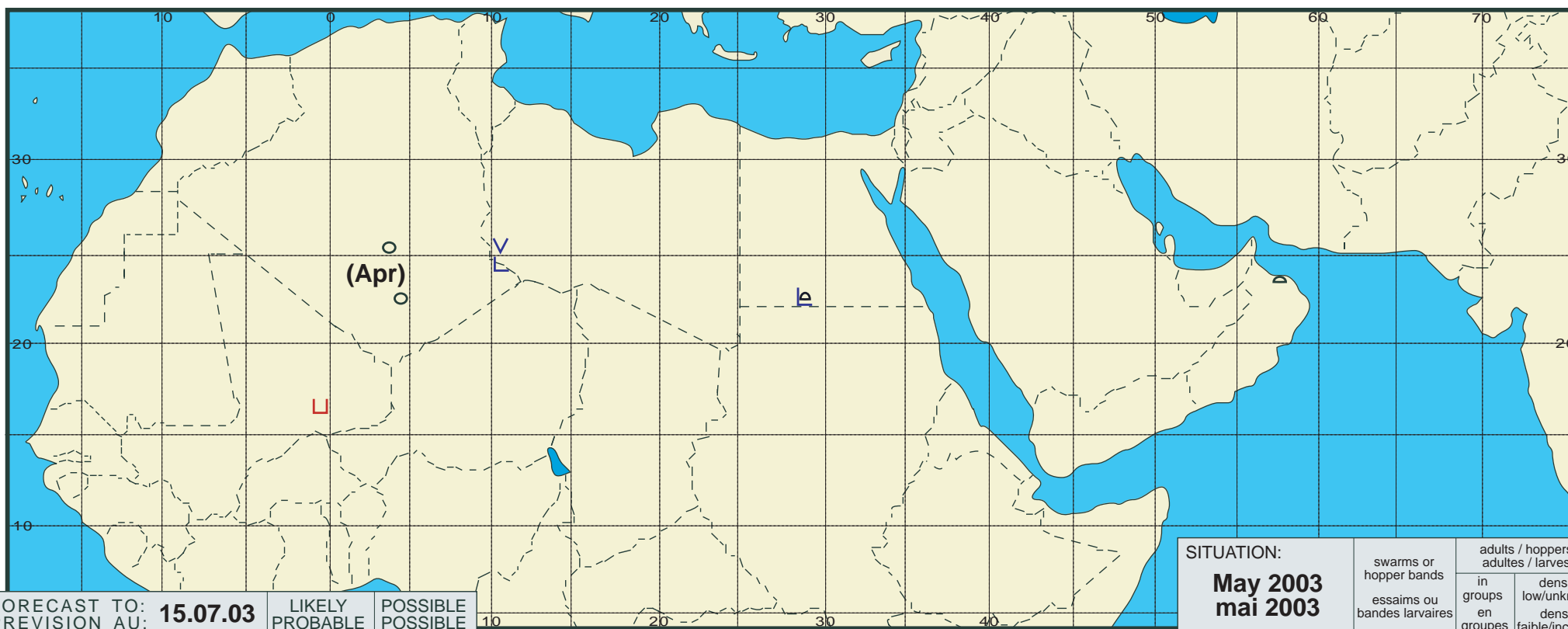
- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.



Desert Locust Summary

Criquet pèlerin - Situation résumée

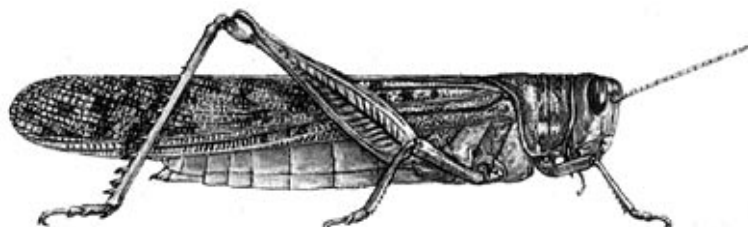
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FORECAST TO: PREVISION AU: 15.07.03	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favorables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: May 2003 mai 2003	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)			



DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations



No. 297

(2 July 2003)



General Situation during June 2003 Forecast until mid-August 2003

The Desert Locust situation was generally calm during June. Most of the activity was concentrated in the Western Region where seasonal rains began in the summer breeding areas in the Sahel and ecological conditions were improving. Adult groups were treated in southern Algeria, while other hopper and adult groups were reported in northern Libya. Low numbers of adults were present in northern Mali and Niger. In the Eastern Region, monsoon rains reached the summer breeding areas along the Indo-Pakistan border but no locusts have been reported so far. Small-scale breeding is expected during the forecast period in West Africa, Sudan, and along the Indo-Pakistan border. Surveys are recommended to monitor the situation on a regular basis during the summer.

Western Region. Ground control operations were carried out in late May and early June against adults, some forming groups, in southern Algeria where similar operations were conducted in mid April against hopper groups. There was an unusual report of hoppers and adults forming groups in northern Libya and an unconfirmed report of locusts at two oases in eastern Niger. Desert Locusts are rarely seen in these places during recessions. Low numbers of adults were present in northern Mali and in the Air, Niger. These reports suggest that breeding in southern Algeria may have been more widespread than previously

indicated and that some adults could have moved into surrounding areas. Summer rains have started in southern Mauritania, northern Mali, Niger and perhaps in northern Chad. During the forecast period, small-scale breeding is expected to occur in these areas and locust numbers will gradually increase but should remain below threatening levels.

Central Region. No locusts were reported in the region during June except for a few Desert Locust mixed with African Migratory Locust that persisted in an agricultural scheme in southern Egypt. Good rains fell in parts of the interior in Sudan where conditions have become favourable for breeding in some places. Sporadic showers were reported in a few areas in northern Somalia, eastern Ethiopia, Oman, and perhaps on the Red Sea coast between Jizan, Saudi Arabia and Yemen. During the forecast period, small-scale breeding is expected to occur in Sudan.

Eastern Region. No locusts were reported in the region. Monsoon rains reached Rajasthan, India by mid June and, consequently, ecological conditions were improving in many areas. During the forecast period, adults are likely to appear along the Indo-Pakistan border and breed on a small scale.

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Facsimile: +39 06 570 55271

E-mail: ecl@fao.org

Internet: www.fao.org

DLIS: www.fao.org/news/global/locusts/locuhome.htm



No. 297

DESERT LOCUST BULLETIN



Weather & Ecological Conditions in June 2003

Seasonal rains began to fall in most of the summer breeding areas from Mauritania to Sudan during June. Consequently, ecological conditions are improving in many of these places. Monsoon rains reached the summer breeding areas in Rajasthan, India where conditions are also improving.

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) oscillated between 12N and 18N during June with periodic surges to 20-22N over northern Mali and Niger. As a result, good rains were reported from southeastern Mauritania (the two Hodhs) during the first half of June, followed by light to moderate showers in the central portions of the south (Brakna, Assaba, Tagant) as well as in the southeast during the last week of the month. Good rains also fell at times during the month in northern Mali (the Adrar des Iforas and Tamesna), northern Niger (Tadress and the Air) and southern Algeria (near the Hoggar Mountains between Tamanrasset and Djanet). Some rain may have also fallen in early June in northern Chad (Tibesti and Ennedi). Enough rain is likely to have occurred in many of these places to allow breeding to commence.

In the **Central Region**, rains were sporadic during June. Showers were reported in parts of the summer breeding areas of Sudan, primarily in the southern portion of Northern Kordofan, the western area of Northern Darfur and near Kassala in the Eastern Region. Although there were reports of moderate to heavy rainfall at El Obeid, these could not be confirmed by analysis of satellite cloud imagery. Nevertheless, breeding conditions are likely to improve in many of these areas. Light rain may have fallen in a few places along the Red Sea coastal plains between Jizan, Saudi Arabia and Yemen during the last week of the month. Light to moderate rain fell at times in eastern Ethiopia between Dire Dawa and Jijiga, extending to parts of the northern Somali plateau where vegetation was starting to dry out in some places. Conditions were hot and dry on the coastal plains from Eritrea to northern Somalia. In Oman, light rain fell in some places in the northern

interior and the monsoon rains continued in the south of the country in the Dhofar Region.

In the **Eastern Region**, seasonal rains associated with the monsoon reached Rajasthan, India in mid June. Light to moderate showers were reported from Jodhpur and Bikaner. Light pre-monsoon rains occurred in some adjacent areas of Tharparkar and Cholistan, Pakistan. Consequently, breeding conditions are likely to be improving in many of these areas.



Area Treated

Algeria 807 ha (25 May – 7 June)



Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• SITUATION

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

• FORECAST

Isolated adults are likely to be present between Aioun El Atrous and Nema. Small-scale breeding is expected to commence in areas of recent rainfall. No significant developments are likely.

Mali

• SITUATION

Although no surveys were carried out during June, there were unconfirmed reports from travelers of isolated mature adults in the southern Adrar des Iforas at Arkad (1738N/0022W) and near Aguelhoc (1927N/0052E). Nomads claimed that there were important adult populations further north near Tessalit (2011N/0102E) at Amchach (2020N/0047E) and Bolrech (2046N/0107E) in June.

• FORECAST

Low numbers of adults will persist in the Adrar des Iforas and small-scale breeding will commence in areas of recent rainfall, including the Tilemsi Valley, Timetrine and the Tamesna. Consequently, locust numbers will gradually increase during the forecast period in these areas. Surveys are recommended to clarify and monitor the situation on a regular basis.

Niger

• SITUATION

Scattered adults were present and maturing during June in northwestern Air near Arlit (1843N/0721E), in the southern Air near Agadez (1700N/0756E) and further south in Tadress (1541N/0740E). There was an unconfirmed report of locusts in the oases of Fachi (1806N/1134E) and Bilma (1846N/1304E).

• FORECAST

Small-scale breeding will occur in areas of recent rainfall in the Air and Tadress where locust numbers will gradually increase during the forecast period. Breeding may also occur in the Tamesna if rains fall. No significant developments are likely.

Chad

• SITUATION

No reports received.

• FORECAST

Low numbers of locusts could appear and breed in areas where rain is thought to have recently occurred in Tibesti and Ennedi.

Senegal

• SITUATION

No locusts were reported during May and June.

• FORECAST

No significant developments are likely.

Algeria

• SITUATION

During June, adult populations were present on acacia between Tamanrasset (2250N/0528E) and In Salah near Arak (2517N/0340E), and in farms west of Tamanrasset in the Abalissa region (2251N/0440E). This is the same general area where control operations were carried out in late March and early April against hopper groups. Control operations were again undertaken during the first week of June, treating 807 ha of immature and mature adults at densities of 40-100 per ha. Some of the infestations were forming groups. At one location, up to 150 adults were seen on a tree.

• FORECAST

Low numbers of adults are likely to persist in areas of recent rain near Tamanrasset while others could appear further east towards Djanet where rains may have fallen during June. There is a slight possibility of small-scale breeding in some of these areas during the forecast period.

Morocco

• SITUATION

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

• FORECAST

No significant developments are likely.

Libyan Arab Jamahiriya

• SITUATION

Hoppers of all instars at densities of 2-5 hoppers per sq. m, fledglings and immature adults at densities up to 150 adults per ha were reported to be forming small groups on 19 June at five locations in Jebel Waddan, about 100 km north of Waddan (2910N/1610E), in the northern part of the country. This is an area where Desert Locust rarely occur during recessions. The total infested area was about 400 ha.

• FORECAST

Locust numbers will decline near Waddan as natural vegetation dries out. Some of these may move south towards the summer breeding areas of the Sahel while others could appear in the southwest near Ghat. No significant developments are likely.

Tunisia

• SITUATION

No surveys were carried out and no locusts were reported during May and June.

• FORECAST

No significant developments are likely.

Burkina Faso, Cape Verde, Gambia, Guinea Bissau and Guinea Conakry

• FORECAST

No significant developments are likely.

CENTRAL REGION

Sudan

• SITUATION

No locusts were seen during surveys carried out on 15-24 June on the western side of the Red Sea Hills between Kassala (1424N/3630E) and Sinkat (1855N/3648E), and in the Baiyuda Desert between Khartoum and Dongola (1910N/3027E).

• FORECAST

Isolated adults are likely to appear and breed on a small scale in areas of recent rainfall in Northern Kordofan, Northern Darfur and Kassala. No significant developments are likely.



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DESERT LOCUST BULLETIN



No. 297

DESERT LOCUST BULLETIN

Eritrea

• SITUATION

No locusts were seen during surveys carried out on the Red Sea coast between Massawa (1537N/3928E) and Mehimet (1723N/3833E) on 18-19 June.

• FORECAST

No significant developments are likely.

Somalia

• SITUATION

No locusts were seen during surveys carried out on the plateau between Hargeisa (0931N/4402E) and Erigavo (1040N/4720E) on 12-17 June.

• FORECAST

No significant developments are likely.

Ethiopia

• SITUATION

No locusts were seen during surveys carried out on 19-20 June north of Jijiga (0922N/4250E).

• FORECAST

No significant developments are likely.

Djibouti

• SITUATION

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

• FORECAST

No significant developments are likely.

Egypt

• SITUATION

During June, scattered Desert Locust mixed with African Migratory Locusts persisted at two farms near the Sudan border at Sh. Oweinat (2219N/2845E) where hoppers, fledglings, immature and mature adults were reported on the 20th.

• FORECAST

Locust numbers will continue increase slightly in agricultural areas near Sh. Oweinat because of small-scale breeding in irrigated crops. Nevertheless, this does not pose a threat to neighbouring areas and no significant developments are likely.

Saudi Arabia

• SITUATION

No locusts were reported on the Red Sea coastal plains along the foothills of the Asir Mountains

between Jeddah and Khamis Mushait (1819N/4245E) and in the interior near Buraydah (2620N/4359E) during June

• FORECAST

Isolated adults may be present on the Red Sea coastal plains near Jizan. No significant developments are likely.

Yemen

• SITUATION

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

• FORECAST

Isolated adults may be present in some interior areas of Al-Jawf and Shabwah. No significant developments are likely.

Oman

• SITUATION

No locusts were seen during surveys on the northern Batinah coast and the Musandam Peninsula during June.

• FORECAST

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• FORECAST

No significant developments are likely.

EASTERN REGION

Iran

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Pakistan

• SITUATION

No locusts were reported during the second half of May and first half of June.

• FORECAST

Low numbers of locusts are likely to appear and breed on a small-scale in parts of Cholistan and Tharparkar deserts once summer rains commence. No significant developments are likely.

India

• SITUATION

No locusts were reported in Rajasthan up to 18 June.

• FORECAST

Low numbers of locusts are likely to appear and breed on a small-scale in those areas of Rajasthan that have received rainfall. No significant

developments are likely.

Afghanistan

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.



Announcements

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Western Region Donor Meeting. The French Ministry of Foreign Affairs in collaboration with FAO is organizing a donors pledging meeting/roundtable in Paris on 29 July for support to the locust programme in the Western Region.

2003 events. The following are provisionally scheduled:

- **CRC.** 24th Executive Committee meeting, Beirut (Lebanon), 14-18 July
- **DLCC.** 37th Session, FAO Rome, 22-26 September
- **EMPRES/CR.** 11th Liaison Officers meeting, Djibouti, 12-16 October
- **EMPRES/WR.** 2nd Liaison Officers meeting, Agadir (Morocco), 8-13 December
- **Pesticide Referee Group.** 8th meeting, Rome, December (tba)



No. 297

DESERT LOCUST BULLETIN



No. 297

DESERT LOCUST BULLETIN



Glossary of terms

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- 0 - 1 adult/400 m foot transect (or less than 25/ha).

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SMALL

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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

- 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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guidea Bissau and Guinea Conakry.

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

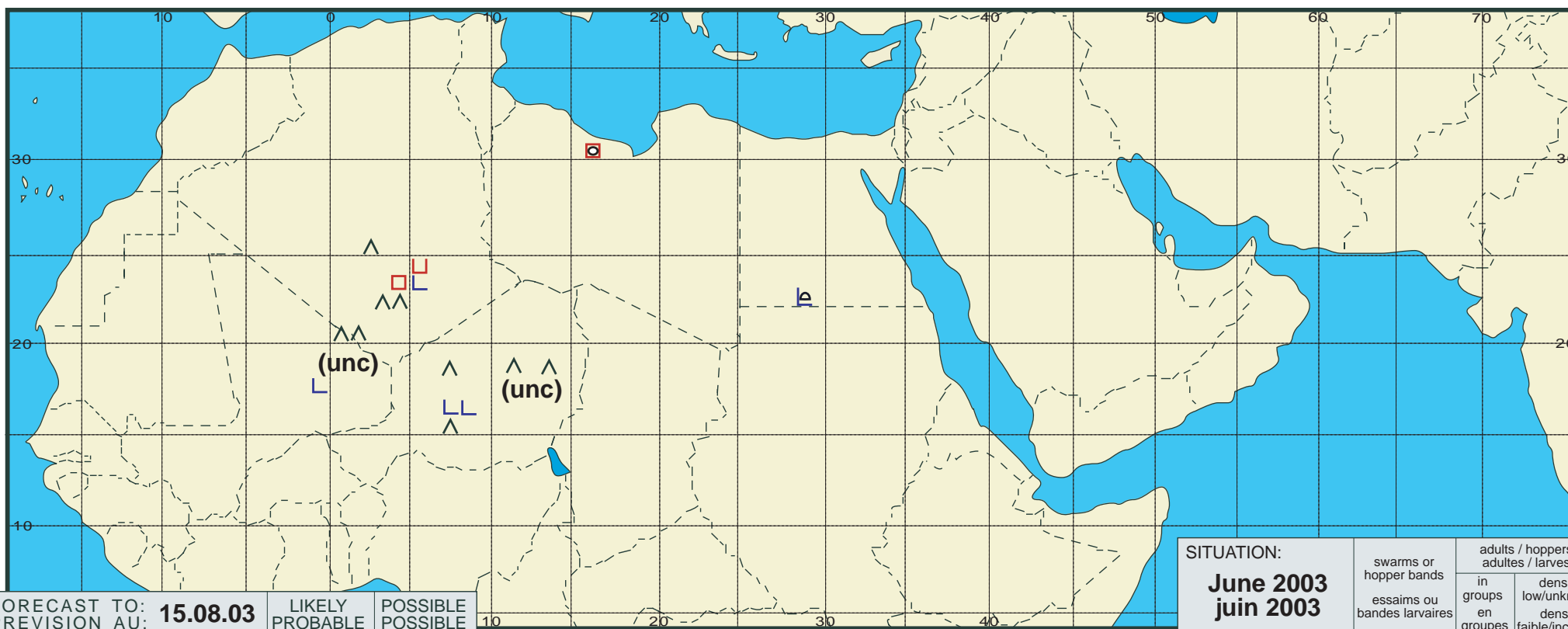
- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.



Desert Locust Summary

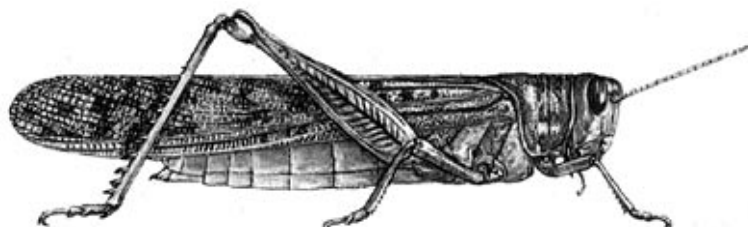
Criquet pèlerin - Situation résumée

297



FORECAST TO: PREVISION AU: 15.08.03	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: June 2003 juin 2003	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)			



DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations



No. 298

(5 August 2003)



General Situation during July 2003 Forecast until mid-September 2003

The Desert Locust situation remained calm during July. Limited control operations were carried out in southern Algeria against hopper and adult groups. Elsewhere, low numbers of locusts were reported in the summer breeding areas in Niger, Chad, Sudan and Pakistan. Similar populations are likely to be present in Mauritania, Mali, India and in southern Algeria. Good rains fell throughout most of these areas in July and conditions are favourable for breeding. Consequently, locust numbers are expected to increase during the forecast period. The situation should be monitored closely in all affected countries by regularly carrying out surveys in the breeding areas.

Western Region. Ground control operations were carried out in early July against dense groups of hoppers and immature adults near the Malian border in southern Algeria where undetected breeding occurred in May. Small-scale breeding has already commenced in Niger and is likely to be in progress or will occur shortly in southern Mauritania, northern Mali and eastern Chad. Good rains fell throughout most of these areas during July and conditions are favourable for breeding. Additional breeding may occur in southern Algeria where rains may have fallen further north this year than in the last few summers.

Central Region. Scattered adults were reported in Northern Kordofan, Sudan and are likely to be present in Northern Darfur and in the east near the Eritrean border where good rains fell during July. Locust numbers will increase in these areas because of small-scale breeding during the coming weeks. No locusts were reported elsewhere in the region except for a few Desert Locust mixed with African Migratory Locust that persisted in an agricultural scheme in southern Egypt. Conditions were improving in parts of the summer breeding areas in the interior of Yemen.

Eastern Region. Isolated mature adults were reported in the summer breeding areas in Pakistan and are likely to be present in adjacent areas in Rajasthan, India. Conditions are favourable for breeding due to good monsoon rains that fell in July over a widespread area on both sides of the Indo-Pakistan border. Consequently, small-scale breeding will occur during the forecast period and locust numbers will increase but remain below threatening levels.

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No. 298

DESERT LOCUST BULLETIN



Weather & Ecological Conditions in July 2003

Conditions are favourable in nearly all summer breeding areas from Mauritania to Sudan and along the Indo-Pakistan border due to exceptionally good rainfall during July. Unusual rainfall was reported in western Pakistan, on the western side of the Red Sea and in northwestern Mauritania.

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) oscillated between 12N and 20N during July with periodic surges to 23-26N over northern Mali, extending into the Tanezrouft region in southern Algeria. Good rains associated with the northern positions of ITCZ fell over a large portion of the summer breeding area from Mauritania to Chad. In Mauritania, rains improved during the second half of July and by the end of the month, good rains had been received in the two Hodhs, Brakna, and in parts of Trarza and Assaba. Light to moderate rainfall was reported in Tagant as well as in a few places in Inchiri and southern Adrar, which is unusual for this time of year. Vegetation is reported to be green and conditions are favourable for breeding in the south up to 18N. Light to moderate rains fell in parts of southern Algeria during July. As a result, ecological conditions were improving in many of the wadis near Tamanrasset. Green vegetation was present in several of the main wadis in the Adrar des Iforas, northern Mali and extended across the border into southern Algeria near Bordj Bir Mokhtar. In Niger, light to moderate rains fell in Tamesna and Air during July where conditions are favourable for breeding. In Chad, breeding conditions were improving in the east and northeast between Abeche and Fada.

In the **Central Region**, good rains fell throughout most of July in nearly all of the summer breeding areas in Sudan, extending from the Chad border to the Eritrean border. Consequently, green vegetation was present in Northern Kordofan and conditions are favourable for breeding in most areas. Similar conditions are believed to be present in Northern Darfur and near Kassala. Unusual rainfall was reported on the Red Sea coastal plains in Sudan (Suakin, 20 mm) and Eritrea (Massawa, 13 mm; Mehimet, 12 mm). In

Eritrea, vegetation was dry along the Red Sea coastal plains but should be improving in the western lowlands. Moderate rains fell in early July along parts of the central Red Sea coast in Yemen and light rains fell in parts of the summer breeding areas at mid-month between Marib and Sayun. Green vegetation was present in the interior near Marib while it was dry in other parts of Shabwah and Wadi Hadhramaut. In northern Somalia, vegetation was dry along the coastal plains and the escarpment. Green vegetation was present in a few places on the plateau near Hargeisa and Boroma, and good rains fell in adjacent areas in eastern Ethiopia. In Oman, misty conditions associated with the southwest monsoon persisted in the Dhofar region in the south.

In the **Eastern Region**, ecological conditions improved in the summer breeding areas along the Indo-Pakistan border due to widespread monsoon rains during July. Heavy rains fell in Rajasthan, India at Jodhpur (138 mm), Bikaner (107 mm) and Barmer (99 mm) while moderate rains were reported from Jaisalmer (31 mm). Heavy rains also fell in the Tharparkar Desert, Pakistan, at Chhor (400 mm) and Mirpurkhas (173 mm), and in the Cholistan Desert at Bahawalpur (63 mm). Unusual rainfall occurred in the interior and coastal areas in Baluchistan, Pakistan but this is not likely to have a significant impact on the Desert Locust.



Area Treated

Algeria 150 ha (7-12 July)



Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• SITUATION

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

• FORECAST

Low numbers of adults are likely to be present in the two Hodhs, Tagant, Brakna, Assaba, Trarza and southern Adrar where small-scale breeding will occur in areas of recent rainfall. Consequently, locust numbers will increase but should remain below threatening levels during the forecast period.

Mali

• SITUATION

Although no surveys were carried out during July, unconfirmed reports continued to be received from nomads of important populations in the Tilemsi Valley west and south of Tessalit (2011N0102E) at In Abser (2015N/0033E), In Checker (1943N/0015E) and Nmadaden (1850N/0045E).

• FORECAST

Low numbers of adults are likely to be present in the Adrar des Iforas, Tilemsi Valley, Timetrine and, perhaps, Tamesna. Small-scale breeding is probably in progress in those areas that recently received rainfall. Consequently, locust numbers will increase during the forecast period.

Niger

• SITUATION

During July, scattered adults persisted in a few farms near Arlit (1843N/0721E) where they were becoming mature. Scattered hoppers, fledglings and adults, at densities of up to 500 per ha, were present at several places in the Tadress near Agadez (1700N/0756E). A few isolated adults were seen in the west near Tillaberi (1428N/0127E). Reports of locusts in the oases of Fachi and Bilma during June have not been confirmed so far.

• FORECAST

Small-scale breeding will continue in areas of recent rainfall in the Air and Tamesna and may extend to the Tillaberi region. Consequently, locust numbers will gradually increase during the forecast period.

Chad

• SITUATION

Isolated mature adults, at densities of up to 15 adults per ha, were seen at four locations between Abeche (1349N/2049E) and Fada (1714N/2132E) during a survey conducted in the northeast from 19 June to 4 July.

• FORECAST

Locust numbers will increase slightly in Biltine and Ennedi due to small-scale breeding during the forecast period.

Senegal

• SITUATION

No locusts were reported during July.

• FORECAST

No significant developments are likely.

Algeria

• SITUATION

During July, no locusts were seen in the area west of Tamanrasset where control operations were carried out against adults in June. On the other hand,

new hopper and adult infestations were found to the southwest near the Malian border at two locations in Oued In Ameles (2035N/0246E) during the first half of the month, suggesting that undetected breeding occurred in May. Control operations treated 150 ha of third to fifth instar hopper groups, at densities of up to 20 hoppers per sq. m., and dense groups of immature adults on 7 and 12 July.

• FORECAST

Low numbers of adults may be present in the extreme south adjacent to the Malian border and the Adrar des Iforas. There is a possibility of small-scale breeding in some of these areas during the forecast period.

Morocco

• SITUATION

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

• FORECAST

No significant developments are likely.

Libyan Arab Jamahiriya

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Tunisia

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Burkina Faso, Cape Verde, Gambia, Guinea Bissau and Guinea Conakry

• FORECAST

No significant developments are likely.

CENTRAL REGION

Sudan

• SITUATION

Scattered immature and mature locusts were reported in 24 locations in Northern Kordofan north of El Obeid (1311N/3010E) during July.

• FORECAST

Small-scale breeding will occur in Northern Darfur, Northern Kordofan and near Kassala, causing locust numbers to increase but remain below threatening



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levels. By the end of the forecast period, new adults are likely to appear in these areas.

Eritrea

• SITUATION

No locusts were seen during surveys carried out on the central Red Sea coastal plains on 17-18 July.

• FORECAST

Low numbers of locusts may be present in the Western Lowlands where small-scale breeding is likely to occur during the forecast period. Surveys are recommended to clarify the situation.

Somalia

• SITUATION

No locusts were seen during surveys carried out on the plateau between Hargeisa (0931N/4402E) and Boroma (0956N/4313E) and on the coastal plains between Berbera (1028N/4502E) and the Djibouti border during the first week of July.

• FORECAST

No significant developments are likely.

Ethiopia

• SITUATION

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

• FORECAST

No significant developments are likely.

Djibouti

• SITUATION

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

• FORECAST

No significant developments are likely.

Egypt

• SITUATION

During July, scattered mature Desert Locust adults mixed with African Migratory Locusts, at densities up to 170 per ha, persisted at one farm near the Sudan border at Sh. Oweinat (2219N/2845E). No locusts were reported elsewhere in the Western Desert.

• FORECAST

Low numbers of locusts are likely to persist in agricultural areas near Sh. Oweinat and may increase slightly if additional breeding occurs. Nevertheless,

this does not pose a threat to neighbouring areas and no significant developments are likely.

Saudi Arabia

• SITUATION

No locusts were seen during surveys carried out in the interior on 7 July at Al Badi, and on the Red Sea coastal plains near Jeddah and between Qunfidah and Jizan on the 12-16th.

• FORECAST

Isolated adults may be present on the Red Sea coastal plains near Jizan. No significant developments are likely.

Yemen

• SITUATION

No locusts were seen during surveys carried out in the summer breeding areas of the interior between Marib and Sayun on 12-17 July.

• FORECAST

There is slight possibility of isolated adults in areas of recent rainfall on the Red Sea coast and in the interior near Marib where small-scale breeding could occur. Regular surveys should be carried out to monitor the situation.

Oman

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• FORECAST

No significant developments are likely.

EASTERN REGION

Iran

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Pakistan

• SITUATION

During the last half of June, isolated mature adults were reported in crops near Meerani (2607N/6625E) in Lasbela district west of Karachi.

During July, isolated mature adults were present at densities up to 8 per ha in a few places of Lasbela, Tharparkar and Cholistan.

• FORECAST

Small-scale breeding will occur in Tharparkar and Cholistan. Consequently, locust numbers will increase

but should remain below threatening levels during the forecast period.

India

• SITUATION

No locusts were reported in Rajasthan during the second half of June and the first half of July.

• FORECAST

Low numbers of locusts are likely to appear and breed on a small-scale in Rajasthan west of Jodhpur between Barmer, Jaisalmer and Bikaner. Consequently, locust numbers will increase but should remain below threatening levels during the forecast period.

Afghanistan

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.



Announcements

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO 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.

Reporting by e-mail. After each survey or control operation, affected countries should send completed *FAO Desert Locust Survey and Control Forms* with a brief interpretation of the results by e-mail to ecl@fao.org.

Desert Locust Guidelines. The revised edition in English was issued in September 2001 and is now available from FAO. French and Arabic versions as well as a sixth guideline on safety and environmental precautions will be released this autumn. Please contact the Locust Group for more information.

eLocust. Updated details of a new system for recording and transmitting locust survey and control data collected in the field can be found on the Internet at:

www.fao.org/news/global/locusts/elocust.htm

Publications on the Internet. More reports of FAO locust-related meetings are available for downloading at www.fao.org/news/global/locusts/reports1.htm:

- CLCPANO: 24th (and final) session report (French)
- CLCPRO: 2nd session report (French)
- EMPRES/CR: Spray Equipment Evaluation (English)
- EMPRES/CR: 2002 Annual Report (English)
- EMPRES/CR and Central Region Commission: 2nd Joint Survey on the Egypt/Sudan border, January 2003 (English)
- SW Asia Commission: 9th Iran/Pakistan Joint Desert Locust Survey, 1-30 April 2003 (English)
- SPOT-VGT: form to be used in the field for validation of satellite vegetation imagery (English, Arabic)

Desert Locust research award. The FAO Commission for Controlling the Desert Locust in the Central Region (CRC) is pleased to announce a cash award for outstanding research on Desert Locust. For more details, please contact the CRC Office in Cairo (munir.butrous@fao.org).

Desert Locust Control Committee. A commemorative medal will be handed out at the upcoming 37th session of the FAO Desert Locust Control Committee (DLCC) to member countries (locust affected countries and donors) and regional organizations.

2003 events. The following are provisionally scheduled:

- **DLCC.** 37th Session, FAO Rome, 22-26 September
- **EMPRES/CR.** 11th Liaison Officers meeting, Djibouti, 12-16 October
- **EMPRES/WR.** 2nd Liaison Officers meeting, Agadir (Morocco), 8-13 December
- **Pesticide Referee Group.** 8th meeting, Rome, December (tba)



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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

- 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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guidea Bissau and Guinea Conakry.

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

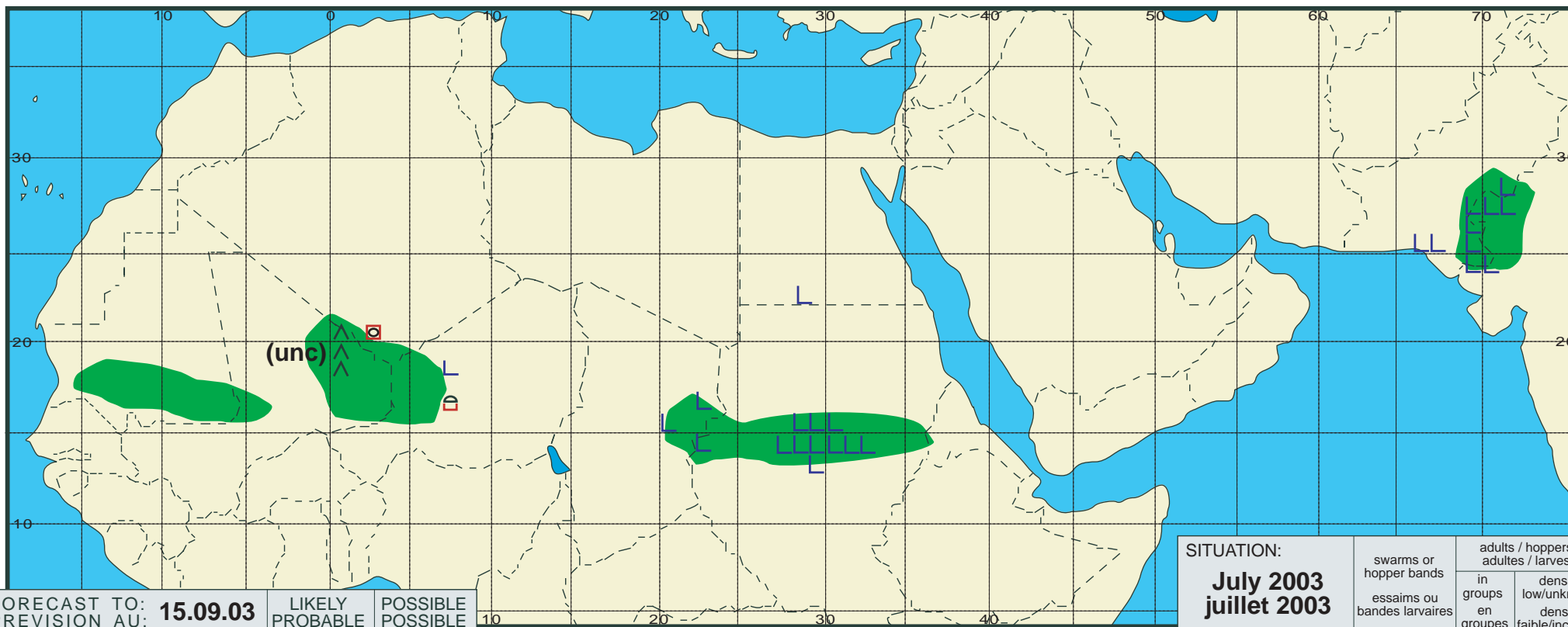
- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.



Desert Locust Summary

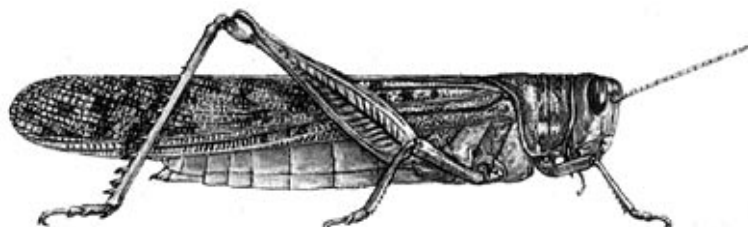
Criquet pèlerin - Situation résumée

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FORECAST TO: PREVISION AU: 15.09.03	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: July 2003 juillet 2003	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)			



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FAO Emergency Centre for Locust Operations



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(4 September 2003)



General Situation during August 2003 Forecast until mid-October 2003

The Desert Locust situation continued to remain calm during August. Even though there were good rains and ecological conditions were unusually favourable over a large portion of the summer breeding areas, only scattered locusts were reported in West Africa, Sudan and along the Indo-Pakistan border. Nevertheless, small-scale breeding is in progress and locust numbers are gradually increasing in most areas. This situation is expected to continue during the forecast period and, if rains continue, populations could eventually become more significant. Consequently, it is important that all affected countries carry out regular surveys and report their results in a timely manner.

Western Region. Small-scale breeding was reported to be in progress in southern Mauritania, northern Mali and Niger where low numbers of solitary hoppers and adults were seen during surveys in August. A similar situation is likely to exist in northeastern Chad and southern Algeria. Consequently, locust numbers were gradually increasing in all of the traditional summer breeding areas. Due to the unusually good conditions this year, breeding is likely to continue during the forecast period, causing locust numbers to increase further.

Central Region. Small-scale breeding was detected in Northern Darfur, Sudan and is likely to be in progress in Northern Kordofan where only scattered adults have been found so far. As vegetation is very green further north this year than in most years, breeding will continue during the forecast period, causing locust numbers gradually to increase. Additional locusts may appear and breed along the Gash River in eastern Sudan near the Eritrean border where severe flooding occurred for the second consecutive month. No locusts were reported elsewhere in the region except for a few Desert Locust mixed with African Migratory Locust that persisted in an agricultural scheme in southern Egypt. Conditions continued to improve in parts of the summer breeding area in the interior of Yemen.

Eastern Region. Isolated adults persisted in the summer breeding areas in Pakistan and are almost certainly present in adjacent areas in Rajasthan, India. Small-scale breeding is likely to be in progress in both countries, but difficult to detect. As a result, locust numbers will increase slightly but remain below threatening levels.

The FAO Desert Bulletin is issued monthly, supplemented by Updates during periods of increased Desert Locust activity, and is distributed by fax, e-mail, FAO pouch and airmail by the Locusts and Other Migratory Pests Group, AGP Division, FAO, 00100 Rome, Italy. It is also 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

DLIS: www.fao.org/news/global/locusts/locuhome.htm



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DESERT LOCUST BULLETIN



Weather & Ecological Conditions in August 2003

Conditions continued to be unusually favourable for breeding over a widespread area extending from Mauritania to western Eritrea as well as along the Indo-Pakistan border. Good rains fell throughout these areas during August.

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) oscillated around 20N during August with periodic surges to 25N over northern Mauritania, northern Mali and southern Algeria. Consequently, good rains fell in most of the traditional Desert Locust breeding areas between Mauritania and Chad. In Mauritania, widespread rains occurred in the two Hodhs during the first decade and, thereafter, low to moderate rains fell throughout the south. In Mali, light to heavy rain fell in the Adrar des Iforas and Timetrine. In Niger, good rains were reported in Tamesna and in the Air Mountains. In Chad, light rain fell in the east near the Sudanese border. Breeding conditions are favourable in all of the above-mentioned areas for the second consecutive month. During the second decade of August, rainfall occurred unusually far north in the Sahel due to the northerly surges of the ITCZ. For example, light to moderate rainfall was reported in northern Mauritania at Zouerate and Bir Moghrein. In Algeria, widespread light showers fell throughout the south and heavier rain occurred near the Hoggar Mountains. In Morocco, heavy rain fell along the Atlantic coast near Tan-Tan. Consequently, ecological conditions are improving in these areas.

In the **Central Region**, good rains fell in August for the second month in a row throughout the summer breeding areas in Sudan and in the interior of Yemen. Conditions are unusually favourable for breeding in Northern Darfur and in Northern Kordofan, where green vegetation extends quite far north to about 17N. Heavy floods occurred along the Gash River on the western side of the Red Sea Hills north of Kassala and in adjacent areas of western Eritrea during July and August. Conditions will improve in these areas when the floodwaters recede. In Yemen, moderate to heavy rains fell in the interior desert of Shabwah

between Marib and Wadi Hadhramaut where flooding was reported. Green vegetation was present near Marib and Ataq. Good rains also fell on the Red Sea coastal plains where, again, local flooding is said to have occurred. Heavy showers were reported along the northern coast of Djibouti between Obock and the Eritrean border, and rain fell in northern Somalia on the escarpment and the plateau in the northwest between Boroma and Hargeisa. As a result, breeding conditions are likely to be improving in almost all of these areas. Light to moderate rains continued to fall in eastern Ethiopia near Dire Dawa.

In the **Eastern Region**, good rains associated with the monsoon continued to fall during August for the second consecutive month along the Indo-Pakistan border. Most of the rainfall occurred in Rajasthan where light to moderate showers were reported from Jodhpur (76 mm during the first half of August) and Barmer (31 mm) while very little rain fell at Bikaner and Jaisalmer. Nevertheless, conditions continued to be favourable for breeding over a large portion of Rajasthan. In Pakistan, light rainfall is thought to have occurred in parts of Tharparkar and Cholistan deserts. Light rain also fell in some places in Baluchistan, western Pakistan but this is unlikely to have a significant impact on the Desert Locust.



Area Treated

No control operations were reported during August.



Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• SITUATION

A late report indicated that no locusts were seen during a survey carried out in the south on 17-25 July.

During August, isolated immature adults were seen during the first decade at two places in Hodh Gharbi east of Aioun El Atrous (1702N/0941W) and at one place in southwestern Adrar between Tidjikja (1829N/1131W) and Akjoujt (1945N/1421W). During the second decade, more adults were found throughout the south between Boutilimit (1740N/1446E) and Nouakchott (1809N/1558W), southwest

of Tidjikja, north of Kiffa (1638N/1124W) and near Nema (1632N/0712W). Isolated hoppers of all instars (from undetected laying that occurred from early July onwards) were reported at three places north of Kiffa. During the third decade, breeding extended to the remaining places mentioned above where isolated hoppers of all stages were present and low numbers of adults persisted.

• **FORECAST**

Locust numbers will gradually increase throughout the south as small-scale breeding continues during the forecast period. New adults will appear in currently infested areas where a second generation of breeding is likely to occur. Some adults may move further north into southern Adrar and Inchiri while others may move westwards to Trarza. Small-scale breeding is likely to occur in these areas as well.

Mali

• **SITUATION**

During August, scattered solitarious hoppers of all instars, fledglings and immature and mature adults were present in the Adrar des Iforas between Kidal (1827N/0125E) and the Algerian border. Isolated adults were seen further west in the Tilemsi Valley and, to a lesser extent, in the Timetrine. No information has been received from Tamesna or from the area south of Kidal.

• **FORECAST**

Locust numbers will gradually increase as small-scale breeding continues in the Adrar des Iforas. Breeding is likely to extend into adjacent areas of the Tilemsi Valley, the Timetrine and to parts of Tamesna. New adults will appear throughout the forecast period and a second generation of breeding could occur in those areas where conditions remain favourable. Surveys are recommended in all these areas.

Niger

• **SITUATION**

During August, scattered immature and mature adults, at densities of 100-200 per ha, and low numbers of hoppers were present at several locations near Agadez (1700N/0756E).

• **FORECAST**

Small-scale breeding will continue in areas of recent rainfall in the Air and Tamesna and may extend to the Tillaberi region. Consequently, locust numbers will gradually increase during the forecast period. Surveys are recommended in all these areas.

Chad

• **SITUATION**

No reports received.

• **FORECAST**

Scattered adults are likely to be present and

breeding in the northeast between Biltine and Ennedi. Locust numbers are likely to increase slightly due to small-scale breeding during the forecast period. Surveys are recommended in all these areas.

Senegal

• **SITUATION**

No locusts were reported during August.

• **FORECAST**

No significant developments are likely.

Algeria

• **SITUATION**

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

• **FORECAST**

Low numbers of adults may be present in the extreme south adjacent to the Malian border and the Adrar des Iforas as well as in other areas of recent rainfall. There is a possibility of small-scale breeding in some of these areas during the forecast period. Regular surveys of these areas are strongly recommended.

Morocco

• **SITUATION**

No locusts were reported during August.

• **FORECAST**

No significant developments are likely.

Libyan Arab Jamahiriya

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Tunisia

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Burkina Faso, Cape Verde, Gambia, Guinea Bissau and Guinea Conakry

• **FORECAST**

No significant developments are likely.



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CENTRAL REGION

Sudan

• SITUATION

During August, scattered immature and mature solitarious adults at densities of 3-200 per ha were present in Northern Kordofan along or near Wadi Milk for about 200 km from Umm Badr (1413N/2758E) to about 1610N. Isolated mature adults were reported on the western side of the Red Sea Hills between Derudeb (1731N/3607E) and Sinkat (1855N/3648E), near Khartoum, in the Baiyuda Desert west of Atbara (1742N/3400E) and in Northern Darfur near El Fasher (1337N/2522E). A few fourth instar hoppers were also seen near El Fasher. No locusts were seen in the Northern Region at Merowe (1830N/3149E).

• FORECAST

Small-scale breeding will continue in Northern Darfur and is likely to be already in progress in Northern Kordofan, but difficult to detect. Consequently, locust numbers will gradually increase but remain below threatening levels. By the end of the forecast period, new adults are likely to appear and a second generation of breeding could occur in some places, especially along the Gash River on the western side of the Red Sea Hills north of Kassala as the recent flooding begins to recede.

Eritrea

• SITUATION

No locusts were seen during surveys carried out on the central Red Sea coastal plains and in the western lowlands on 11-14 August.

• FORECAST

Scattered adults may be present and breeding on a small scale in the western lowlands. Consequently, locust numbers are likely to increase during the forecast period. Surveys are recommended in these areas.

Somalia

• SITUATION

No locusts were seen during surveys carried out on the plateau between Hargeisa (0931N/4402E) and Boroma (0956N/4313E) and on the coastal plains between Berbera (1028N/4502E) and the Djibouti border on 18-22 August.

• FORECAST

No significant developments are likely.

Ethiopia

• SITUATION

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

• FORECAST

No significant developments are likely.

Djibouti

• SITUATION

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

• FORECAST

No significant developments are likely.

Egypt

• SITUATION

During August, a few individual mature Desert Locust adults and second to third instar hoppers mixed with African Migratory Locusts and grasshoppers, at densities of up to 110 per ha, persisted at one farm near the Sudan border at Sh. Oweinat (2219N/2845E). No locusts were reported elsewhere in the Western Desert.

• FORECAST

Low numbers of locusts are likely to persist in agricultural areas near Sh. Oweinat and may increase slightly if additional breeding occurs. Nevertheless, this does not pose a threat to neighbouring areas and no significant developments are likely.

Saudi Arabia

• SITUATION

No locusts were seen during surveys carried out on the central Red Sea coastal plains and in the northern portion of the interior on 6-20 August.

• FORECAST

Isolated adults may be present on the Red Sea coastal plains near Jizan and could breed in areas of recent rainfall. No significant developments are likely.

Yemen

• SITUATION

No locusts were seen during surveys carried out in the summer breeding areas of the interior between Marib and Sayun on 23-27 August.

• FORECAST

There is slight possibility of isolated adults in areas of recent rainfall on the Red Sea coast and in the interior near Marib where small-scale breeding could occur. Regular surveys should be carried out to monitor the situation.

Oman

• SITUATION

No locusts were reported during July. In August, no locusts were seen during surveys carried out in the

northern interior and on the Musandam Peninsula.

• **FORECAST**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• **FORECAST**

No significant developments are likely.

EASTERN REGION

Iran

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Pakistan

• **SITUATION**

During the first half of August, isolated immature and mature adults continued to persist in a few places near the Indian border in the Cholistan Desert and, to a lesser extent, in the Tharparkar Desert as well as west of Karachi in Lasbela Valley

• **FORECAST**

Small-scale breeding is almost certainly in progress in Lasbela, Tharparkar and Cholistan. Consequently, locust numbers will increase but should remain below threatening levels during the forecast period.

India

• **SITUATION**

No locusts were reported in Rajasthan during the second half of July and the first half of August.

• **FORECAST**

Low numbers of locusts are likely to be present and breeding on a small-scale in Rajasthan west of Jodhpur between Barmer, Jaisalmer and Bikaner. Consequently, locust numbers will increase but should remain below threatening levels during the forecast period. Surveys should be carried out near Jaisalmer and the Pakistani border.

Afghanistan

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

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.

Reporting by e-mail. After each survey or control operation, affected countries should send completed *FAO Desert Locust Survey and Control Forms* with a brief interpretation of the results by e-mail to eclo@fao.org.

Desert Locust Guidelines. The revised edition in English was issued in September 2001 and is now available from FAO. French and Arabic versions as well as a sixth guideline on safety and environmental precautions will be released this autumn. Please contact the Locust Group for more information.

eLocust. Updated details of a new system for recording and transmitting locust survey and control data collected in the field can be found on the Internet at www.fao.org/news/global/locusts/elocust.htm.

Publications on the Internet. More reports of FAO locust-related meetings are available for downloading at www.fao.org/news/global/locusts/reports1.htm:

- CLCPANO: 24th (and final) session report (French)
- CLCPRO: 2nd session report (French)
- EMPRES/CR: Spray Equipment Evaluation (English)
- EMPRES/CR: 2002 Annual Report (English)
- EMPRES/CR and Central Region Commission: 2nd Joint Survey on the Egypt/Sudan border, January 2003 (English)
- SW Asia Commission: 9th Iran/Pakistan Joint Desert Locust Survey, 1-30 April 2003 (English)
- SPOT-VGT: form to be used in the field for validation of satellite vegetation imagery (English, Arabic)

Desert Locust research award. The FAO Commission for Controlling the Desert Locust in the Central Region (CRC) is pleased to announce a cash award for outstanding research on Desert Locust. For more details, please contact the CRC Office in Cairo (munir.butrous@fao.org).



Announcements

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO bulletin for



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DESERT LOCUST BULLETIN



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Desert Locust Control Committee. A

commemorative medal will be handed out at the upcoming 37th session of the FAO Desert Locust Control Committee (DLCC) to Dr. Lukas Brader in recognition of his contribution to Desert Locust management during the 1986-89 plague, and to member countries (locust affected countries and donors) and regional organizations.

2003 events. The following are provisionally scheduled:

- **DLCC.** 37th Session, FAO Rome, 22-26 September
- **EMPRES/CR.** 11th Liaison Officers meeting, Djibouti, 19-23 October
- **EMPRES/WR.** 2nd Liaison Officers meeting, Agadir (Morocco), 8-13 December
- **Pesticide Referee Group.** 8th meeting, Rome, December (tba)



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

- 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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guinea Bissau and Guinea Conakry.

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

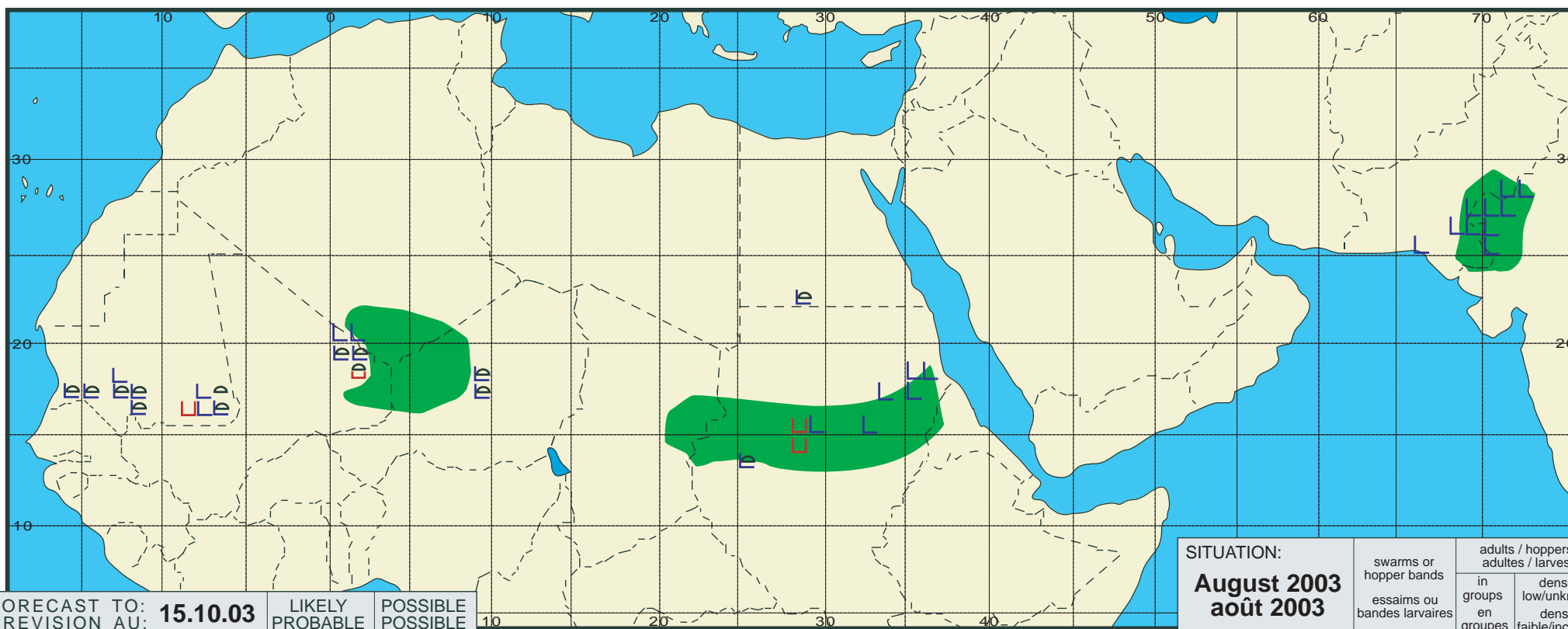
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Desert Locust Summary

Criquet pèlerin - Situation résumée

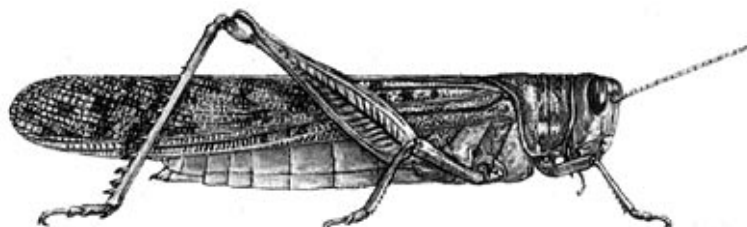
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FORECAST TO: PREVISION AU: 15.10.03	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favorables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: August 2003 août 2003	swarms or hopper bands	adults / hoppers	
	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)			



DESERT LOCUST ALERT

FAO Emergency Centre for Locust Operations



(17 October 2003)



General Situation as of 16 October 2003 Forecast until mid-November 2003

During the past two weeks, new Desert Locust outbreaks developed in Mauritania and Sudan and control operations have commenced. Another outbreak is in progress in Niger, and the situation continues to be of concern in Mali. Immediate action has been taken by FAO and the affected countries to prevent the situation from deteriorating further.

Vegetation has dried out much quicker than expected in Mauritania, causing locusts to concentrate in three main areas. Adults are forming dense groups (up to 40 per sq. m) and becoming gregarious east of Akjoujt (1945N/1421W) where egg laying is in process. On 13 October, hatching started and small dense first instar hopper patches were forming. Early instar solitary and transiens hoppers at densities up to three per bush are present northwest of Moudjeria (1751N/1228W). Adult groups at densities up to 9,000 per ha were seen copulating east of Nouakchott. Control operations started on 9 October in all of these areas and have treated 111 ha so far. Elsewhere, immature adults persisted near Aioun El Atrous (1702N/0941W). Additional teams have been sent to the field, bringing the total to five survey teams and two control teams. Breeding conditions are favourable in the northwest. A report of solitary adults at a density of 600 per ha about 150 km northwest of Akjoujt suggests that some locusts could move into southern Morocco in the coming weeks.

The situation continues to be of concern in northern Mali where locust densities increased in early October and could eventually threaten southern Algeria. Solitary adults, at densities up to 900 per ha, are maturing at 30 places northeast of Kidal (1827N/0125E), between Tessalit (2011N/0102E) and the Algerian border, and in the Tilemsi Valley. Low numbers of hoppers were seen at about half of these locations. In a few places, there were up to six hoppers per bush and they were beginning to group and become transiens. Two teams are continuing surveys in Timetrine, the Tilemsi Valley and the Adrar des Iforas until 19 October. This will be followed by an additional survey in early November.

A locust outbreak is in progress in Niger where groups of immature adults (up to 50,000 per ha) and transiens hopper groups (up to 20 hoppers per sq. m) are present at many places in Tamesna. Two teams are currently working in Tamesna and Air. FAO is organizing field trials using the Green Muscle (*Metarhizium*) biopesticide.

In Sudan, an outbreak has developed in the northeast near Atbara (1742N/3400E) where three maturing swarms were first seen on 10-12 October along the Atbara River, followed by several other small swarms; in total, about 3400 ha. Some of the swarms were laying eggs. Control operations started on the 15th and 533 ha have been treated so far. Mature adults at densities up to 10,000 per ha are present about 100 km northwest of Kassala (1424N/3630E). Elsewhere, hoppers and adults are present near Shendi (1641N/3322E). Survey and control operations are in progress, and five aircraft are on standby.

The most up-to-date information on the situation is available on the Internet (www.fao.org/news/global/locusts/locuhome.htm) as well as maps of the latest infestations (193.43.36.11/mapper).

The FAO Desert Bulletin is issued monthly, supplemented by Updates during periods of increased Desert Locust activity, and is distributed by fax, e-mail, FAO pouch and airmail by the Locusts and Other Migratory Pests Group, AGP Division, FAO, 00100 Rome, Italy. It is also available on the Internet.

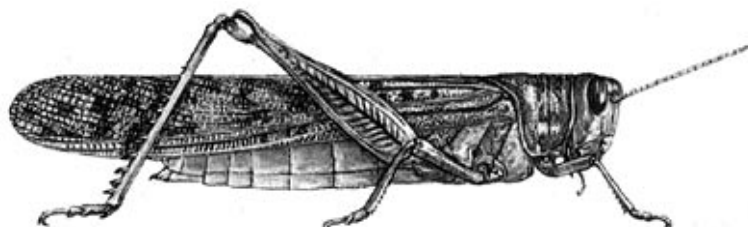
Telephone: +39 06 570 52420 (7 days/week, 24 hr)

Facsimile: +39 06 570 55271

E-mail: ecl@fao.org

Internet: www.fao.org

DLIS: www.fao.org/news/global/locusts/locuhome.htm



DESERT LOCUST CLARIFICATION

FAO Emergency Centre for Locust Operations



(30 October 2003)



Clarification on the Desert Locust Situation in North Africa

On 17 October 2003, FAO issued an Alert which was distributed to all locust-affected countries and other interested parties in three languages, English, French and Arabic. This described the outbreaks in Mauritania, Niger and Sudan, and said that the situation was of concern also in Mali. It mentioned that FAO was coordinating action to ensure that the situation did not deteriorate further. The Alert was followed, on 20 October, with a Press Release.

Unfortunately, certain sections of the Press have subsequently exaggerated the extent of the problem and have suggested that a plague is developing. FAO's view is that the measures currently being undertaken in the infested areas are generally sufficient for the present, but that the situation needs to be carefully monitored. Furthermore the Desert Locust populations in Sudan and the Red Sea area are unlikely to have any immediate impact on the locust situation in West and North-West Africa. This note therefore focuses on an assessment of the situation as it may affect Morocco, Algeria, Tunisia and Libya.

Since the Alert was issued, there have been further developments. These include a small outbreak that is now in progress in **Mali** and limited control operations have started there. Local breeding has been reported in southeastern **Algeria** and southwestern **Libya**. Surveys are underway by the national authorities and small-scale control has started in Algeria. Unusually heavy rainfall has occurred over a large swathe of locust habitat in western Mauritania and in the Adrar Souttouf in southern **Morocco** right up to the plains east of the Atlas Mountains in Oued Draa. Some adults

from the existing locust populations in Mauritania have moved into these areas where conditions should be favourable for breeding.

In terms of executing preventive control, FAO considers that the first step is the careful monitoring of all typical locust habitats supporting green vegetation by locust survey teams. FAO will continue to provide satellite images to assist teams in identifying likely areas. Any gregarizing locust populations in these areas should be controlled. However given the expected drop in temperatures as winter sets in, the rate of reproduction will slow down, giving teams more time to discover and control locust concentrations.

An outbreak is the first and earliest stage in the transition from a calm (recession) situation to that of a plague. If additional outbreaks develop in other regions, the next stage, an upsurge, can occur. If this is not controlled, a plague could develop but not in the near future. Many ecological factors including continuing rainfall in the winter and spring breeding areas have to come in to play, if the present locust populations are to continue growing. It is not necessary for North African countries to undergo a full mobilisation of their resources as if a Desert locust plague was imminent. What is needed is a more moderate effort to check likely areas and control the small populations that are found. This can be done with much more limited resources preferably in close collaboration with FAO. As the situation and the ecological factors develop, further adjustments either decreasing the survey and control teams or increasing them can be made. The FAO Desert Locust Information Service will continue to keep all countries informed on a regular basis through the monthly Bulletin, supplemented by Updates and Alerts as necessary.

The most up-to-date information on the situation is available on the Internet (www.fao.org/news/global/locusts/locuhome.htm) as well as maps of the latest infestations (193.43.36.11/mapper).

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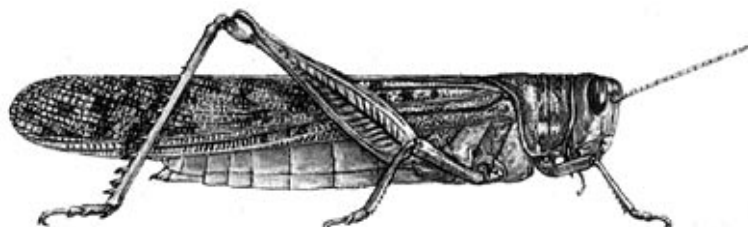
Telephone: +39 06 570 52420 (7 days/week, 24 hr)

Facsimile: +39 06 570 55271

E-mail: ecl@fao.org

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DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations



No. 300

(3 October 2003)



General Situation during September 2003 Forecast until mid-November 2003

There was a significant increase in Desert Locust activity in Niger during September that may develop into a localized outbreak. Small-scale breeding continued in Mauritania, Mali and Sudan where low numbers of solitary adults and hoppers were reported. Isolated adults were present along the Indo-Pakistan border. During the forecast period, locust numbers will increase in the Sahel as new adults appear from current breeding. As vegetation dries out, further concentration and gregarization will occur in Niger, leading to the formation of small bands and perhaps a few small swarms. Some of these may move towards the north and west. All efforts should be made to monitor the developing situation carefully.

Western Region. The situation deteriorated in Niger as more infestations were found during September in Tamesna because of unusually good ecological conditions and breeding. In those areas where vegetation was drying out, hoppers were concentrating in the remaining green vegetation and starting to gregarize, forming small groups and a few bands. Similar populations may be present in the Air where adults and hoppers were seen in August. As locusts increase and gregarize further, a potentially dangerous situation could develop and lead to an

outbreak. New adults will appear and may form a few small swarms. Some of these may move north and west towards northeastern Mali and southern Algeria. Limited control operations may be required during the forecast period. Elsewhere, small-scale breeding continued in southern Mauritania and northern Mali where conditions remain favourable. A single locust was seen in northern Senegal.

Central Region. Locust numbers increased slightly in Sudan where small-scale breeding continued in the Northern Darfur and is probably in progress in Northern Kordofan, White Nile and in the east near the Eritrean border. A similar situation is expected to be occurring in western Eritrea. During the forecast period, locusts are likely to appear in the east along the Gash and Atbara Rivers in Sudan where additional breeding could occur, and a few adults may appear on the Red Sea coastal plains. In Eritrea, isolated adults were seen in one area on the coastal plains and more adults could appear during the forecast period. No locusts were reported elsewhere in the region although good rains fell along the Red Sea coast in Yemen where small-scale breeding may occur.

Eastern Region. Isolated adults persisted in the summer breeding areas in Pakistan and are almost certainly present in adjacent areas in Rajasthan, India. Although vegetation remains unusually green, locust numbers will decline as the monsoon ends and vegetation dries out. No significant developments are expected.

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No. 300

DESERT LOCUST BULLETIN



Weather & Ecological Conditions in September 2003

Conditions continued to be unusually favourable for breeding over a widespread area extending from Mauritania to western Eritrea for a third month in a row. By the end of September, rainfall continued in most places but was declining in some and vegetation was starting to dry out.

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) fluctuated between 15 and 20N during September with periodic surges over northern Mauritania and Mali to 24N. Consequently, rainfall continued in many places throughout the Sahel, mainly during the first two decades of the month. In Mauritania, good rains fell throughout the south, particularly in the southwest (Trarza and Brakna) and to a lesser extent in other regions (Tagant and the two Hodhs) where favourable breeding conditions prevailed over a widespread area. By the end of the month, some vegetation started to dry out in the southeast. Good rains fell during the first and third decades in Inchiri that should be sufficient for breeding. Light rain was reported in the north (Adrar, Dakhlet, Tiris Zemmour) where the vegetation is still dry. Light rain fell during the first two decades in the Adrar des Iforas, Mali and in the Air and Tamesna, Niger where green vegetation persisted. By the end of the month, some places were starting to dry out in Niger due to high temperatures and persistent hot winds. In northeastern Chad, light rains may have fallen during the first decade between Biltine and Fada where green vegetation is present. In Morocco, a few areas were green south of the Atlas Mountains where it rained in August. Dry conditions prevailed in Algeria. Satellite imagery suggests several remote areas where there may be green vegetation in central Mauritania (Tidjikja to Tichit; Aoukar), northern Mali (between Timetrine and Tombouctou; Tamesna up to 1730N) and Niger (Tin Amzi and south of the Lazaouak Valley in Tamesna; western Air).

In the **Central Region**, good rains continued to fall in the summer breeding areas in Sudan although there was a noticeable decline during the month. During the first decade, rains were particularly heavy

near Kassala and in adjacent areas of western Eritrea. Conditions remain favourable for breeding over large areas of Northern Darfur, Northern Kordofan, White Nile and Eastern States. Satellite imagery suggests that vegetation may also be unusually green in the Teiga Plateau (N. Darfur) and north of Kassala (the Gash River and northwest of Derudeb). Significant cloud activity was seen over the Red Sea coastal plains of southern Eritrea and Yemen. Light to moderate rainfall was reported on the Yemen side and green vegetation was present. Along the Gulf of Aden coast, heavier rains fell east of Aden while conditions had become dry in the interior of Shabwah near Ataq. In Djibouti, green vegetation was present on the northern coastal plains between Tadjourah and Obock. In northern Somalia, vegetation was dry along the coast west of Berbera due to high temperatures but was green on the escarpment. Light to moderate rains fell near Dire Dawa and Jijiga during first half of September.

In the **Eastern Region**, favourable breeding conditions prevailed along most of the Indo-Pakistan border except for parts of Rajasthan, India (southwest of Jaisalmer) and the Khairpur Desert, Pakistan. Rainfall declined in both countries and only light rain fell in a few places in Rajasthan during the first half of September, suggesting that the monsoon is ending.



Area Treated

No control operations were reported during September.



Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• SITUATION

During the first decade of September, scattered hoppers and adults continued to mature in the south between Aioun El Atrous (1702N/0941W) and Nema (1632N/0712W), north of Kiffa (1638N/1124W), southwest of Tidjikja (1829N/1131W) and east of Nouakchott. During the second decade, breeding continued southwest of Tidjikja where adult densities increased to 2000 per ha. Isolated hoppers and adults were also reported northeast of Kiffa and in Aoukar between Boutilimit (1740N/1446E) and Akjoujt (1945N/1421W).

• **FORECAST**

Locust numbers will continue to increase as breeding continues throughout the south. As vegetation dries out, adults are likely to concentrate in the southwest and in Inehiri and laying may occur in areas of recent rainfall. There is a slight possibility of a few adults moving further north into Tiris Zemmour, especially if additional rainfall occurs there.

Mali

• **SITUATION**

During September, scattered adults were reported in several wadis in the Adrar des Iforas near Aguelhoc (1927N/0052E) and Kidal (1827N/0125E). Although most of the hoppers that were present in these areas in August had fledged, first to third instar hoppers were seen further west in the Timetrine near Tinkar in W. Admar (1930N/0035W) in mid September. Isolated immature adults were also reported on the plains east of Gao.

• **FORECAST**

Locust numbers will continue to increase as breeding continues in those areas that remain green in the Adrar des Iforas and, to a lesser extent, in the Tilemsi Valley and Timetrine. Additional infestations are almost certainly present in Tamesna where small-scale breeding is likely. As vegetation dries out, locusts may concentrate and form a few small groups. There is a possibility that a few adult groups or small swarms may appear from Niger from the end of October onwards. Surveys are recommended in all these areas.

Niger

• **SITUATION**

As a result of good breeding during August and early September, there was a considerable increase in locust numbers and density in Tamesna. Solitary hoppers (mainly second instar mixed with all other instars), fledglings, immature and mature adults were present during September between Agadez (1700N/0756E) and In Abangharit (1754N/0559E) at densities of 10-500 per ha with a few places reporting as high as 1000 locusts per ha. Copulation was in progress. From the 18th onwards, many of the hoppers were becoming transiens and forming groups at densities of 20-100 hoppers per bush. This is typical behaviour during the early stages of the gregarization process. Solitary mature adults, at densities of 1000-1500 per ha, were forming groups at two places near In Abangharit on a total of 400 ha. By the end of the month, small late instar bands were seen at four places with densities of 5-150 hoppers per sq. m.

Elsewhere, scattered immature adults were seen near Tillaberi (1428N/0127E) in early September. Scattered hoppers and immature and mature

solitary adults were seen during grasshopper control operations in Zinder near Tanout (1505N/0850E) during the last week of September.

Although no reports were received, there is a strong possibility that locust numbers are increasing in the western and central Air where small-scale breeding was reported in August.

• **FORECAST**

Locust numbers will continue to increase as breeding continues in those areas that remain green in Tamesna. New adults will appear during October and may form groups and perhaps a few small swarms from mid October onwards. Most of these are expected to remain in the area, mature and lay again although some could move towards the north and west. A similar situation is expected in the western Air. Surveys are recommended in both these areas.

Chad

• **SITUATION**

No reports received.

• **FORECAST**

Scattered adults are likely to be present and breeding in the northeast between Biltine and Ennedi. Locust numbers will decrease as vegetation dries out. Surveys are recommended in these areas.

Senegal

• **SITUATION**

A single immature solitary adult was seen on 14 September in the north at Ndioum (1630N/1438W).

• **FORECAST**

There is a slight possibility that a few more adults will appear in the north along the Senegal River during the forecast period. No significant developments are expected.

Algeria

• **SITUATION**

No surveys were carried out and no locusts were reported up to 24 September.

• **FORECAST**

Low numbers of adults are likely to be present and breeding on a small-scale in the extreme south adjacent to the Malian border and the Adrar des Iforas. There is a possibility that a few adult groups or small swarms may appear from Niger from the end of October onwards. Regular surveys of these areas are strongly recommended.



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Morocco

• SITUATION

No locusts were reported during September.

• FORECAST

No significant developments are likely.

Libyan Arab Jamahiriya

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Tunisia

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Burkina Faso, Cape Verde, Gambia, Guinea Bissau and Guinea Conakry

• FORECAST

No significant developments are likely.

CENTRAL REGION

Sudan

• SITUATION

During September, isolated immature and mature adults were seen at 22 locations in Darfur between Nyala (1201N/2450E) and El Fasher (1337N/2522E). These were mixed with a few fourth and fifth instar hoppers and fledglings at seven of these places. Only isolated mature adults were seen at a few places north of El Obeid (1311N/3010E) in Northern Kordofan as well as in Khartoum. At the end of the month, immature adults at densities of 600-5000 per ha were seen in a few areas in White Nile State near Ed Dueim (1400N/3220E).

• FORECAST

Locust numbers will continue to increase in the coming weeks in Northern Darfur, Northern Kordofan and White Nile States. After that, vegetation is likely to dry out and low numbers of adults are expected to move towards the east where they may concentrate along the Atbara and Gash Rivers as well as on the western side of the Red Sea Hills and lay. A few adults may also appear on the Red Sea coastal plains. Regular surveys are recommended in these areas.

Eritrea

• SITUATION

Isolated solitary mature adults were seen on the central Red Sea coastal plains at four sites near Massawa (1537N/3928E) on 18-20 September.

• FORECAST

Scattered adults are almost certainly present and breeding on a small scale in the western lowlands along the Baraka River. Consequently, locust numbers are expected to increase in those areas that remain green. Additional adults are likely to appear on the Red Sea coastal plains during November and lay if rainfall occurs. Surveys are recommended in both these areas.

Somalia

• SITUATION

No locusts were seen during surveys carried out on the plateau and coastal plains in the northwest on 11-15 September.

• FORECAST

No significant developments are likely.

Ethiopia

• SITUATION

No locusts were seen during surveys on 18-20 September near Dire Dawa (0935N/4150E) and Jijiga (0922N/4250E).

• FORECAST

No significant developments are likely.

Djibouti

• SITUATION

No locusts were seen during surveys in the interior on 7-8 September and along the coastal plains near Tadjourah (1147N/4253E) and Obock (1157N/4317E) on the 17-18th.

• FORECAST

No significant developments are likely.

Egypt

• SITUATION

During September, a few hoppers and mature Desert Locust adults mixed with higher numbers of African Migratory Locusts and grasshoppers were treated at three farms near the Sudan border at Sh. Oweinat (2219N/2845E). No locusts were reported elsewhere in the Western Desert.

• FORECAST

Low numbers of locusts are likely to persist in agricultural areas near Sh. Oweinat but these do not pose a threat to neighbouring areas. No significant developments are likely.

Saudi Arabia

• SITUATION

No locusts were seen during surveys carried out on the central Red Sea coastal plains between Jeddah and Jizan on 9-24 September.

• FORECAST

Isolated adults may be present on the Red Sea coastal plains near Jizan and could breed in areas of recent rainfall. No significant developments are likely.

Yemen

• SITUATION

No locusts were seen during surveys carried out in the first three weeks of September on the Red Sea coastal plains and in the summer breeding areas of the interior near Ataq (1435N/4649E).

• FORECAST

Isolated adults may be present on the Red Sea coastal plains where small-scale breeding could occur in areas of recent rainfall. A few adults may also be present on the Gulf of Aden coast east of Aden. Regular surveys should be carried out to monitor the situation.

Oman

• SITUATION

No locusts were reported during September on the Musandam Peninsula and in the northern interior.

• FORECAST

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• FORECAST

No significant developments are likely.

EASTERN REGION

Iran

• SITUATION

During September, no locusts were reported during surveys carried out near Jask, Kahnoj and Saravan in Hormozgan, Kerman and Sistan-Baluchistan provinces respectively.

• FORECAST

No significant developments are likely.

Pakistan

• SITUATION

During the second half of August, individual immature and mature adults continued to persist in 17 places near the Indian border in the Cholistan Desert and three places west of Karachi in Lasbela Valley. No locusts were reported in the Tharparkar Desert.

During the first half of September, there was a slight decrease in reports from Cholistan while a few adults

were seen in northern Tharparkar. There was no change in the situation in Lasbela.

• FORECAST

Locust numbers will decline along the Indo-Pakistan border as the monsoon rains end and vegetation dries out. A few adults may move west towards the spring breeding areas in Baluchistan.

India

• SITUATION

No locusts were reported in Rajasthan during the second half of August and first half of September.

• FORECAST

Low numbers of locusts are likely to be present and breeding on a small-scale in Rajasthan west of Jodhpur between Barmer, Jaisalmer and Bikaner. Once the monsoon rains end and vegetation dries out, locust numbers will decline.

Afghanistan

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.



Announcements

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO 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.

Reporting by e-mail. After each survey or control operation, affected countries should send completed *FAO Desert Locust Survey and Control Forms* with a brief interpretation of the results by e-mail to eclo@fao.org.

eLocust. Updated details of a new system for recording and transmitting locust survey and control data collected in the field can be found on the Internet at: www.fao.org/news/global/locusts/elocust.htm



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Publications on the Internet. New FAO publications and forms are available for downloading at www.fao.org/news/global/locusts/pubslst.htm:

- *Desert Locust Spray Monitoring Form* and instructions (French)
- *Desert Locust Guidelines* (English, French – details below)

Desert Locust Guidelines. The French version of the *Desert Locust Guidelines* is now available as well as the English version of *Volume VI. Safety and Environmental Precautions* and an updated index. These can be downloaded from the Internet at: www.fao.org/news/global/locusts/pubs1.htm. The Arabic version will be released in the coming weeks. Please contact the Locust Group if you would like to receive hard copies.

Desert Locust research award. The FAO Commission for Controlling the Desert Locust in the Central Region (CRC) is pleased to announce a cash award for outstanding research on Desert Locust. For more details, please contact the CRC Office in Cairo (munir.butrous@fao.org).

2003 events. The following are provisionally scheduled:

- **EMPRES/CR.** 11th Liaison Officers meeting, Djibouti, 19-23 October
- **FAO/CRC/EMPRES/DLCO-EA.** 3rd meeting on the Harmonization of activities, Addis Ababa (Ethiopia), 17-21 November
- **EMPRES/WR.** 2nd Liaison Officers meeting, Agadir (Morocco), 8-13 December
- **Pesticide Referee Group.** 8th meeting, Rome, December (tba)



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

- 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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guidea Bissau and Guinea Conakry.

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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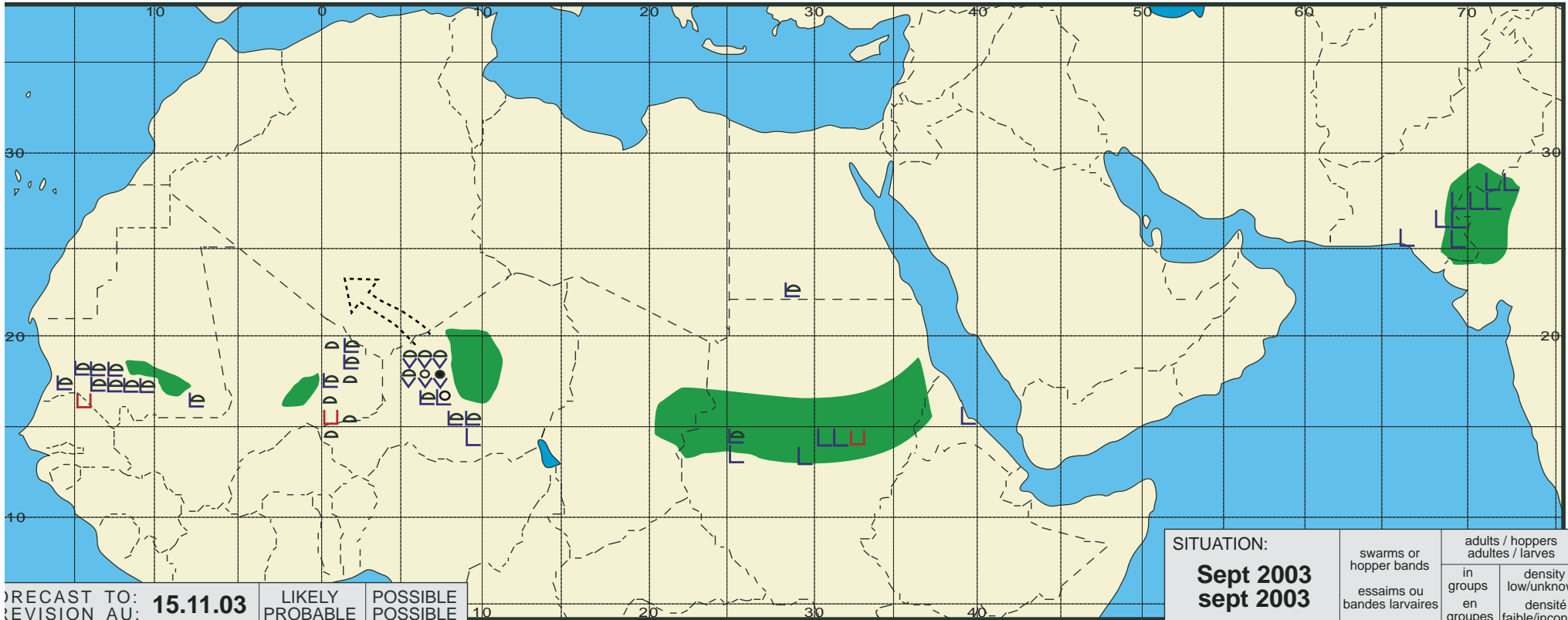
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Desert Locust Summary

Criquet pèlerin - Situation résumée

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FORECAST TO:
REVISION AU: **15.11.03**

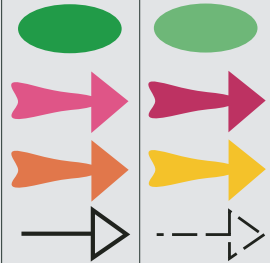
LIKELY PROBABLE
POSSIBLE POSSIBLE

favorable breeding conditions
conditions favorables à la reproduction

major swarm(s)
saim(s) important(s)

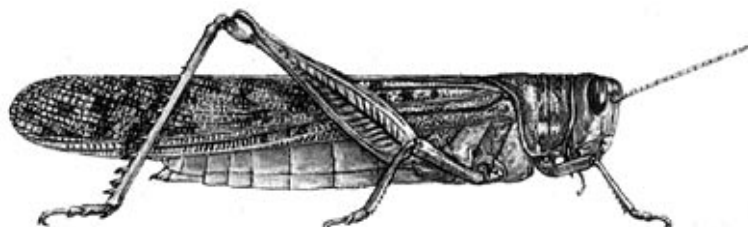
minor swarm(s)
saim(s) limité(s)

non swarming adults
adultes non essaimant



SITUATION: Sept 2003 sept 2003	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)	◼	◼	◼



DESERT LOCUST UPDATE

FAO Emergency Centre for Locust Operations



(17 November 2003)



General Situation as of 17 November 2003 Forecast until mid-December 2003

Desert Locusts have moved into southern Morocco and northern Mauritania. Control continues in the outbreaks areas in Mauritania, Mali, Niger and Sudan, and new operations were undertaken in northern Senegal and southern Morocco. There is a risk of adult groups and swarms moving into southern Morocco, northern Mauritania and Algeria, while others could cross the Red Sea from Sudan to Saudi Arabia where good rains have fallen.

Three small maturing swarms invaded southern **Morocco** near Awssard (2240N/1410W) and Tichla (2135N/1458W) on 7 November probably coming from nearby infestations in northwestern Mauritania. Aerial and ground control operations started the next day and treated 1,470 ha. In **Mauritania**, late instar hopper bands and adult groups are present in the centre and northwest, hatching is in progress in the west and northwest, and ground control operations are underway. In the past few days, mature adult groups in the north (Tiris-Zemmour) were seen arriving from the east and laying. Seven teams are in the field, supplemented by the military. In northwestern **Senegal**, ground operations treated 400 ha of small hopper groups, bands and adults south of Richard Toll (1626N/1541W) along Lake Guier. Although hoppers are present and forming groups and small bands in northern **Mali**, many of the populations have fledged and adults are grouping, mainly in Tamesna where additional copulating and egg laying were seen in early November. In **Niger**, high-density transiens

hopper groups were present in some places in Tamesna where many of the hoppers have fledged and immature adults are forming small groups. In the southern Air, mature adults were seen laying eggs and 32 ha have been treated so far. As vegetation dries out in Mali and Niger, the majority of the adult populations will form groups and a few small swarms that are likely to move towards the north and west to Algeria, Morocco and northern Mauritania where they could disperse over a large area. Smaller populations will persist in vegetation that remains green in northern Mali and Niger.

In **Sudan**, most of the infestations along the Atbara River shifted during the first half of November to the western side of the Red Sea Hills where vegetation is starting to dry out and a few small bands and swarms were reported. Adults are gregarizing and forming groups west and southwest of Khartoum, and other adult infestations are present in the north near Dongola. Ground control operations have treated an additional 2,640 ha since 1 November. So far, there are no reports of locusts on the Red Sea coastal plains. In **Egypt**, high numbers of transiens adults are present and copulating in crops along the western shore of Lake Nasser where 375 ha were treated during the first week of November. Confirmation is being sought if these are Desert or Tree Locust. Seven survey and control teams are operating between Aswan and the Red Sea coast.

The situation is likely to worsen if good rains fall in northern Mauritania and along both sides of the Red Sea during the winter. So far, no rain has been reported in northeastern Mauritania. Heavy rains fell on the coast of **Saudi Arabia** between Jeddah and Yenbo on 9-10 November. Any locusts escaping operations in northeastern Sudan may arrive in this area.

The FAO Desert Bulletin is issued monthly, supplemented by Updates during periods of increased Desert Locust activity, and is distributed by fax, e-mail, FAO pouch and airmail by the Locusts and Other Migratory Pests Group, AGP Division, FAO, 00100 Rome, Italy. It is also available on the Internet.

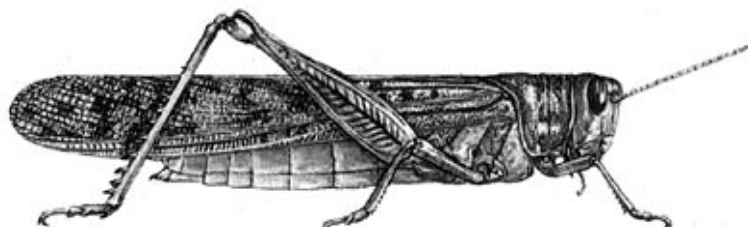
Telephone: +39 06 570 52420 (7 days/week, 24 hr)

Facsimile: +39 06 570 55271

E-mail: ecl@fao.org

Internet: www.fao.org

DLIS: www.fao.org/news/global/locusts/locuhome.htm



DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations



No. 301

(6 November 2003)



General Situation during October 2003 Forecast until mid-December 2003

The Desert Locust situation deteriorated further during October as outbreaks developed in Mauritania, Mali, Niger and Sudan. Hoppers and adults were concentrating in vegetation and starting to become gregarious and form small groups in these countries. Ground control operations are in progress against these concentrations as well as against scattered adults in Algeria, Libya and Egypt. Unusually heavy and widespread rains that fell in North West Africa could cause the situation to worsen as locusts move into newly favourable areas in the Region and breed again. Locusts may also cross the Red Sea from northeastern Sudan to Saudi Arabia. Once the winter rains begin, breeding will occur along the coastal plains of the Red Sea. There were reports of adults appearing in Morocco, Algeria, Libya, Egypt and perhaps Saudi Arabia. Consequently, a potentially dangerous situation could develop in the coming months.

Western Region. Locust outbreaks developed in northwestern Mauritania, northern Mali and northern Niger during October. Infestations consisted of a mixture of solitary and transiens adults and hoppers of all stages. As conditions dried out in many of these areas, the locusts concentrated at high densities in the remaining green vegetation, started to become gregarious and formed groups. Unusually heavy rain fell for two days over a widespread area in the western part of the region. Most of the rain

occurred in northwestern Mauritania and southwestern Morocco where breeding is likely to occur in the coming months. Low numbers of adults have moved into southern Morocco and northern Mauritania on winds associated with the storm. Other adults were reported in central, southern and southeastern Algeria and in southwestern and southeastern Libya. Breeding may occur in some of these areas and will be supplemented by adult groups moving out of Mali and Niger. Control operations were in progress in Mauritania, Mali, Niger, Algeria and Libya.

Central Region. A locust outbreak developed during October in northeastern Sudan where several small swarms were reported. Breeding continued in this area and locusts formed small groups and bands throughout the month between the Nile River and the Red Sea Hills. Adults appeared in the Western Desert in Egypt and along the shores of Lake Nasser. Although control operations are in progress in both countries, it is probable that some populations will not be detected or controlled. These are expected to move to the Red Sea coasts of Sudan and southeastern Egypt and some may cross to Saudi Arabia. Breeding will commence on the coastal plains once the winter rains start. If the rains are good this year, numbers will increase rapidly and bands and swarms will form. Scattered adults were reported on the Red Sea coastal plains in Sudan, Eritrea and Yemen.

Eastern Region. Isolated adults persisted in the summer breeding areas in Pakistan and are almost certainly present in adjacent areas in Rajasthan, India. Although vegetation remains unusually green, locust numbers will decline as the monsoon ends and vegetation dries out. No significant developments are expected.

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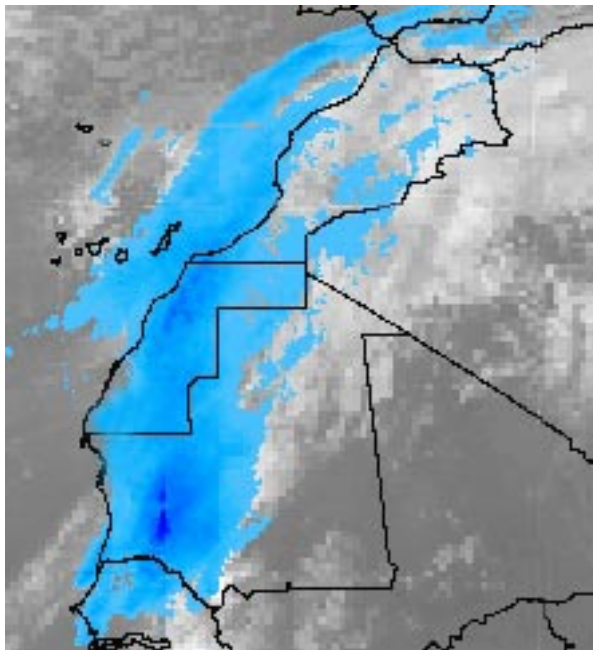
DESERT LOCUST BULLETIN



Weather & Ecological Conditions in October 2003

Vegetation was drying out in the summer breeding areas in the Sahel of West Africa and Sudan as well as along the Indo-Pakistan border during October. Unusually heavy rains fell over a large area of North West Africa from Senegal to Morocco where breeding conditions are expected to become favourable in the coming months.

In the **Western Region**, rainfall declined in the summer breeding areas in the Sahel during October as the Inter-Tropical Convergence Zone (ITCZ) retreated southwards below 15N. Nevertheless, light rains fell in southwestern and southern Mauritania where vegetation was drying out south of 17N. Unusually heavy rains fell over a large area from Senegal and western Mauritania to southwestern Morocco, western Algeria and the Atlas Mountains in Morocco on 21-22 October including Dakar (26 mm); in Mauritania, Boutilimit (67 mm), Akjoujt (41 mm), Atar (22 mm), Nouadhibou (58 mm), Zouerate (35 mm), and Bir Moghreïn (10 mm); in Morocco, Awssard (98 mm), Dakhla (14 mm), Laayoune (26 mm), Smara (13



Unusually heavy rains fell on 21-22 October from Dakar, Senegal to the Atlas Mountains in Morocco, including western and northwestern Mauritania and adjacent areas in southern Morocco. *source: US Navy rainfall estimates*

mm), Tan-Tan (103 mm) and Ouarzazate (124 mm); and Tindouf, Algeria (70 mm). Flooding was reported in many areas. Winds associated with this rainfall were from the south and southeast over Mauritania, Mali and Niger on 20-24 October. Vegetation was becoming green in northern Mauritania from earlier rains. Light rains also fell in southern and eastern Algeria. Conditions were reported to be favourable for breeding in the extreme south between Tamanrasset and the Malian border. Light to moderate rains fell in southwestern Libya near Ghat where breeding conditions are improving in some wadis. Light rains fell in the northern Adrar des Iforas near Tessalit, Mali. Vegetation was reported to be drying out in the Tilemsi Valley, Adrar des Iforas and Tamesna in Mali and in Tamesna and Air in Niger.

In the **Central Region**, rainfall declined in the summer breeding areas in Sudan during October but light rains fell in the northeast near Atbara and Kassala. Consequently, vegetation was drying out in most areas except west of Khartoum and in the northeast between the Nile and Atbara Rivers and the Red Sea Hills. Conditions are generally dry on the Red Sea coastal plains from Egypt to Djibouti except for a few places near Port Sudan and perhaps in the Tokar Delta, and near Mehimet and Sheib in Eritrea. Light to moderate rains fell at times during October on the Red Sea coastal plains in Yemen where conditions are favourable for breeding. Dry conditions prevailed along the coastal plains in Djibouti and northern Somalia, along the Red Sea coast in Saudi Arabia and on the coastal plains in southern Yemen.

In the **Eastern Region**, dry weather prevailed along the Indo-Pakistan border where vegetation was drying out and conditions were becoming less favourable for breeding. Green vegetation was present in the Lasbela area west of Karachi, Pakistan.



Area Treated

Algeria	468 ha	(18-24 October)
Egypt	203 ha	(26-30 October)
Libya	awaiting details	
Mali	80 ha	(14-19 October)
Mauritania	1,607 ha	(9-31 October)
Niger	190 ha	(15-25 October)
Sudan	4,836 ha	(15-31 October)



Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• SITUATION

During the third decade of September, scattered solitarious hoppers and adults, at densities up to 2000 locusts per ha, continued to be present near Aioun El Atrous (1702N/0941W), Moudjeria (1751N/1228W), and in Aoukar between Boutilimit (1740N/1446E) and Akjoujt (1945N/1421W).

There was a dramatic increase in locusts during the first half of October in the above areas that developed into a local outbreak. Adults were forming dense groups (up to 40 per sq. m) and becoming transiens in the Erch El Guibli east of Akjoujt (1945N/1421W) where hatching started on the 12th. Small patches of early instar solitarious and transiens hoppers at densities up to three per bush and groups of mature adults at densities up to 6,500 per ha were present in numerous places in the Takhca region northwest of Moudjeria. Solitarious and transiens adults were copulating and grouping east of Nouakchott in the Faye and Aoukar Boutilimit depressions. Scattered adults persisted near Aioun El Atrous.

During the second half of October, several new areas were reported infested. Breeding was in progress in the northwest near Tmeimichat (2119N/1420W) where mature adult groups at densities of 6,000 per ha and early instar hoppers at densities of 75 per sq m were present. Adult groups were seen in northeastern Adrar near Ouadane (2056N/1137W) and early instar hoppers at densities up to 130 per sq. m were present near Chinguetti (2027N/1221W). Localized breeding was also reported near Tidjikja (1829N/1131W) where small hopper patches were forming. Hatching was reported in Aoukar and continued east of Akjoujt where early instar hoppers at densities of 20-25 per sq. m were present. In Takhca, late instar hoppers at densities of 6 per sq. m were reported and adults were concentrating, increasing in density and forming groups in areas that remained green. By the end of October, mature adult groups were seen in Tiris-Zemmour near Zouerate (2244N/1221W).

Ground control operations started on the 9th in most of these areas and treated 1,607 ha up to the end of the month.

• FORECAST

Breeding will continue in Inchiri, Adrar and northern Trarza, causing locust numbers to increase further and become more gregarious. This will be supplemented by additional adults from late summer breeding in Tagant and the two Hodhs. Consequently,

small hopper bands and swarms may form in the northwest. During periods of warm southerly winds, some of the latter are likely to move further north into Tiris-Zemmour and adjacent parts of Morocco and Algeria where scattered adults may already be present and breeding in areas that received rainfall in October.

Mali

• SITUATION

During the first decade of October, solitarious hoppers and adults at densities up to 900 per ha were scattered in the Tilemsi Valley near Tessalit (2011N0102E) and in the Adrar des Iforas between Kidal (1827N/0125E) and the Algerian border where laying was reported at one place. From mid-month onwards, hoppers and adults were starting to change phase and form groups in the central and northern Adrar des Iforas and in the Tilemsi Valley as vegetation dried out. Adults were also present in the Timetrine.

During the third decade, scattered hoppers of all instars mixed with adults, at densities of 1,000 per ha, were seen east of the Adrar des Iforas in northern Tamesna. Hoppers were concentrating in the few areas that remained green and were becoming transiens and forming small groups at densities of up to 25 per sq. m. Copulating adults were seen in three places and up to 200 first instar hoppers per sq. m were seen at one. A few small late instar hopper bands, at densities up to 80 hoppers per sq. m, were reported on the 26th.

• FORECAST

Locusts will continue to concentrate, gregarize and form groups of hoppers and adults as vegetation becomes drier in the Timetrine, Tilemsi Valley, the Adrar des Iforas and in Tamesna. Only limited breeding will occur unless more rains fall. Consequently, adult groups are likely to move towards the northwest, north and northeast into adjacent areas of northern Mauritania and southern Algeria during periods of warm southeasterly and southerly winds.

Niger

• SITUATION

In late September and early October, a local outbreak developed in Tamesna between Agadez (1700N/0756E) and In Abangharit (1754N/0559E)



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where hoppers and adults were seen forming groups in September. During the first week of October, adult densities increased to 50,000 per ha and hoppers of all instars were becoming transiens and forming small groups at densities up to 20 hoppers per sq m. By mid month, groups of late instar hoppers and immature adults were reported in western Tamesna near Tassara (1650N/0550E) and further north on the Tazerzait Plateau (1832N/0449E) near the Algerian and Malian border. A few groups of laying adults and first instar hoppers were also seen in the latter area. Small groups of immature adults and scattered late instar hoppers were reported in the Talak area near Arlit (1843N/0721E). At the end of the month, scattered solitary adults were maturing in the southern Air Mountains, and they were copulating, becoming transiens and forming groups at densities up to 70 adults per sq. m at one location.

• FORECAST

As vegetation continues to dry out, locusts will become more gregarious and form an increasing number of groups and perhaps a few small hopper bands and swarms. Some of the populations are expected to move as adult groups towards the north and northwest into adjacent areas of Mali and southern Algeria during periods of warm southeasterly and southerly winds. Other populations will persist in parts of Tamesna and Air if conditions remain favourable and continue to breed on a limited scale.

Chad

• SITUATION

A late report indicated that scattered solitary adults at densities up to 30 per ha were present at six places in Biltine near Guereda (1431N/2205E) on 12-30 September,

• FORECAST

Locust numbers will decline in the northeast between Biltine and Ennedi as vegetation dries out. No significant developments are expected.

Senegal

• SITUATION

A few individual immature solitary adults persisted in the north at Ndioum (1630N/1438W) up to 20 October.

• FORECAST

There is a slight possibility that a few adults will appear in the north along the Senegal River during the forecast period. No significant developments are expected.

Algeria

• SITUATION

Scattered mature solitary adults were present at eight places in the extreme south between the Malian border and Tamanrasset on 17-24 October. Ground control operations treated 10 ha of adults at densities of 350 per ha. Other operations treated 468 ha of immature and mature transiens adults near Adrar (2753N/0016W) in the central Sahara on 18-24 October. At the end of the month, there was an unconfirmed report of adult groups in the southeast near Illizi (2630N0825E).

• FORECAST

Locust numbers are expected to increase in the south and southeast as adults and groups appear from the Sahel during periods of warm southerly winds. If rainfall occurs, these are likely to breed; otherwise, they may move further north towards the central Sahara. Locusts are likely to be present in the west near Tindouf where they will breed in areas of recent rainfall. Other populations are probably present in the southeast near Illizi from earlier undetected breeding. These may form a few small groups as vegetation dries out.

Morocco

• SITUATION

A late report indicated that no locusts were seen during the last week of September in Oued Draa and near Smara (2644N/1142W) in Saguia Hamra.

During the second half of October, isolated immature adults were seen south of the Atlas Mountains near Boumalne (3059N/0532W) on the 18th and at a few places further east towards the Algerian border on the 21st. Similar populations were reported in the southwest between Awssard (2240N/1410W) and Guelta Zemmur (2508N/1223W) on the 22nd. These are likely to have appeared from northwestern Mauritania on winds associated with heavy rain on 21-22 October. No locusts were seen along the coast between the Mauritanian border and Laayoune (2708N/1313W) during the same period.

• FORECAST

Small-scale breeding is likely to occur over a widespread area of the southwest where recent rains fell between the Mauritanian border and Oued Draa. Consequently, locust numbers will increase during the forecast period. Additional adults could appear in these areas from the south during periods of warm southerly winds.

Libyan Arab Jamahiriya

• SITUATION

Ground control operations were in progress against scattered mature solitary adults in 50 ha of crops near Ghat (2459N/1011E) on 15 October. There was an unconfirmed report of solitary adults at densities of 1-2 per bush in the southeast at Jebel Uweinat (2154N/2458E) and J. Arkenu (2215N/2445E) on 23-30 October.

• FORECAST

Low numbers of adults are likely to persist in the southwest near Ghat and in the southeast near J. Uweinat.

Tunisia

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Burkina Faso, Cape Verde, Gambia, Guinea Bissau and Guinea Conakry

• FORECAST

No significant developments are likely.

CENTRAL REGION

Sudan

• SITUATION

As a result of good rainfall in the summer breeding areas, a local outbreak developed in the northeast in early October. On the 9th, scattered hoppers, fledglings, and immature and mature adults were present near Shendi (1641N/3322E). Three maturing swarms were reported on 10-12th in an area of 2200 ha along the Atbara River southeast of Atbara (1742N/3400E). Late instar hoppers, fledglings and a few other small swarms were seen in the following days between Ed Damer (1734N/3358E) and Berber (1801N/3400E). Mature adults at densities up to 10,000 per ha were present at five places northwest of Kassala (1424N/3630E) at mid month.

During the last decade of October, hoppers of all instars were becoming gregarious and forming small groups and a few bands near Atbara. New infestations were found further east towards Haiya (1820N/3621E) where groups of adults were seen copulating and several small high-density hopper bands and a few swarms had formed. Scattered hoppers and adults were reported west and south of Khartoum. Low numbers of solitary hoppers and adults were present in Northern Darfur near El Fasher (1337N/2522E). There were also unconfirmed reports of a swarm in Northern Kordofan and another one in the north at Dongola. On the Red Sea coast, solitary adults were reportedly seen at night near Suakin (1908N/3717E) at the end of October and there were

unconfirmed reports of hoppers and adults at densities of 1,500 per ha.

Ground control operations started on the 15th in the Atbara area and on the 20th near Khartoum. By the end of the month, 4,836 ha had been treated.

• FORECAST

Locust numbers will increase in the northeast between the Nile and the western side of the Red Sea Hills where further breeding is expected and gregarization will continue leading to the formation of small bands and swarms. Numbers will also increase on the Red Sea coastal plains and perhaps in Wadi Oko/Diib as adults, groups and perhaps a few small swarms arrive from infested areas further west and lay near Port Sudan and Tokar Delta as well as in other areas that receive rainfall. Locust numbers will decline in the summer breeding areas in Kordofan and Darfur as vegetation dries out.

Eritrea

• SITUATION

A late report indicated that scattered solitary adults were present in the foothills of the northern Red Sea coastal plains east of Nacfa (1640N/3832E) at the end of September.

• FORECAST

If rains fall, small-scale breeding is likely to occur on the Red Sea coastal plains causing locust numbers to increase during the forecast period. This may be supplemented by adults and perhaps a few small groups appearing from northeastern Sudan.

Somalia

• SITUATION

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

• FORECAST

No significant developments are likely.

Ethiopia

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Djibouti

• SITUATION

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



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• FORECAST

No significant developments are likely.

Egypt

• SITUATION

During the last week of October, immature and mature adults at densities of 1-25 per sq. m appeared along the western and eastern shores of Lake Nasser. Some of the adults were becoming transiens and were found in cropping areas. Lower densities of immature adults were reported in the Western Desert south of Kharga Oasis at Baris (2439N/3035E) on the 30th. Ground control operations treated 203 ha on 26-30 October. No locusts have been seen on the Red Sea coastal plains so far.

• FORECAST

Small-scale breeding is expected to occur along the shores of Lake Nasser. Locusts are likely to appear on the southeastern coastal plains of the Red Sea between Shalatyn and Abu Ramad and start to lay if rainfall occurs.

Saudi Arabia

• SITUATION

No locusts were seen during surveys carried out on the central Red Sea coastal plains between Jeddah and Jizan on 9-24 September.

On 24 October, locals reported seeing a small yellow swarm on the northern Red Sea coast at Yenbo (2405N/3803E) and Bader (2345N/3845E) and individual adults at Thual (2217N/3906E). Survey teams were unable to locate these populations on the following day. No locusts were seen on 12-27 October elsewhere on the Red Sea coast or in the central and northern interior.

• FORECAST

There is a risk that adults and perhaps a few small groups or swarms could appear on the Red Sea coastal plains from Sudan during the forecast period. If rains fall, breeding will occur, causing locust numbers to increase in these areas.

Yemen

• SITUATION

During October, isolated adults were maturing on the Red Sea coastal plains between Hodeidah (1450N/4258E) and Bayt Al Faqih (1430N/4317E). No locusts were seen on the coastal plains near Aden.

• FORECAST

Small-scale breeding is expected to occur on the Red Sea coastal plains, causing locust numbers to increase but remain below threatening levels. The risk of adults appearing from the western side of the Red Sea is low.

Oman

• SITUATION

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

• FORECAST

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• FORECAST

No significant developments are likely.

EASTERN REGION

Iran

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Pakistan

• SITUATION

During the second half of September, isolated maturing adults were reported 22 places near the Indian border in Cholistan and Tharparkar deserts as well as west of Karachi in Lasbela. A few first to fourth instar hoppers were seen in four of these locations.

During the first half of October, isolated maturing adults persisted at 24 places in the above-mentioned areas and individual hoppers were seen at two.

• FORECAST

Locust numbers will decline along the Indo-Pakistan border as vegetation dries out. A few adults may move west towards the spring breeding areas in Baluchistan while others could persist in Lasbela.

India

• SITUATION

No locusts were reported in Rajasthan during the second half of September.

During the first half of November, isolated adults were present at 17 places in Rajasthan near Jaisalmer (2652N/7055E) and Barmer (2543N/7125E).

• FORECAST

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

Afghanistan

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.



Announcements

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO 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.

Reporting by e-mail. After each survey or control operation, affected countries should send completed *FAO Desert Locust Survey and Control Forms* with a brief interpretation of the results by e-mail to eclo@fao.org.

eLocust. Updated details of a new system for recording and transmitting locust survey and control data collected in the field can be found on the Internet at: www.fao.org/news/global/locusts/elocust.htm

Publications on the Internet. New FAO publications and forms are available for downloading at www.fao.org/news/global/locusts/pubslst.htm:

- *Desert Locust Spray Monitoring Form* and instructions (French)
- *Desert Locust Guidelines* (English, French – details below)

Desert Locust Guidelines. The French version of the *Desert Locust Guidelines* is now available as well as the English version of *Volume VI. Safety and Environmental Precautions* and an updated index. These can be downloaded from the Internet at: www.fao.org/news/global/locusts/pubs1.htm. The Arabic version will be released in the coming weeks. Please contact the Locust Group if you would like to receive hard copies.

Desert Locust research award. The FAO Commission for Controlling the Desert Locust in the Central Region (CRC) is pleased to announce a cash award for outstanding research on Desert Locust. For more details, please contact the CRC Office in Cairo (munir.butrous@fao.org).

2003-2004 events. The following are provisionally scheduled:

- **FAO/CRC/EMPRES/DLCO-EA.** 3rd meeting on the Harmonization of activities, Addis Ababa (Ethiopia), 17-20 November
- **EMPRES/WR.** 2nd Liaison Officers meeting, Agadir (Morocco), 15-19 December
- **Pesticide Referee Group.** 8th meeting, Rome, 26-29 January
- **Desert Locust Technical Group Workshop.** 8th meeting, Nouakchott (Mauritania), March
- **CRC.** 24th session of the Commission and 26th session of the Executive Committee, Jeddah (Saudi Arabia), 17-22 April
- **CLCPRO.** 1st Executive, Niamey (Niger), May
- **SW Asia Commission.** 24th session, Kabul (Afghanistan), October



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



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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

- 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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guinea Bissau and Guinea Conakry.

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

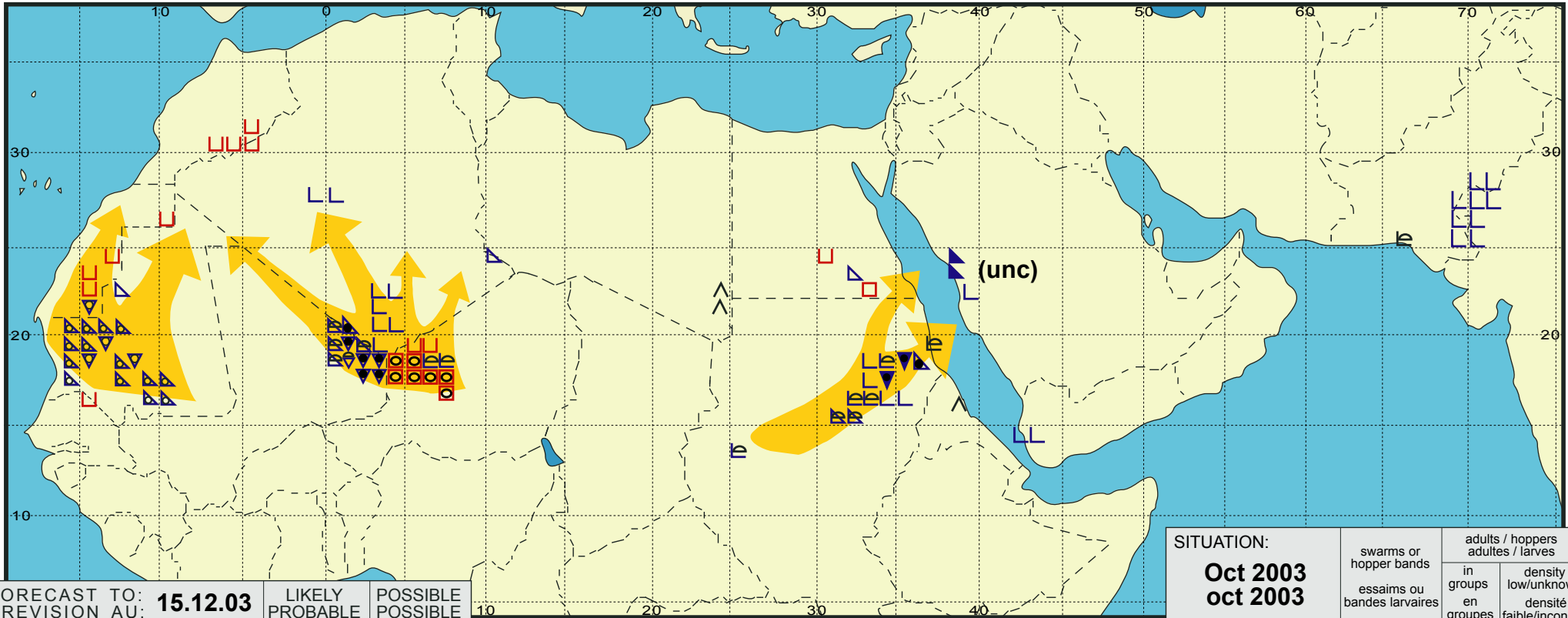
- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.



Desert Locust Summary

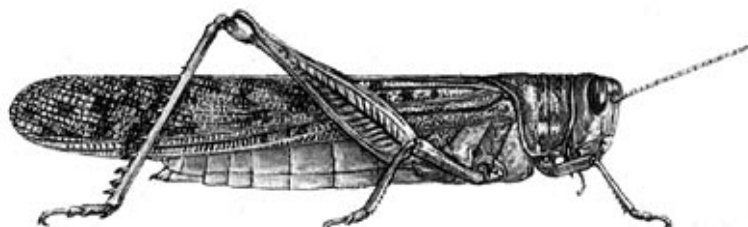
Criquet pèlerin - Situation résumée

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FORECAST TO: PREVISION AU: 15.12.03	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 2003 oct 2003	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)			



DESERT LOCUST UPDATE

FAO Emergency Centre for Locust Operations



(17 December 2003)



**General Situation as of 17 December 2003
Forecast until mid-January 2004**

Swarms have started to form in Mauritania where breeding continues in many areas. Although locust numbers are declining in Mali and Niger, swarms can still form and move towards North West Africa. A swarm arrived on the Red Sea coast in Sudan from nearby outbreak areas and hoppers are hatching and forming bands in Saudi Arabia.

Swarms started to form in **Mauritania** during the first decade of December when teams saw 11 immature swarms in northern Trarza (Aguilal Faye area). Three other swarms flew over Nouakchott on 4-6 December and one swarm was seen southwest of Akjoujt. More laying and hatching has occurred in northern Trarza and in Tiris-Zemmour (north of Zouerate). Hopper bands are forming there as well as in parts of Inchiri and southern Adrar. In southern **Morocco**, mature groups of adults are present from the Mauritanian border to Bir Anzarane. Hatching is in progress near Tichla where small bands are forming and hoppers have reached the fourth instar. A similar situation may be in progress in western **Algeria**. Low temperatures will delay locust maturation in northern Mauritania and in adjacent areas of Morocco and Algeria. Ground control operations treated 19,200 ha (full cover and barrier) in Mauritania and 2,352 ha in Morocco during the first decade of December.

Although locust infestations are declining in **Mali** and **Niger**, groups of hoppers and young adults remain in Tamesna and the eastern Adrar des Iforas (Mali) and in the southeastern Air Mountains (Niger). Bands are forming in Mali where one swarm has been reported so far. During the first decade of December, ground operations treated 9,642 ha in Mali and 1,680 ha in Niger. Locust numbers will continue to decline in both countries as groups and swarms form and move towards the north and northwest.

In **Sudan**, a mature swarm was first reported on the Red Sea coast on 10 December north of Port Sudan where it was seen laying. Solitary breeding is in progress in the Tokar Delta, and control operations declined against hopper and adult groups in the summer breeding areas in Northern Kordofan but continue near the Atbara River where fledging is in progress. More adults, groups and a few swarms are expected to appear on the Red Sea coastal plains and lay eggs that will hatch in the coming weeks. Some more groups and swarms may cross the Red Sea to **Saudi Arabia** where additional adult groups were seen laying eggs on the coastal plains between Jeddah and Yenbo. New reports indicate that some groups moved east and south into the Asir Mountains in late November and early December, reaching the interior north and east of Medina and east of Taif where they laid eggs. This is very unusual at this time of year. Hatching has already started in some places and hoppers are forming bands. Control operations treated 3,565 ha during the first week of December in Saudi Arabia.

The FAO Desert Bulletin is issued monthly, supplemented by Updates during periods of increased Desert Locust activity, and is distributed by fax, e-mail, FAO pouch and airmail by the Locusts and Other Migratory Pests Group, AGP Division, FAO, 00100 Rome, Italy. It is also available on the Internet.

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

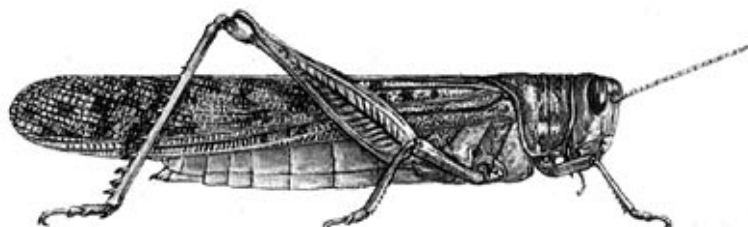
Facsimile: +39 06 570 55271

E-mail: ecl@fao.org

Internet: www.fao.org

DLIS: www.fao.org/news/global/locusts/locuhome.htm

The most up-to-date information on the situation and photos are available on the Internet (www.fao.org/news/global/locusts/locuhome.htm) as well as maps of the latest infestations (193.43.36.11/mapper).



DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations



No. 302

(2 December 2003)



General Situation during November 2003 Forecast until mid-January 2004

The Desert Locust situation remained serious as outbreaks continued in Mauritania, Mali, Niger and Sudan where hopper and adult groups as well as a few bands and swarms formed during November. Although control operations were in progress in all areas, locust groups and a few swarms invaded North West Africa and laid eggs that started to hatch by the end of November. In the Central Region, several swarms crossed the Red Sea from northeast Sudan to the coast of Saudi Arabia and laid eggs. During the forecast period, locust numbers will increase in northern Mauritania, southern Morocco, and along the Red Sea coastal plains of Saudi Arabia, Sudan, Egypt and possibly Eritrea. If good rains fall during the winter in these areas, and surveys and control operations are not extremely thorough, a potentially dangerous situation could develop by the spring.

Western Region. In early November, mature adults and groups moved into a large area of southern Morocco, northern Mauritania and western Algeria and laid eggs. Three swarms were also reported in southern Morocco. Adult groups moved north from Mali and Niger into southern and eastern Algeria. Groups of adults laid eggs in southwestern Libya, and hatching and band formation occurred in eastern Algeria in mid November. Hatching started in Mauritania and Morocco by the end of the month. A few hopper bands formed in northern Senegal. Control operations were conducted in all the above countries and continued in the outbreaks areas in

northwestern Mauritania, northern Mali and northern Niger against hopper and adult groups. By the end of the month, bands had formed in some of these areas where conditions remained favourable. Elsewhere, scattered adults were seen in northwestern and southeastern Libya. More hatching and band formation will occur in northern Mauritania, southern Morocco and western Algeria during the forecast period but locust maturation may be delayed by low temperatures.

Central Region. Although ground control operations continued during November against hopper and adult groups in the summer breeding areas of Sudan, adults started to move out of these areas towards the north and the northeast. Adults appeared in the Tokar Delta on the Red Sea coast of Sudan by mid month, groups were laying eggs in southern Egypt and several swarms invaded the coastal plains north of Jeddah, Saudi Arabia and laid. Control operations were mounted in Egypt and Saudi Arabia. So far, good rains have only fallen on the northern coastal plains in Saudi Arabia where conditions are favourable for breeding. Little rain has so far occurred on the coast of Sudan and Egypt where conditions are only just starting to improve. Elsewhere, scattered adults were present in the Western Desert in Egypt and on the Red Sea coastal plains in Yemen. More adults, including a few swarms, are expected to appear on both sides of the Red Sea. Hopper bands are likely to form on the Saudi Arabian coast and breeding should commence on the coasts of Sudan and Egypt in the coming weeks.

Eastern Region. Isolated mature adults persisted in the summer breeding areas along the border of Pakistan and India. Locust numbers will decline as vegetation continues to dry out. No significant developments are expected.

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Weather & Ecological Conditions in November 2003

Breeding conditions improved over a large part of North West Africa from western Mauritania to Morocco and western Algeria where unusually heavy rains fell in October. Conditions also improved along part of the Red Sea coast in Saudi Arabia and are slowly getting better on the coasts of Sudan and Egypt. Green vegetation persisted in parts of Mauritania, Mali, Niger and Sudan.

In the **Western Region**, summer rains ended in the Sahel and very little rain fell elsewhere during November except for light showers in Algeria (Bechar in the north and near Adrar and Tamanrasset) and Morocco (Atlantic coast near Tan-Tan and Guelmim). Nevertheless because of the exceptional rains in October, breeding conditions improved over a large portion of the western Sahara extending from western Mauritania and southwestern Morocco to northern Mauritania, western Algeria and the Oued Draa Valley in Morocco. In Mauritania, vegetation was becoming green in northwestern Tiris Zemmour from Bir Moghrein to about 9W and throughout Inchiri. Green vegetation persisted between Akjoujt and Ouadane, and in parts of southern Adrar, northern Tagant, Brakna and Trarza. In Mali, vegetation was drying out in Timetrine, the Tilemsi Valley and throughout most of the Adrar des Iforas where only patches of green vegetation remain in some wadis. In Tamesna and the eastern Adrar des Iforas, conditions were still favourable for locust survival and limited breeding. In Niger, green vegetation persisted in most of Tamesna, including the northwest, and in western and southeastern Air. Rains fell in the latter area on the 13th. In Morocco, green vegetation developed over a widespread area from south of the Atlas Mountains to the extreme southwest. In Algeria, breeding conditions were favourable in the south (between Tamanrasset and the Mali/Niger borders), the southeast (near Illizi) and in the west (near Tindouf). Prevailing winds during November could have allowed locusts to move from Niger and Mali to Algeria on most days except for one (the 15th) when they may have moved from northern Mali to northern Mauritania. In Libya, vegetation was reported to be green and the soil was moist in the

northwest (Al Hamada Al Hamra and Ghadames) and in the southwest near Ghat.

In the **Central Region**, vegetation continued to dry out in the interior of Sudan where only small areas remained green in northwestern Northern Kordofan, the Baiyuda Desert, southwest of Khartoum and on the western side of the Red Sea Hills north of Haiya. Light rain fell on two occasions on the Red Sea coast in Sudan between Suakin and Port Sudan and during the last decade of the month on the southeastern coastal plains in Egypt between Abu Ramad and Shalatyn. Consequently, conditions were improving in these areas. Moderate to heavy rains fell twice during November along the Red Sea coastal plains in Saudi Arabia between Jeddah and Yenbo where breeding conditions were improving. Green vegetation persisted along the central Red Sea coastal plains in Yemen but was starting to dry out in some places because of a lack of rainfall. Dry conditions were reported along the coastal plains in Eritrea and southern Yemen. Light to moderate rain associated with a tropical storm from the Indian Ocean fell in a few places in northeastern Somalia and southeastern Ethiopia at mid month. Although winter rains were reported to have commenced on the northern Somali coastal plains west of Berbera, vegetation was still dry.

In the **Eastern Region**, dry weather prevailed along the Indo-Pakistan border where vegetation continued to dry out and conditions were not favourable for breeding.



Area Treated

Algeria	2,450 ha	(1-19 November)
Egypt	613 ha	(November)
Libya	900 ha	(5-7 November)
Mali	3,361 ha	(1-20 November)
Mauritania *	12,689 ha	(1-30 November)
Morocco	8,873 ha	(8-30 November)
Niger	92 ha	(1-22 November)
Saudi Arabia	3,000 ha	(18-30 November)
Senegal	650 ha	(1-16 November)
Sudan	12,000 ha	(November est.)

* includes barrier treatments protecting 8,956 ha



Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• SITUATION

During November, infestations were present in three main areas. In the centre, late instar solitary and transiens hoppers and immature adults continued to form small groups in the Agane and Aoukar areas north of Boutilimit (1740N/1446E) and west of Moudjeria (1751N/1228W). This led to the development of a few immature swarms during the second decade. Mature adults and laying were also reported. By the end of the month, hopper bands had formed in the Agane area.

In the northwest, hatching continued during the first two decades in Inchiri, southern Adrar and Dakhlet Nouadhibou, causing bands to form by the end of the month. There were many local reports of mature adult groups moving towards the north throughout November.

In the north, dense mature adults and groups appeared in Tiris Zemmour near Bir Moghrein (2510N/1135W) at the beginning of the month and laid eggs. Later in the month, additional very dense laying groups were seen further east in the Ghallaman area, near Zouerate (2244N/1221W) and near Bir Moghrein. Hatching started at the end of the month north of Zouerate at Tenyemoumat (2318N/1231W). During November, control teams treated 3,733 ha (full coverage) and 8,956 ha (barrier).

• FORECAST

Breeding will continue in the north and northwest (Tiris Zemmour, Inchiri, Dakhlet Nouadhibou) where hopper groups and bands will form. Adults will continue to form groups and small swarms in central areas (Agane and the Aoukars). Although most of these are expected to move further north during periods of warm southerly winds, some may persist and perhaps breed in areas that remain green. Hoppers and adults will slowly mature if temperatures are low. There is a risk that additional adult groups and perhaps a few small swarms may arrive in Tiris Zemmour from northern Mali.

Mali

• SITUATION

During the first half of November, locust infestations were present in Timetrine, the Adrar des Iforas and northwestern Tamesna. In Timetrine, transiens hoppers and immature adults were present and, in some places, were forming groups. High densities of transiens adults, up to 10,000/ha, and a fifth instar hopper band, were treated at one place on the 10th.

In the Adrar des Iforas, scattered solitary immature and mature adults, at densities up to 1,000/ha, were present between Kidal (1827N/0125E) and the Algerian border. In Tamesna, hoppers were forming small bands at densities up to 2,000 hoppers/m² on the eastern side of the Adrar des Iforas south of Tin Essako (1826N/0229E). In most cases, these were mixed with immature and mature adults, some of which were copulating and laying eggs, at densities of up to 4 adults/m². Ground control operations treated 3,361 ha on 1-20 November.

• FORECAST

Small swarms may form from current infestations. As vegetation dries out, most of the adults will move towards the north and northwest during periods of southerly and southeasterly winds while others will persist in vegetation that remains green and slowly mature due to low temperatures. At the same time, another generation of breeding is likely to occur early in the forecast period with hoppers appearing by early December in Tamesna where they will form small groups and bands and slowly mature.

Niger

• SITUATION

During November, adults were forming groups and hopper patches were present in Tamesna and the southeastern Air Mountains. In Tamesna, immature adults and groups mixed with solitary and transiens hoppers of all instars were seen northwest of In Abangharit (1754N/0559E). Hopper densities at a few places were as high as 100/m². Some of the adults had become mature and laying was reported at one place on the 8th. In southeastern Air, mostly mature adults and groups were present in the wadis flowing out of the hills towards the plains. Adults and groups at densities of up to 12 locusts/m² were seen laying eggs at several locations in early November. Control operations treated 32 ha of mature adults in the Air near Tchigzerine (1858N/0927E) and, on the 22nd, 60 ha of first and second instar hoppers near Tchibalaghlague (1730N/0917E).

• FORECAST

Another generation of breeding is likely to occur early in the forecast period with hoppers appearing from early December onwards in northwestern Tamesna and southeastern Air. As vegetation dries out, groups and small bands are likely to form, mainly in the Air, and adults are likely to move northwards



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during periods of southerly winds. Locust maturation will be delayed if temperatures are low.

Chad

• SITUATION

No reports received.

• FORECAST

Low numbers of locusts may be present in the northeast between Biltine and Ennedi but these will decline as vegetation dries out. No significant developments are expected.

Senegal

• SITUATION

During the first half of November, hopper groups of all instars mixed with fledglings and immature adults were present at several places south of Richard Toll (1626N/1541W) along the western side of Lake Guier. Hoppers were both solitary and transiens at densities up to 12/m² while adults were primarily solitary. Hoppers were seen at two places on the northeastern side of Lake Guier at mid month. Ground control operations treated 650 ha on 1-16 November.

• FORECAST

Locust numbers are expected to decline in the north as conditions become dry. Nevertheless, a few adults may persist.

Algeria

• SITUATION

During November, locusts dispersed in many parts of the Sahara and were present in five main areas. In the west, mature adults at densities up to 180 locusts/ha were reported at numerous places near the Mauritanian/Moroccan border and Tindouf (2742N/0810W) from 4 November onwards, covering about 1,150 ha. In the central Sahara, ground control operations continued against mature adults and groups at densities up to 1,100/ha near Adrar (2753N/0016W), treating 1,027 ha. In the Mouydir region north of Tamanrasset (2250N/0528E), 190 ha of immature and mature adults and groups at densities up to 10/m² were treated. In the Ahnet area west of Tamanrasset, control teams treated 300 ha of mostly mature adults at densities up to 1,000/ha. In the southeast, groups of fledglings, immature and mature adults were present during the first two decades of November near Illizi (2630N0825E) at densities up to 50/m². Some of the

adults were seen laying eggs. On the 15th, first instar bands at densities of up to 500 or more hoppers/m² were reported from three places. Elsewhere, isolated mature adults were seen close to the border of Niger near In Guezzam (1937N/0552E) on the 17th. Control operations treated 933 ha near Illizi up to the 19th. In all, 2,450 ha were treated on 1-21 November.

• FORECAST

Locust numbers will continue to increase as adults lay their eggs in favourable areas near Tindouf, Adrar, Mouydir, Ahnet and Illizi. Although hatching and the formation of small hopper groups and bands are expected to occur in these areas during the forecast period, hopper maturation will be delayed if temperatures are low. New adults from current breeding in the Illizi area may appear by the end of the forecast period, depending on temperatures. Additional adults, small groups and perhaps a few swarms may arrive from Mali and Niger during periods of warm southerly winds.

Morocco

• SITUATION

Three small maturing swarms invaded the southwest near Awssard (2240N/1410W) and Tichla (2135N/1458W) on 7 November probably coming from nearby infestations in northwestern Mauritania. Aerial and ground control operations started the next day and treated 1,470 ha. From the second decade onwards, small, low to medium density groups of mature solitary and transiens adults continued to arrive, dispersed and laid eggs throughout the southwest between Tichla (near the Mauritanian border), Smara (2644N/1142W) and the Algerian border. The size of the infested areas varied from 400 m² to 900 ha, and densities were as high as 15 adults/m². Hatching started on 30 November near Tichla where small first instar hopper patches were forming. Isolated solitary immature adults were seen along Oued Draa and in the northeast near Bouarfa (3230N/0159W). Aerial and ground control operations treated 8,873 ha on 8-30 November, mostly in the Adrar Souttouf region in the southwest.

• FORECAST

Locust numbers will increase further as breeding and hatching continues in southern areas that received rainfall during October. Although small hopper groups and bands will form, hopper maturation will be delayed if temperatures are low. Additional adults, small groups and perhaps a few swarms may arrive from Mauritania during periods of warm southerly winds.

Libyan Arab Jamahiriya

• SITUATION

During the first week of November, ground control

operations treated 900 ha of mature adult groups that were copulating at densities of 2-5 adults/m² northwest of Ghat (2459N/1011E). Isolated mature adults were present south of Ghadames (3010N/0930E) and in the Al Hamada Al Hamra. In the southeast, scattered gregarious adults, at densities up to 15/tree were seen between Kufra (2411N/2315E) and Jebel Uweinat (2154N/2458E) on the 9-17th.

• **FORECAST**

Small-scale breeding is likely to be in progress in the southwest near Ghat where hatching is expected and hoppers will only mature slowly because of low temperatures. There is a possibility that small groups could form if locust numbers are sufficiently high. Limited breeding could also occur near Ghadames and in the Al Hamada Al Hamra. These may be augmented by locusts arriving from nearby areas in eastern Algeria during periods of warm southwesterly winds. Low numbers of adults may persist in the northwest near Ghadames and in the southeast near Jebel Uweinat.

Tunisia

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Burkina Faso, Cape Verde, Gambia, Guinea Bissau and Guinea Conakry

• **FORECAST**

No significant developments are likely.

CENTRAL REGION

Sudan

• **SITUATION**

Ground control operations continued during November against groups of hoppers and immature adults in the summer breeding areas in northwestern Northern Kordofan, southwest of Khartoum and near the Atbara River. Hatching was reported in the Atbara area up to 19 November by which time many of the adults had moved further east towards Haiya (1820N/3621E) on the western side of the Red Sea Hills. Breeding was in progress near Haiya where one 20 ha medium density late instar hopper band was reported on the 12th. In the far north, adults were maturing along the Nile River near Karima (1832N/3148E) and Dongola (1910N/3027E). Laying was reported near the latter on the 6th. Adults were first reported on the Red Sea coastal plains on 13 November in the Tokar Delta where scattered immature and mature adults were present at densities of 100-600/ha. No locusts were seen elsewhere on the Red Sea coastal plains or in the adjacent subcoastal areas in Wadi Oko/Diib on the 13-19th. Control operations treated an

estimated 12,000 ha during November in the summer breeding areas.

• **FORECAST**

The situation should improve in the summer breeding areas where breeding is likely to decline and adults will form small groups and perhaps a few swarms. As vegetation dries out, most of these will move towards the Red Sea coast but a few may remain and lay in areas that stay green, especially on the western side of the Red Sea Hills. Locust numbers will certainly increase on the Red Sea coastal plains as adults arrive from the interior and breed in areas of recent rainfall. Consequently, hopper groups and small bands may form during the forecast period along the coast. If good rains occur, breeding is likely to intensify, causing locust numbers to increase significantly.

Eritrea

• **SITUATION**

No locusts were seen on the southern coastal plains of the Red Sea between Massawa (1537N/3928E) and the Djibouti border on 6-14 November.

• **FORECAST**

If rains fall, small-scale breeding is likely to occur on the Red Sea coastal plains causing locust numbers to increase during the forecast period. This may be supplemented by adults and perhaps a few small groups appearing from adjacent areas in Sudan.

Somalia

• **SITUATION**

No locusts were seen during surveys on the plateau between Boroma (0956N/4313E) and Burao (0931N/4533E) on 10-14 November.

• **FORECAST**

Isolated adults may start to appear on the coastal plains west of Berbera if rainfall occurs.

Ethiopia

• **SITUATION**

No locusts were seen during surveys in the southeast between Dire Dawa (0935N/4150E) and the Somali border on 10-16 November.

• **FORECAST**

No significant developments are likely.



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Djibouti

• SITUATION

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

• FORECAST

No significant developments are likely.

Egypt

• SITUATION

During the first three weeks of November, immature and mature transiens adults at densities of up to 6,000 adults/ha persisted in crops and natural vegetation along the western and eastern shores of Lake Nasser and in Tushka (2247N/3126E). The mature adults were copulating. Locusts were also seen at a few places in the Western Desert near Baris (2439N/3035E). Ground control operations treated 613 ha near Lake Nasser between Abu Simbel (2219N/3138E) and Garf Husein (2317N/3252E) and in the Western Desert.

• FORECAST

Small-scale breeding is expected to occur along the shores of Lake Nasser and near W. Allaqi where hopper groups are likely to form during the forecast period. Adults and perhaps a few small groups are likely to appear on the southeastern coastal plains of the Red Sea between Shalatyn and Abu Ramad and breed in areas of recent rainfall.

Saudi Arabia

• SITUATION

On 18-20 November, several mature swarms, at densities of 2-15 adults/m², reportedly invaded the Red Sea coastal plains north of Jeddah near Thuwal (2215N/3906E) and Rabigh (2247N/3901E) and laid eggs. Ground control was immediately carried out at four locations, treating 990 ha. On the 22nd, one swarm of a density of 15-20 adults/m² appeared near Umm Lajj (2501N/3716E) and dispersed within an area of 20 km². All of these swarms probably originated from the current outbreak in northeastern Sudan. Laying by mature swarms at densities up to 100 adults/m² continued for the remainder of the month between Thuwal and Rabigh. Aerial and ground control operations treated nearly 3,000 ha on 18-30 November.

• FORECAST

Locust numbers will increase on the central and

northern Red Sea coastal plains near Thuwal and Rabigh where laying is in progress. Hatching will start in early December and small hopper bands will form throughout the forecast period. Adults are likely to be dispersed further north on the coastal plains near Umm Lajj and will mature and lay eggs. There is a risk that additional adults and small swarms may arrive on the coastal plains from the western side of the Red Sea and lay eggs in areas that receive rainfall.

Yemen

• SITUATION

A few solitary mature adults persisted on the central Red Sea coastal plains between Hodeidah (1450N/4258E) and Bayt Al Faqih (1430N/4317E) on 7-12 November. Solitary adults were also seen at two places on the coastal plains northwest of Aden (1250N/4503E).

• FORECAST

Small-scale breeding is expected to occur on the Red Sea coastal plains, causing locust numbers to increase but remain below threatening levels. The risk of adults appearing from the western side of the Red Sea is low.

Oman

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• FORECAST

No significant developments are likely.

EASTERN REGION

Iran

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Pakistan

• SITUATION

During the second half of October, isolated mature adults persisted at 18 places in Cholistan and Tharparkar deserts. Higher densities of immature adults, up to 660/ha, were seen at two of these locations. Isolated mature adults were also seen at five places west of Karachi in Lasbela and isolated second to fourth instar hoppers were seen at two locations.

During the first half of November, isolated mature adults were present at 22 places near the Indian

border in Cholistan and Tharparkar deserts.

• **FORECAST**

Locust numbers will decline along the Indo-Pakistan border as vegetation dries out. A few adults may move west towards the spring breeding areas in Baluchistan while others could persist in Lasbela.

India

• **SITUATION**

During the second half of October, isolated adults were seen at five places in Rajasthan near Jaisalmer (2652N/7055E) and Barmer (2543N/7125E).

During the first half of November, isolated mature adults persisted in the above areas and were reported from 17 places.

• **FORECAST**

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

Afghanistan

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.



Announcements

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO 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.

Reporting by e-mail. After each survey or control operation, affected countries should send completed *FAO Desert Locust Survey and Control Forms* with a brief interpretation of the results by e-mail to eclo@fao.org.

eLocust. Updated details of a new system for recording and transmitting locust survey and control data collected in the field as well as country maps can be found on the Internet at: www.fao.org/news/global/locusts/elocust.htm

Outbreak photos. Pictures of the recent outbreaks in the Western Region are available on the Internet at: www.fao.org/news/global/locusts/outbreakpix.htm

Publications on the Internet. New FAO publications are available for downloading at www.fao.org/news/global/locusts/publist.htm:

- *Technical Series No. 30: Population dynamics* (English)
- *Technical Series No. 31: Biogéographie du Criquet pèlerin en Mauritanie* (French)

Desert Locust Guidelines. The French and Arabic versions of the *Desert Locust Guidelines* are now available as well as the English version of *Volume VI. Safety and Environmental Precautions* and an updated index. These can be downloaded from the Internet at: www.fao.org/news/global/locusts/pubs1.htm. Please contact the Locust Group if you would like to receive hard copies.

Desert Locust research award. The FAO Commission for Controlling the Desert Locust in the Central Region (CRC) is pleased to announce a cash award for outstanding research on Desert Locust. For more details, please contact the CRC Office in Cairo (munir.butrous@fao.org).

2003-2004 events. The following meetings are scheduled:

- **EMPRES/WR.** 2nd Liaison Officers meeting, Agadir (Morocco), 15-19 December
- **Pesticide Referee Group.** 8th meeting, Rome, 26-29 January
- **Desert Locust Technical Group Workshop.** 8th meeting, Nouakchott (Mauritania), 7-11 March (provisional)
- **CRC.** 24th session of the Commission and 26th session of the Executive Committee, Jeddah (Saudi Arabia), 17-22 April
- **CLCPRO.** 1st Executive Committee, Niamey (Niger), May or June
- **SW Asia Commission.** 24th session, Kabul (Afghanistan), October



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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

- 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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guidea Bissau and Guinea Conakry.

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

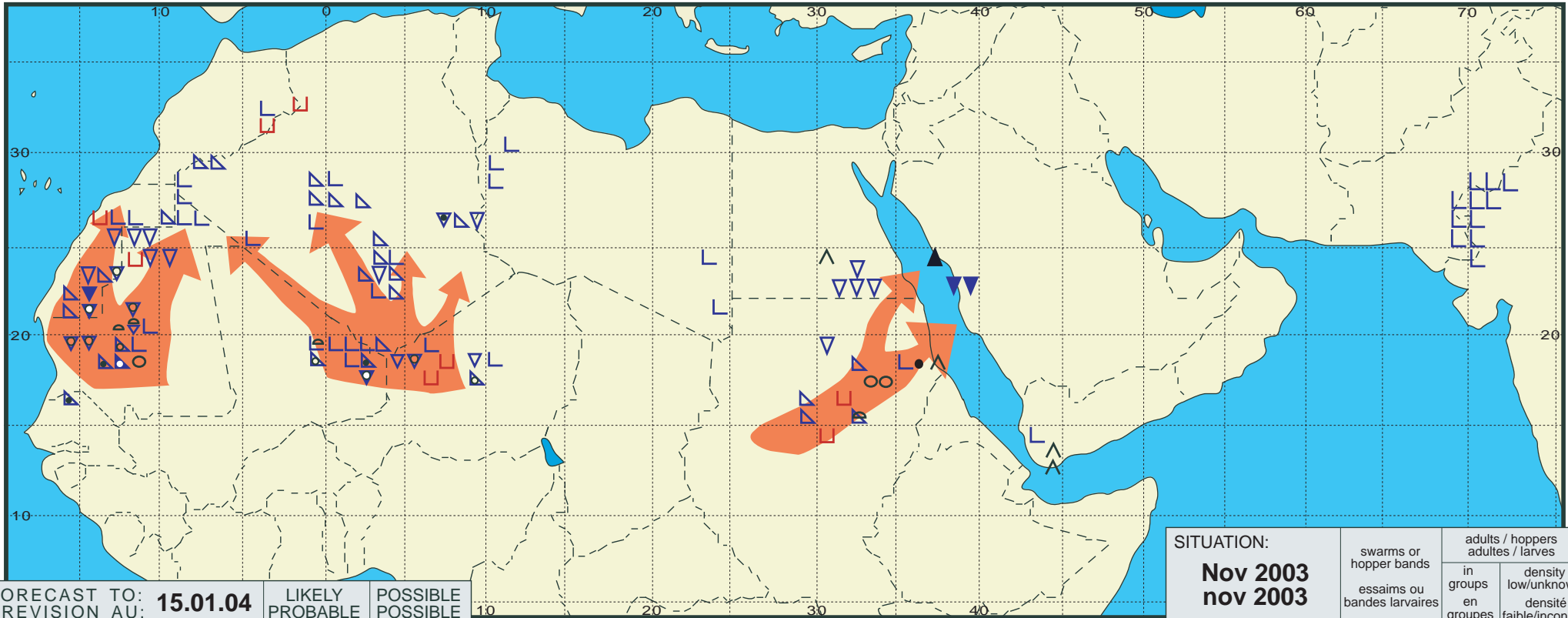
- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.



Desert Locust Summary

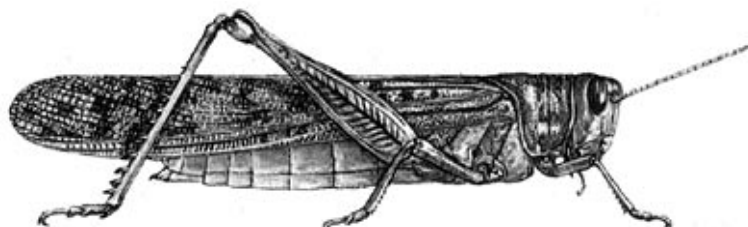
Criquet pèlerin - Situation résumée

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FORECAST TO: PREVISION AU: 15.01.04	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: Nov 2003 nov 2003	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)			



DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations



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General Situation during December 2003
Forecast until mid-February 2004

(7 January 2004)

The Desert Locust situation deteriorated further during December in West Africa and Saudi Arabia. Breeding continued and hopper bands were present in Mauritania, Mali, Niger, Morocco, Algeria, Sudan and Saudi Arabia. Swarms were reported in some of these countries. Although control operations are in progress, more swarms are likely to form in northern Mauritania, Mali, Niger and Saudi Arabia. Many of these will remain *in situ* but there is a risk that some may invade neighbouring countries.

Western Region. The locust situation is worrisome in Mauritania, Mali and Niger where breeding continued during December, giving rise to hopper bands and swarms. In all countries, there are large unsurveyed areas where conditions are favourable for breeding. More swarms are expected to form during the forecast period in these countries. Some of the swarms may move into Morocco and Algeria where breeding is already in progress and hopper bands are present. Control was underway in all countries but survey and control operations need to be strengthened in order to reduce locust numbers and prevent a further deterioration of the situation.

Central Region. There was a significant increase in locust populations along the Red Sea coast of Saudi Arabia where hatching commenced and hopper bands formed during December. These will continue to develop in the coming weeks and swarms

are expected to form. Although most of the swarms will remain on the coast, some may reach spring breeding areas in the interior and could threaten parts of Jordan, Iraq and Kuwait. Conditions are less favourable for breeding on the western side of the Red Sea where a few swarms laid and hoppers were present on the northern coast of Sudan, and hopper and adult groups were seen in the Tokar Delta. High numbers of adults persisted along the Atbara River. In Egypt, limited laying occurred near Lake Nasser. Control operations were in progress in the three countries. Elsewhere, scattered adults were reported in northern Somalia and on the Red Sea coast in Eritrea and Yemen.

Eastern Region. No locusts were reported in the region. There is a risk that some swarms may reach western Iran from the Red Sea coast and interior of Saudi Arabia.

The FAO Desert Bulletin is issued monthly, supplemented by Updates during periods of increased Desert Locust activity, and is distributed by fax, e-mail, FAO pouch and airmail by the Locusts and Other Migratory Pests Group, AGP Division, FAO, 00100 Rome, Italy. It is also available on the Internet.

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

Facsimile: +39 06 570 55271

E-mail: ecl@fao.org

Internet: www.fao.org

DLIS: www.fao.org/news/global/locusts/locuhome.htm



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DESERT LOCUST BULLETIN



Weather & Ecological Conditions in December 2003

Unusually good rains fell in central and northern Mauritania where heavy rains occurred six weeks earlier. Green vegetation persisted in Mauritania, Niger, and Algeria but was drying out in Mali. Very little rain fell along the Red Sea coast where favourable conditions are limited to just a few places.

In the **Western Region**, good rains fell in Mauritania and Tunisia during December. Light to moderate rainfall occurred on 6-7 December over a large area of central and northern Mauritania between Brakna and the Algerian border and extended into adjacent areas of the extreme south of Morocco. Some of these areas had received heavy rain six weeks earlier (21-22 October). As a result, conditions remain unusually favourable for breeding and locust survival in the centre (Tagant and Brakna) where vegetation is still green, and in the northwestern (Inchiri, Dakhlet Nouadhibou) and northern (Adrar and Tiris Zemmour) regions where vegetation is becoming green after the earlier rains. Similar sequences of rain have led to a large and rapid increase in locust populations in the past. In Morocco, only a few isolate light showers fell along the Atlantic coast near Tan-Tan. Green vegetation persisted south of the Draa Valley, in parts of the extreme south and along the border with Mauritania. In Algeria, favourable conditions persisted in the southeast and the southwest as well as north and northwest of the Hoggar Mountains. Widespread light to moderate rains fell in southern Tunisia and northwest Libya during the second week of December. In Mali, conditions were becoming unfavourable as vegetation continued to dry out in the north. Nevertheless, small patches of green vegetation persisted in parts of Tamesna and the eastern Adrar des Iforas. In Niger, green vegetation persisted in northwestern Tamesna and in the Air. Low temperatures (minimum: 2-12°C, maximum: 14-26°C) in many of the above areas will delay hatching and locust maturation as well as the drying out of vegetation.

In the **Central Region**, only isolated showers were reported in a few places during December. In Sudan,

vegetation and soil conditions were dry along the Red Sea coastal plains because of a lack of recent rainfall but breeding conditions are favourable in cropping areas in the Tokar Delta. Vegetation was reported to be dry in the summer breeding areas in Northern Kordofan, Khartoum and Atbara. In Egypt, breeding conditions remained favourable along the shores of Lake Nasser and near Wadi Allaqi. Conditions were improving on the southern Red Sea coastal plains and in the interior wadis between Shalatyn and Abu Ramad from recent rains. In Eritrea, conditions were slowly improving on the northern coastal plains. In Saudi Arabia, light to moderate rains fell in the central, northern and eastern interior during the first week. Although rain was not reported on the Red Sea coastal plains, vegetation was green in some places as far north as Yenbo. In Yemen, light to heavy rains fell on 7-8 December on the central Red Sea coast between Zabid and Al-Zuhrah where breeding conditions are favourable. These rains and clouds continued to the Aden coast and across the sea to coastal and interior areas in northern Somalia, the coastal plains from Tio, Eritrea to Djibouti and into eastern Ethiopia near Dire Dawa. More rain fell again at mid-month in northern Somalia where breeding conditions were improving. Light rains fell at times in northern Oman.

In the **Eastern Region**, dry weather prevailed along the Indo-Pakistan border where vegetation continued to dry out and conditions were not favourable for breeding.



Area Treated

Since October, nearly 175,000 ha have been treated. Of this, control teams treated 112,344 ha during December as follows:

Algeria	532 ha	(24-30 November)
	1,315 ha	(1-23 December)
Egypt	13 ha	(18 December)
Mali	9,212 ha	(21-30 November)
	17,437 ha	(1-25 December)
Mauritania *	50,209 ha	(1-31 December)
Morocco	13,736 ha	(1-31 December)
Niger	2,777 ha	(1-27 December)
Saudi Arabia	26,336 ha	(1-31 December)
Sudan	1,836 ha	(3-21 December)

* includes barrier treatments protecting 48,594 ha



Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• SITUATION

During December, the situation deteriorated further as swarms started to form during the first decade in northern Trarza (Aguilal Faye area). Three swarms flew over Nouakchott on 4-6 December. More laying and hatching occurred in northern Trarza and swarms were seen laying in Tiris-Zemmour north of Zouerate at Tenyemoumat (2318N/1231W) on the 15-19th. Consequently, additional hopper bands formed in Trarza and Tenyemoumat as well as in southern Inchiri and southwestern Adrar, northeast of Ouadane (2056N/1137W) and in Tiris-Zemmour near Ghallaman (2410N/0952W). In Dakhlet Nouadhibou, small bands and swarms were dispersed throughout the Tijirat (1929N/1557W) area. Solitarious and transiens hoppers (up to 300/m²) and adults (up to 4/m²) were also present in most all of these areas where they were forming groups. Crop damage was reported in some areas.

By the end of the month, most of the bands in Trarza, Inchiri, Adrar and north of Zouerate had reached the fifth instar and densities were 7-1,500 hoppers/m². Breeding continued near Zouerate, Ghallaman and east of Bir Moghreïn at Tamreiket (2518N/1102W). A few new swarms were also seen in this area. The latest information suggests that the situation is extremely critical because large areas are currently infested, many of the control targets are in remote areas and other potential areas where conditions are favourable for breeding and swarm formation have not been surveyed. During December, ground control teams treated 6,955 ha (full coverage) and 48,594 ha (barrier).

• FORECAST

An increased number of swarms can be expected as current hopper bands continue to fledge and adults form swarms in the north (Tiris Zemmour), northwest (Inchiri, Dakhlet Nouadhibou) and west (Adrar, Trarza). Although low temperatures are expected to delay locust maturation, more laying is likely to occur in those areas that remain favourable, and hatching and band formation could start by the end of the forecast period. Undetected breeding may be in progress in El Hank and northeastern Mauritania where bands and swarms may be forming. There is a risk that a few small swarms may arrive in Tiris Zemmour from northern Mali.

Mali

• SITUATION

During the last decade of November, breeding continued in Tamesna where there were 177 reports of hopper bands of all instars at densities up to 200 hoppers/m². Immature and mature adults and groups were also present at densities up to 15 adults/m². Adults and hoppers were scattered throughout the eastern Adrar des Iforas and in parts of Timetrine where they were grouping in patches of green vegetation. Ground control operations treated 9,212 ha.

During December, locust infestations persisted in the eastern Adrar des Iforas and Tamesna where hoppers of all instars, fledglings and immature and mature adults (at densities up to 8 adults/m²) were present. Although no hatching was reported, laying was seen in both areas. In all, there were 113 reports of hopper bands, at densities of up to 450 hoppers/m², and two reports of immature swarms at densities of 50-100 adults/m² flying on 8 December at Tin-Afazo (1813N/0234E) and on the 13th at Akelo (1755N/0251E). During the month, 17,437 ha were treated.

• FORECAST

Locust maturation will continue but will be delayed by low temperatures. Although locust numbers are expected to decline, more small bands and swarms are likely to form in Tamesna and the eastern Adrar des Iforas as vegetation continues to dry out. Some of the swarms may move towards the north and northwest during periods of warm southerly and southeasterly winds while others may persist in any remaining green vegetation. Limited hatching may occur during the forecast period in areas of previous laying.

Niger

• SITUATION

During the first half of December, groups of maturing transiens and gregarious adults were present in southeastern Air near Takolokouzet Massif (1830N/0930E) where laying and hatching continued in some places and many hopper groups and bands of all instars were reported. Adult densities were estimated to be as high as 10/m² while hopper densities were up to 500/m². During the second half of December, most of the hoppers had reached the fifth instar and were fledging, forming groups of immature adults at densities up to 30 adults/m² in some places.



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Late instar hopper groups and bands continued to slowly mature.

The situation is more worrisome in Tamesna where there is no information about locust populations. It is believed that more breeding has occurred there during December and significant numbers of hopper bands may be present, particularly in the northwest where swarm formation could be in progress.

• **FORECAST**

Another generation of breeding is likely to occur in the Air and Tamesna causing locust numbers to significantly increase. Although low temperatures will delay locust hatching and maturation, hopper bands and adult swarms are expected to form. Some of the swarms that form may move northwards during periods of warm southerly winds while others are likely to persist in areas of green vegetation.

Chad

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Senegal

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Algeria

• **SITUATION**

During the last decade of November, control operations continued against maturing adults and first instar hoppers in the Ahnet area west of Tamanrasset (2250N/0528E), and hopper groups near Illizi (2630N0825E). Isolated mature adults persisted in the west near Tindouf (2742N/0810W). Ground operations treated 532 ha.

During December, breeding continued in the southeast near Illizi and Djanet (2434N/0930E) where 1,170 ha of hopper groups and bands of all instars, at densities up to 2,000/bush, mixed with mature adults, at densities up to 3000/ha, were treated. Breeding on a smaller scale occurred in the Ahnet area where 145 ha of first to third instar hoppers at densities up to 300/bush were treated. In the west, 47 ha of mature adults were controlled south of Beni Abbes (3011N/014W)

and along the Mauritanian border near Tindouf in early December. Elsewhere, scattered solitary adults were present west of Tamanrasset, northeast of In Salah (2712N/0229E) and in the extreme south near the Niger border.

• **FORECAST**

Locust numbers will increase near Tindouf where hatching is likely to occur. This may be supplemented by swarms from neighbouring areas of northern Mauritania. Hoppers will slowly mature near Illizi and Djanet where swarms may eventually form. Additional breeding may occur west of Tamanrasset and in other areas that remain green. Numerous adult groups and swarms are likely to appear in the south during periods of warm southerly winds from Mali and Niger.

Morocco

• **SITUATION**

In early December, mature groups of adults were present from the Mauritanian border to Bir Anzarane (2353N/1431W) and near Laayoune (2708N/1313W). At times during the month, more groups arrived from adjacent areas in Mauritania. Hatching started near Tichla (2135N/1458W) in late November and spread in other areas during December where small groups and bands formed with densities up to 1,000 hoppers/m². By 20 December, hoppers had reached the last instar stage and fledging was underway during the remainder of the month. Aerial and ground control operations treated 13,736 ha during December.

• **FORECAST**

Locust numbers will increase further as breeding and hatching continues in southern areas that received rainfall during October. Although small hopper groups and bands will form, hopper development will be delayed if temperatures are low. Additional adults, small groups and perhaps a few swarms may arrive from Mauritania during periods of warm southerly winds.

Libyan Arab Jamahiriya

• **SITUATION**

During December, a few individual gregarious mature adults were reported on the 11th at two places southwest of Jebel Uweinat (2154N/2458E) near the Sudanese border. Moderate densities of hatchlings and first to fourth instar gregarious hopper groups were seen at three locations northwest of Ghat (2459N/1011E) near the Algerian border on the 21-23rd.

• **FORECAST**

Small-scale breeding will continue in the southwest near Ghat where fledging is expected to occur and a few small groups or swarms could form during the forecast period. Hopper and adult maturation are likely to be delayed because of low temperatures. Small-

scale breeding may occur in areas of recent rainfall near Ghadames and in the Al Hamada Al Hamra. These may be augmented by locusts arriving from nearby areas in eastern Algeria during periods of warm southwesterly winds. Isolated adults may in the southeast near Jebel Uweinat.

Tunisia

• SITUATION

No reports received.

• FORECAST

A few adults may appear in the south during periods of warm southerly winds and breed in areas of recent rainfall. Low temperatures will delay locust maturity and limit migration.

Burkina Faso, Cape Verde, Gambia, Guinea Bissau and Guinea Conakry

• FORECAST

No significant developments are likely.

CENTRAL REGION

Sudan

• SITUATION

During December, locust numbers continued to decline in the summer breeding areas. Ground control operations treated 100 ha in Northern Kordofan during the first week. No locusts were reported in Northern Kordofan or Khartoum States after mid month. Groups of transiens fledglings and immature adults, at densities up to 10 adults/m², were scattered within about 10,000 ha of sorghum crops along the Atbara River at mid month of which 1,300 ha were treated. No locusts were reported on the western side of the Red Sea Hills near Haiya (1820N/3621E).

On the Red Sea coastal plains, immature and mature solitary and transiens adult groups were present in millet and sorghum in the Tokar Delta. Densities progressively increased during the month from 1,000 adults/ha at the beginning to 30,000 adults/ha by the end. Second to fifth instar hoppers, at densities up to 10 hoppers/m², were reported from the first week onwards and fledging commenced at the end of the month. Ground control operations started on the 20th and treated 400 ha up to the 31st. On the northern coastal plains, three small mature swarms arrived on 10 December near Eit (2009N/3706E), dispersed and laid eggs. At the end of the month, first to third instar hoppers, at densities of 10-20 hoppers/m², were seen there as well as further north near Fodukwan (2145N/3644E). No locusts were seen elsewhere on the northern coast.

• FORECAST

Locust numbers will continue to decline along the Atbara River due to control operations and migration towards the Red Sea coastal plains. Breeding will

continue on the northern coastal plains and in the Tokar Delta where more laying is expected and small bands and swarms are likely to form. Although most of the adults are likely to remain on the plains, mature and lay if conditions remain favourable, some groups or swarms may move along the coast north towards Egypt, south towards Eritrea or across the Red Sea to Saudi Arabia.

Eritrea

• SITUATION

Isolated mature adults were seen at three places on the northern coastal plains between Embere (1628N/3856E) and Karora (1745N/3820E) during surveys carried out on 22-27 December.

• FORECAST

Low to moderate numbers of locusts will persist and increase on the northern coastal plains near the Sudanese border as well as further south near Shieib/ Shelshela. Small-scale breeding is likely to occur in those areas that receive rainfall. These may be supplemented by locusts arriving from the Sudanese coastal plains.

Somalia

• SITUATION

Isolated mature adults were seen at three places along the escarpment northwest of Hargeisa (0931N/4402E) during surveys carried out on 20-23 December.

• FORECAST

Locust numbers are likely to increase along the escarpment and coastal plains west of Berbera where small-scale breeding will occur in areas of recent rainfall.

Ethiopia

• SITUATION

No locusts were seen during surveys in the southeast near Jijiga (0922N/4250E) on 6-9 December.

• FORECAST

No significant developments are likely.

Djibouti

• SITUATION

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



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• FORECAST

A few locusts may appear in areas of recent rainfall along the northern and eastern coastal plains. No significant developments are likely.

Egypt

• SITUATION

During December, mature transiens adults, at densities up to 5 adults/10 m², were seen laying eggs along the shore of Lake Nasser, in Tushka (2247N/3126E) and near Wadi Allaqi east of Lake Nasser. Lower densities of copulating adults were seen in crops in the Western Desert at Sh. Oweinat (2219N/2845E) and near Baris (2439N/3035E). Control operations were undertaken in Tushka on 13 ha. No information was received about the situation on the Red Sea coast.

• FORECAST

Small-scale breeding will continue along the shores of Lake Nasser and near W. Allaqi where hopper groups are likely to form during the forecast period. Adults and perhaps a few small groups are likely to appear on the southeastern coastal plains of the Red Sea between Shalatyn and Abu Ramad and breed in areas of recent rainfall.

Saudi Arabia

• SITUATION

During December, there was a substantial increase in locust numbers as hatching and band formation occurred on the Red Sea coastal plains between Jeddah and Yenbo (2407N/3804E). Laying continued to about mid month by mature adult groups and swarms at densities up to 200 adults/m². Most of the swarms were seen during the second week. Some of the adult groups penetrated the Hejaz Mountains and were seen laying southeast of Khayber (2548N/3912E) on the 2nd, east of Taif (2115N/4021E) on the 3rd, and east of Medinah (2430N/3935E) on the 7th. Hopper groups and bands were subsequently reported from these places as well as further south in the hills near Al Baha (2001N/4129E) and on the coast east of Qunfidah (1909N/4107E). In all, there were some 200 reports of bands on the coastal plains from the second week onwards at densities of 80-250 hoppers/m². By 19 December, some hoppers had reached the fifth instar. Control operations treated 26,336 ha during December.

• FORECAST

Hopper bands will continue to form on the central and northern Red Sea coastal plains. Swarms are expected to start forming from early in the forecast period onwards. Although most of these are likely to mature and lay eggs in areas along the coastal plains that remain favourable, some may move to the spring breeding areas in the interior and beyond. If so, these will slowly mature due to low temperatures and eventually lay.

Yemen

• SITUATION

During December, isolated immature adults were seen on the Red Sea coastal plains at Deer Al-Ahdel (1453N/4310E) on the 24th. No locusts were seen during surveys along the coastal plains near Aden on 23-25 December.

• FORECAST

Small-scale breeding is expected to occur on the Red Sea coastal plains, causing locust numbers to increase but remain below threatening levels.

Oman

• SITUATION

No locusts were seen during surveys carried out on 18-24 December.

• FORECAST

No significant developments are likely.

Jordan

• SITUATION

No reports received.

• FORECAST

There is a low risk that a few swarms could appear in the south from the Red Sea coast and interior of northern Saudi Arabia. This will most likely occur during periods of warm southerly winds associated with depressions over northern Arabia.

Iraq

• SITUATION

No reports received.

• FORECAST

There is a low risk that a few swarms could appear in the south from the Red Sea coast and interior of northern Saudi Arabia. This will most likely occur during periods of warm southwesterly and westerly winds associated with depressions over northern Arabia.

Kuwait

• SITUATION

No reports received.

• FORECAST

There is a low risk that a few swarms could appear

from the Red Sea coast and interior of northern Saudi Arabia. This will most likely occur during periods of warm southwesterly and westerly winds associated with depressions over northern Arabia.

Bahrain, Israel, Kenya, Kuwait, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• **FORECAST**

No significant developments are likely.

EASTERN REGION

Iran

• **SITUATION**

No locusts were seen during surveys carried out on the coastal plains near Bander-e Lengheh (2634N/5452E) in December.

• **FORECAST**

There is a low risk that a few swarms could appear in coastal areas of Bushehr Province from the Red Sea coast and interior of northern Saudi Arabia. This will most likely occur during periods of warm southwesterly and westerly winds associated with depressions over northern Arabia.

Pakistan

• **SITUATION**

No locusts were during the second half of November and throughout December.

• **FORECAST**

A few adults may appear in the spring breeding areas in Baluchistan and start to breed by the end of the forecast period if rainfall occurs.

India

• **SITUATION**

During the second half of November, isolated mature adults persisted at five places along the Indo-Pakistan border near Barmer, Rajasthan.

No locusts were reported during December.

• **FORECAST**

No significant developments are likely.

Afghanistan

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Reporting by e-mail. After each survey or control operation, affected countries should send completed *FAO Desert Locust Survey and Control Forms* with a brief interpretation of the results by e-mail to eclo@fao.org.

eLocust. Updated details of a new system for recording and transmitting locust survey and control data collected in the field as well as country maps can be found on the Internet at: www.fao.org/news/global/locusts/elocust.htm

Outbreak photos. Pictures of the recent outbreaks in the Western Region are available on the Internet at: www.fao.org/news/global/locusts/outbreakpix.htm

Publications on the Internet. New FAO publications are available for downloading at www.fao.org/news/global/locusts/pubslst.htm:

- *Technical Series No. 30: Population dynamics* (English)
- *Technical Series No. 31: Biogéographie du Criquet pèlerin en Mauritanie* (French)

Desert Locust Guidelines. The French and Arabic versions of the *Desert Locust Guidelines* are now available as well as the English version of *Volume VI. Safety and Environmental Precautions* and an updated index. These can be downloaded from the Internet at: www.fao.org/news/global/locusts/pubs1.htm. Please contact the Locust Group if you would like to receive hard copies.

Desert Locust research award. The FAO Commission for Controlling the Desert Locust in the Central Region (CRC) is pleased to announce a cash award for outstanding research on Desert Locust. For more details, please contact the CRC Office in Cairo (munir.butrous@fao.org).

2004 events. The following meetings are scheduled:

- **Pesticide Referee Group.** 8th meeting, Rome, postponed



Announcements

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO bulletin for the current month; otherwise, it will not appear until



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- **Desert Locust Technical Group Workshop.** 8th meeting, Nouakchott (Mauritania), 7-11 March (provisional)
- **CRC.** 24th session of the Commission and 26th session of the Executive Committee, Jeddah (Saudi Arabia), 17-22 April
- **CLCPRO.** 1st Executive Committee, Niamey (Niger), May or June
- **SW Asia Commission.** 24th session, Kabul (Afghanistan), October



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

- 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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guinea Bissau and Guinea Conakry.

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

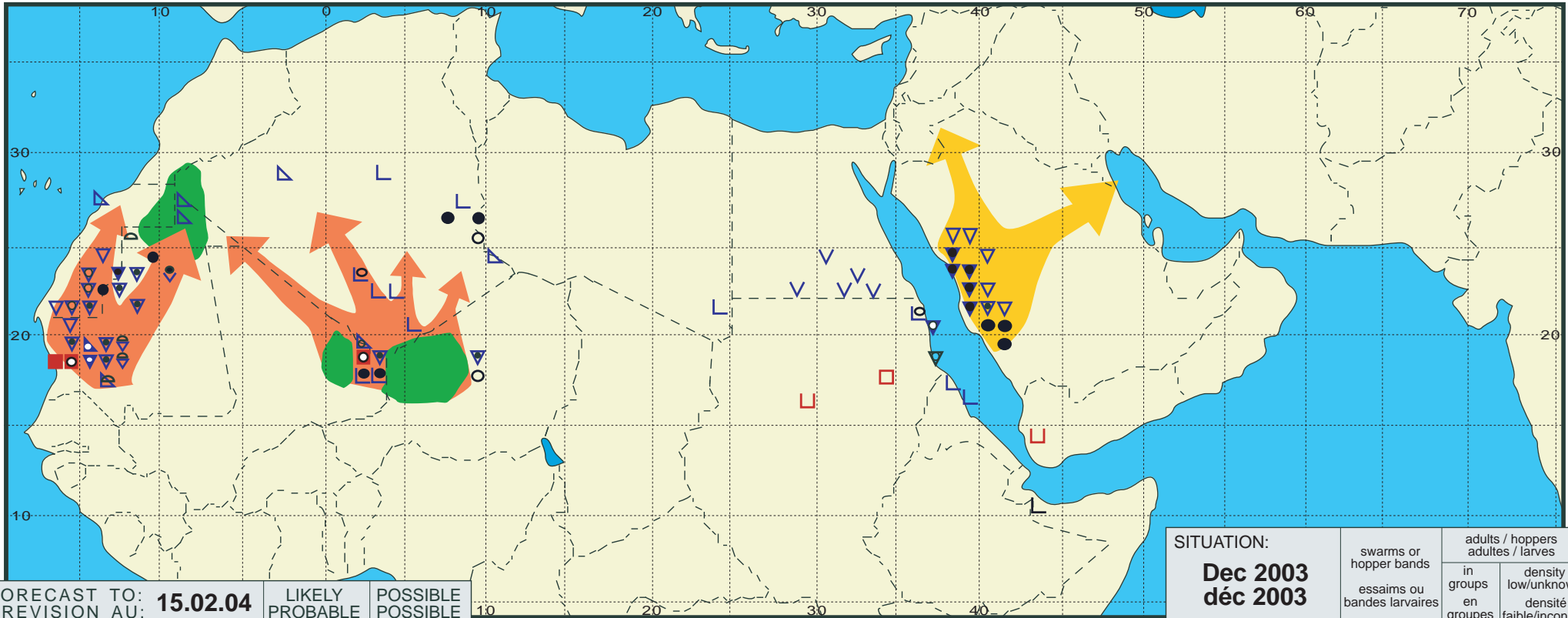
- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.



Desert Locust Summary

Criquet pèlerin - Situation résumée

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FORECAST TO: PREVISION AU: 15.02.04	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: Dec 2003 déc 2003	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)			