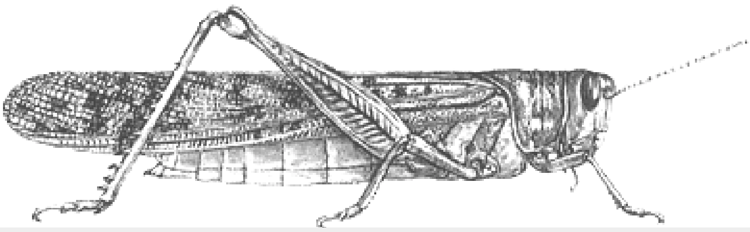


DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations

No. 256
(4 February 2000)

General Situation during January 2000
Forecast until mid-March 2000

In West and North-West Africa, the Desert Locust situation needs careful vigilance. Mature highly dispersed populations are widespread over huge areas of upgreening vegetation in the extreme north-west of Mauritania where winter breeding is under way. In Mali and Niger, populations may be regrouped in patches of green vegetation. On the Red Sea coast, where low numbers of locusts were reported in Sudan, small-scale winter breeding may be going on. Elsewhere, the situation remains calm.

Western Region. During January, winter breeding came to an end in north-western **Mauritania** and continued in the extreme north-west where the vegetation is developing. Groups of hoppers and immature adults were controlled over 104 ha in the north-west. Only a few locusts were reported in **Morocco** during January. In **Algeria**, scattered adults were reported from the Tindouf area and the Hoggar Mountains during December and no locusts were seen during January. No reports were received form Mali and Niger for January. New information for December reports that, in northern **Mali**, 1,705 ha were treated against groups of hoppers and adults on 12-17 December. In **Niger**, locust populations at densities varying from 100 to 10,000/ha were seen in south-eastern Aïr on 21-28 December. Immature adults at maximum density of 100 adults/ha were observed in Tamesna from 20 December to 5 January. Due to the low temperatures, locust development will slow down during the forecast period. Only local movements between northern Mauritania and southern Morocco and between norther Mali and southern Algeria are expected before the end of the forecast period.

Central Region. In **Sudan**, mature adults and young hoppers were present in parts of the coastal plains during the first fortnight of January. No locusts were seen in **Eritrea** in late December. No locusts were seen in **Egypt** and **Saudi Arabia** in January. Small-scale breeding will continue in the coastal areas of these countries.

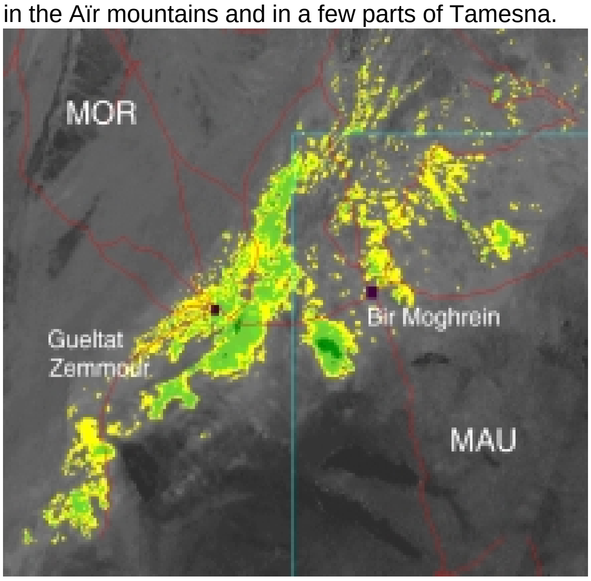
Eastern Region. No locusts were seen during surveys carried out in **Pakistan** and **India** in January**.** No significant developments are expected in this Region during the forecast period.

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
Telex: 610181 FAO 1
Internet: http://www.fao.org/news/global/locusts/locuhome.htm

Weather & Ecological Conditions in January 2000

Light to moderate rains fell over northern Mauritania where vegetation was drying out in the north-west and developing in the extreme north-west. Apart from south-east Morocco where ecological conditions are suitable, elsewhere in West and North-West Africa, conditions were only suitable for Desert Locust survival. On the Red Sea coastal plains, conditions were locally suitable for breeding. Dry conditions still prevailed in the winter breeding areas of South-West Asia.

In **West Africa**, light to moderate rains fell over northern Mauritania during the third dekad of January (27mm at Nouadhibou on 27/01; 10mm at Zouerate on 28/01). Satellite imagery for the second dekad of January suggested that vegetation was slowly drying out in Dakhlet Nouadhibou, and increasingly green over larger areas in Tiris Zemmour between 24-25N and 10-11W and the Moroccan border. The low temperatures will slow down locust development. Imagery suggested that only a few patches of vegetation persisted in the Timetrine area of north-eastern Mali. The main wadis of the Adrar remained green and vegetation was extending to the north across the Algerian border. In northern Niger, imagery suggested that green vegetation was still present in most wadis in the Aïr mountains and in a few parts of Tamesna.



Satellite imagery suggests that there is a further extension of the green area in Tiris Zemmour, north Bir Moghrein, Mauritania, compared with December 1999. [Source: SPOT VEG, 11-20 January 2000].

In **North-West Africa**, light rains fell over northern Sahara and the Hoggar Mountains (13mm at Djanet) in Algeria during the second dekad of January. In Morocco, light rains were recorded in the south during the second dekad (7.5mm at Tan Tan). Satellite imagery suggests that the vegetation already present in the interior of the Saharan Provinces near Gueltat Zemmour (between 24-26N and 12W) was still developing and extending to the east into northern Mauritania. The presence of a medium to dense cover of green vegetation in the Gueltat Zemmour area was confirmed by a specific survey on 16 January.

In **Eastern Africa**, light to moderate rains were only reported from Egypt, north to 26N, and at Geneina, in Sudan (72mm during the third dekad). Satellite imagery suggested that vegetation was developing south of the Tokar Delta and further north, along the Red Sea coast, from Tokar to Port Sudan where good rains fell during the second fortnight of December. In Eritrea, an aerial survey at the end of December indicated that natural vegetation was greening on the coastal plains, from Massawa to Wadi Teclai. Further north up to the Sudanese border, satellite imagery suggested that vegetation was well developed on the coastal plain. In Egypt, imagery suggested that vegetation was slowly developing in the south-east, which received rains in late December.

In the **Near East**, light to moderate rains fell over northern, central and eastern Saudi Arabia throughout the month. Satellite imagery suggested that vegetation was developing on the coastal plains, from Al Lith to the Yemeni border, and in the interior between 2430-28N and 4130-45E. Ecological conditions along the coastal plains and in the interior are expected to be suitable for breeding. In Yemen, imagery indicated that vegetation was drying out along the coastal plains of the Red Sea and the Gulf of Aden.

In **South-West Asia**, light to moderate rains were recorded in parts of the locust winter breeding areas in Pakistan. Elsewhere in the region, dry conditions persisted.

Area Treated

Mauritania	104 ha (1-31 Jan)
Mali	1,705 ha (12-17 Dec).

Desert Locust Situation and Forecast

(see also the summary on the first page)

WEST AFRICA

Mauritania

• **SITUATION**

During January, breeding was coming to an end in Dakhlet Nouadhibou where decreasing numbers of late instar hoppers, fledglings and immature adults were seen. A maximum density of 12,000 adults/ha was reported during the first dekad and this decreased to 250 adults/ha during the second. At the end of the month, only isolated mature adults at low densities were seen in the patches of green vegetation. A total of 104 ha were sprayed in the Taziaset area (2036N/1526W). In North Trarza and Tiris Zemmour, locust breeding at low densities continued on huge areas. Isolated maturing and mature adults were observed at maximum densities of 1,300 adults/ha during the month. An increasing part of the mature population, reaching 30 to 60% during the third dekad, was copulating. Unconfirmed movements of swarms as well as two adults groups and hoppers were reported at El Atiyat (2530N/1110W) during the first dekad. Early hopper instars were seen at two sites during the second dekad. Movements of solitarious mature populations were observed during the third dekad.

• **FORECAST**

In the north-west, further breeding is not expected as the vegetation is drying out and the soil is dry. Fledging will come to an end and the immature adults are expected to persist and slowly mature in the remaining patches of green vegetation or to move further north where vegetation is developing. Breeding of sparse populations will continue in the extreme north-west but the development will be slowed down by the low temperatures which may also limit movements into adjacent areas and countries.

Mali

• **SITUATION**

A late report indicates that third to sixth instar hopper groups and immature and mature adult groups were present at seven nearby sites in the Timetrine area (19N/00W) from 12 to 17 December 1999. The hopper densities varied from 1,000 to 150,000/ha and the adult densities from 40 to 70,000/ha. The hopper populations consisted of individuals of all phases: solitarious, transiens and gregarious. One female was observed laying. During this period, 1,705 ha were treated out of 2,575 ha infested.

• **FORECAST**

Locusts escaping control will concentrate in the remaining green areas of Adrar or move further north into southern Algeria during periods of warm southerly winds. No further local development is expected during the forecast period.

Niger

• **SITUATION**

Late reports indicate that adult populations were present in south-eastern Aïr from 21 to 28 December 1999. The densities varied from 500 to 10,000 adults/ha over areas of 25 to 2,000 ha. The highest density was seen in the Tagora wadi (1802N/0919E). Scattered adults were also observed in Tamesna from 20 December 1999 to 5 January 2000 at densities not exceeding 100 adults/ha.

• **FORECAST**

Locusts are expected to concentrate in the remaining green patches of vegetation of Tamesna and along the wadis and in the cultivated areas in the Aïr Mountains.

Chad

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Senegal

• **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.

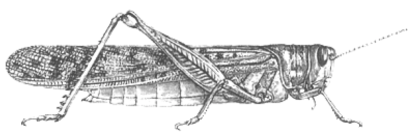
NORTH-WEST AFRICA

Algeria

• **SITUATION**

A late report indicates that scattered adults were present in December in the Tindouf area (2742N/0810W) and in the south-western Hoggar (2240N/0434E).

No locusts were reported in January.



• **Forecast**

Low numbers of adults may be present and persist in the south. These may be supplemented by locusts arriving from northern Mali during the forecast period.

Morocco

• **Situation**

No locusts were seen on 16 January in the Gueltat Zemmour area (2436N/1246W) where a medium to dense cover of green vegetation was slowly developing. Only three solitarious adults were reported on 17 January between Zag (2801N/0920W) and El Mahbas (2725N/0910W).

• **Forecast**

No significant developments are likely.

Libyan Arab Jamahiriya

• **Situation**

No locusts were reported in January.

• **Forecast**

No significant developments are likely.

Tunisia

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

EASTERN AFRICA

Sudan

• **Situation**

During the second fortnight of December, solitary copulating adults at maximum densities of 400 adults/ha were reported from the coastal plain, between Suakin and the Tokar Delta. In the same area, 1,200 ha were infested by solitary copulating adults during the first fortnight of January. 1st to 3rd instar hoppers were present on 4 ha.

• **Forecast**

Winter breeding will continue south of the Tokar Delta and further north, along the Red Sea coast, from Tokar to Port Sudan. In view of the low number of locusts, gregarization is unlikely during the forecast period.

Eritrea

• **Situation**

A late report indicates that no locusts were seen during ground and aerial surveys along the Red Sea coast, from Massawa to Wadi Teclai, in December 1999.

• **Forecast**

Small-scale breeding may be in progress along the Red Sea coastal plains from Massawa to the Sudanese border.

Somalia

• **Situation**

No reports received.

• **Forecast**

Low numbers of adults are likely to be present in a few places of the coastal areas in the extreme north-west and in the north-east. Small-scale breeding is expected is these areas.

Ethiopia

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No reports received.

• **Forecast**

Low numbers of adults may be present and breed on a small scale on the southern coastal plains..

Kenya, Tanzania and Uganda

• **Forecast**

No significant developments are likely.

NEAR EAST

Saudi Arabia

• **Situation**

No locusts were reported during extensive survey carried from Jeddah (2139N/3910E) to the Yemeni border (1624N/4245E) during January. No locusts were reported during intensive surveys along the Red Sea coastal plains, mainly in the Qunfidah district (1925N/4103E), from 17 to 24 January.

• **Forecast**

Locusts are likely to be present and to breed along the Red Sea coastal plains between Qunfidah and the Yemeni border. Numbers are likely to increase during the forecast period.

Yemen

• Situation

No reports received.

• Forecast

Low numbers of adults are likely to be present and to have started breeding on the Red Sea coastal plains.

Egypt

• Situation

No locusts were reported in the extreme south-east on 20 and 24 January and in the Safaga area (2645N/3355E) on 20 January where heavy rain occurred on 20 December and 4 January.

• Forecast

Locusts are likely to be present and persist in the south-east.

Kuwait

• Situation

No reports received in January.

• Forecast

No significant developments are likely.

Oman

• Situation

No reports received in December and January.

• Forecast

Scattered locusts may be present on the Batinah coast north of Muscat.

United Arab Emirates

• Situation

No reports received.

• Forecast

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Qatar, Syria Arab Republic and Turkey

• Forecast

No significant developments are likely.

SOUTH-WEST ASIA

Iran

• Situation

No reports received in January.

• Forecast

No significant developments are likely.

Pakistan

• Situation

No locusts were reported during January.

• Forecast

Scattered locusts may be present in the coastal areas of Baluchistan. No significant developments are likely.

India

• Situation

No locusts were seen during surveys in 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 locust situation reports are sent to FAO HQ by the 25th 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 email. Affected countries are encouraged to send completed FAO Locust Survey Forms with a brief interpretation of the results by email to eclo@fao.org. Please do not send this information to individual staff at FAO HQ.

FAO Commission for Controlling the Desert Locust in South-West Asia. The 22nd session of the Commission and the 13th session of the Executive Committee to be held in Tehran, I.R. Iran, in January 2000 has been postponed. The revised dates will be announced shortly.

Western Region. A technical and legal consultation on the restructuring of bodies responsible for Desert Locust management in Western and North-Western Africa to be held in Rabat, Morocco, in March 2000, has been postponed to April. The precise date will be announced shortly.

EMPRES (Central Region). The planning workshop for Phase II will be held in Cairo, Egypt, on 26-30 March 2000.

Glossary of terms

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

NON-GREGARIOUS ADULTS AND HOPPERS

ISOLATED (FEW)
- very few present and no mutual reaction occurring;
- 0 - 1 adult/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)
- enough present for mutual reaction to be possible but no ground or basking groups seen;
- 1 - 20 adults/400 m foot transect (or 25 - 500/ha).

GROUP
- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL
- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL
- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM
- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE
- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE
- swarm: 500+ km^2 • 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.

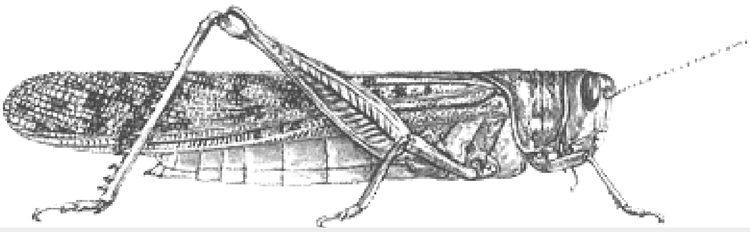
REMISSION
- period of deep recession marked by the complete absence of gregarious populations.

Desert Locust Summary
Criquet pèlerin - Situation résumée

256

FORECAST TO: / PREVISION AU: 15.3.00	LIKELY / PROBABLE	POSSIBLE / POSSIBLE
favourable breeding conditions conditions favourables ˆ la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limitŽ(s)		
non swarming adults adultes non essaimant		

SITUATION: **January 2000 / Janvier 2000**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers — adultes / larves: in groups / en groupes	density low/unknown / densitŽ faible/inconnue
immature adults adultes immatures	■	□	⊔
mature or partly mature adults adultes matures ou partiellement matures	◣	◺	L
adults, maturity unknown adultes, maturitŽ inconnue	▲	△	∧
egg laying or eggs pontes ou ĺufs	▼	▽	∨
hoppers larves	●	○	⌓
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinŽs)			



DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations

No. 257
(6 March 2000)

General Situation during February 2000
Forecast until mid-April 2000

In West and North-West Africa, the Desert Locust situation continues to need careful vigilance. Breeding of scattered populations continued in northern Mauritania and involved groups in the extreme North, where favourable conditions for laying developed at the end of the month. In Niger, and probably in Mali, locust populations were still present in the mountainous areas of Adrar des Iforas and Aïr. On the Red Sea coast, small-scale winter breeding was going on. Elsewhere, the situation remained calm.

Western Region. During February, locally dense locust populations bred in the extreme north-west of **Mauritania** where 221 ha of groups of copulating and laying adults were treated during the third dekad. Elsewhere in northern Mauritania, scattered mature populations at densities not exceeding 120 adults/ha were observed. In Tagant, slow maturation of scattered persisting adults started by the end of the month. In **Niger**, immature adults populations mixed with late instar hoppers were reported from south-eastern Aïr where 700 ha were sprayed. No reports were received from **Mali**. A late report from **Chad** indicates that 8 ha of dense Desert Locust populations were treated on 27 November 1999 in the Fada area. In **Morocco**, small groups were seen in the far South. In **Algeria**, no locusts were reported in February. In **Libya**, isolated immature adults were reported from the South-West and the South-East. Breeding will continue in north-western Mauritania during the forecast period. No significant developments are likely elsewhere in the Western Region.

Central Region. In **Sudan**, scattered mature adults and late instar solitary hoppers were present in the southern part of the Red Sea coastal plains during February. Only isolated mature adults were seen in south-east **Egypt** on 28-29 February. Isolated immature adults were present in a few places on the western coastal plains of **Somalia**. No locusts were seen in **Ethiopia** and **Saudi Arabia** during February. Small-scale breeding will continue locally in the coastal areas of these countries. Late reports indicated that no locusts were present in **Kuwait** and **Oman** during January.

Eastern Region. No locusts were seen during surveys carried out in **Pakistan** and **India** in February. No significant developments are expected in this region during the forecast period.

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
Telex: 610181 FAO 1
Internet: http://www.fao.org/news/global/locusts/locuhome.htm

Weather & Ecological Conditions in February 2000

Light to moderate rains fell locally over West Africa and the Sahara during February. Conditions were favourable for breeding in north-western Mauritania and remained suitable only for Desert Locust survival elsewhere in the Western Region. On the Red Sea coastal plains, conditions continued to be locally suitable for breeding. Breeding conditions are expected to improve in Baluchistan, Pakistan.

In **West Africa**, light rains fell over south-western Mauritania up to Atar, and at Bilma, in Niger. Satellite imagery for the first dekad of February suggested that vegetation was locally drying out in north-western Tiris Zemmour, Mauritania, and is appearing further north, inside Morocco. Ground teams indicated that conditions were suitable for breeding in Tiris Zemmour. In Mali, satellite imagery suggested that Adrar des Iforas still provided suitable survival biotopes for Desert Locust and that vegetation continued to develop further north, across the Algerian border. In Niger, the Aïr Mountains also showed up as providing suitable survival conditions, which was confirmed by a survey in the south-east on 5-14 February. In Chad, only a few patches of vegetation were shown as persisting in the Fada area.

In **North-West Africa**, light to moderate rains fell over northern Sahara (2.4 mm at Tindouf; 61 mm at El Golea) and the Hoggar Mountains (39 mm at Illizi), in Algeria, during the first two dekads of February. Satellite imagery suggested that vegetation was developing in the extreme South, near the Malian border, in the Hoggar and in the Tassili N'Ajjer. In Morocco, satellite imagery suggested that green areas had greatly reduced in the Gueltat Zemmour area and that new patches of vegetation had appeared further north, between the Mauritanian border and 27N/09-11W.

In **Eastern Africa**, light to moderate rains were reported respectively from Egypt, north to 26N, and from Sudan (70 mm at Dongola during the 2nd dekad). Satellite imagery suggested that vegetation was dry in south-eastern Egypt, which was confirmed by a survey in this area on 28-29 February. In Sudan, vegetation was dry along the Red Sea coast north Port Sudan but remained green from Port Sudan to the Eritrean border. In Eritrea, satellite imagery suggested that vegetation was not well developed along the coastal plains from Massawa to Wadi Teclai and was drying out from Wadi Teclai to the Sudanese border. In Somalia, as a result of poor winter rains, vegetation was dry or drying out in the North-West, except in the wadis where patches of green vegetation were still present on 19-24 February.

In the **Near East**, light to moderate rains fell over north-western Saudi Arabia during February. Light rains were also reported from Yemen (1mm at Hodeidah during the 3rd dekad), Oman and Kuwait. In Saudi Arabia, satellite imagery suggested that vegetation was green along the Red Sea coast between 19 and 20 N, which was confirmed by surveys. In Yemen, imagery indicated that vegetation continued to dry out along the coastal plains of the Gulf of Aden and the Red Sea, except in the area of Al Mukha (13 to 14N/4320E).

In **South-West Asia**, light rains were reported from southern Baluchistan, Pakistan, and in Rajasthan, India. Conditions are expected to improve in these areas.

Area Treated

Chad	8 ha (27 November 99)
Mauritania	221 ha (25-29 Feb)
Niger	700 ha (5-14 Feb.).

Desert Locust Situation and Forecast

(see also the summary on the first page)

<u>WEST AFRICA</u>

Mauritania

• Situation

In north-western Tiris Zemmour, breeding concerned locally dense populations throughout February. Mature adult population densities increased from 350-1,200 adults/ha during the first dekad to 1,200-3,000 adults/ha during the 2nd and 3rd dekads. 50 to 80% of these populations were copulating and the first laying was observed from 23 February over areas ranging from 0.04 to 4 ha. The eggpod density varied from 200 to 300/m2. A total of 221 ha of groups of mature adults were sprayed in the north-east Bir Moghrein (2516-2534N/1054-1109W). From the Zouerate area to the Malian border (23-24N/8-12W), scattered mature populations at densities varying from 2 to 120 adults/ha were observed during the month. In Tagant, late instar hoppers and fledglings were seen during the 1st dekad. Adults, locally maturing, at densities not exceeding 250 adults/ha, were reported at the end of the month.

• **Forecast**

During the forecast period, breeding of groups in the extreme north-west and of scattered populations elsewhere will continue. Hatching is expected to start in mid-March. Fledging could start at the end of the forecast period. Elsewhere in the country, no significant developments are likely.

Mali

• **Situation**

No reports received in February.

• **Forecast**

Locusts are likely slowly to mature during the forecast period. Local breeding will be limited because the soil is generally dry.

Niger

• **Situation**

Immature adult populations were present in south-eastern Aïr from 5 to 14 February. Compared with December, these populations occupied smaller surfaces (up to 400 ha) at lower densities (from 50 to 5,000 adults/ha). At three places, hoppers of 4th and 5th instars were mixed with adult populations. A total of 700 ha were sprayed against the densest populations in the area of wadi Tafidet (1757 to 1809N/0927 to 0944E).

• **Forecast**

Locusts are expected slowly to mature during the forecast period. Local breeding will be limited by the dry soil.

Chad

• **Situation**

A late report indicates that Desert Locust populations composed of late instar hoppers, immature and mature adults were present in the Fada area (1622 to 1714N/2121 to 2143E) from 25 November to 10 December 1999. The densities varied from 2 to 80 adults/ha. Maximum densities of 10,000 adults/ha were observed at Wadi Edié (1648N/2143E) where 8 ha were treated. Desert Locusts were frequently mixed with Migratory Locusts at a density of 20 adults/ha.

No further reports have been received.

• **Forecast**

Locusts may concentrate in the few remaining green patches of vegetation. No significant developments are likely.

Senegal

• **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.

NORTH-WEST AFRICA

Algeria

• **Situation**

No locusts were reported during February.

• **Forecast**

Low numbers of adults may be present and persist in the extreme south where the conditions are locally improving. With temperature increase, local breeding is likely during the forecast period.

Morocco

• **Situation**

A few small groups were seen in the far South, near the Mauritanian border (2128N/1558W), on 23 February. No locust activity was reported from the South and the South-East by the ground survey teams.

• **Forecast**

No significant developments are likely.

Libyan Arab Jamahiriya

• **Situation**

Isolated immature adults were reported from the South, in the areas of wadi Ghazah (2128N/2431E) and wadi Tannezuft (2507N/1015E) in February.

• **Forecast**

No significant developments are likely.

Tunisia

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

EASTERN AFRICA

Sudan

• **Situation**

No locusts were seen in the northern part of the Red Sea coast, from 31 January to 4 February. Low densities of solitary mature adults were reported on 21-22 February at Hoshiri (1925N/3716E), North Suakin, and at Galalema (1822N/3741E) in the Tokar Delta. A total area of 2,600 ha infested by mixed populations of solitary mature adults and 1st to 4th instar hoppers at densities ranging from 100 to 150 individuals/ha, was identified on 22-23 February, south of Suakin (1844 to 1903N /3720 to 3728E).

• **Forecast**

Numbers of adults are expected to decrease during the forecast period and hoppers will continue to appear as a result of a small scale winter breeding in the most suitable areas.

Eritrea

• **Situation**

No reports received.

• **Forecast**

Hopper development may be in progress during the forecast period as a result of a small-scale breeding in patches of green vegetation along the Red Sea coastal plains, from Massawa to the Sudanese border.

Somalia

• **Situation**

Only isolated immature adults were seen at two places in the coastal plains (1111N/4323E & 1036N/4350E) during surveys on 19-24 February.

• **Forecast**

Adults are expected to mature and start breeding on a small scale in the remaining green areas of the coastal plains during the forecast period.

Ethiopia

• **Situation**

No locusts were reported from the winter breeding areas, between Dire Dawa and Djibouti and between Jijiga and the Somali border, during February.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No reports received.

• **Forecast**

Low numbers of adults may be present and breed on a small scale on the southern coastal plains.

Kenya, Tanzania and Uganda

• **Forecast**

No significant developments are likely.

NEAR EAST

Saudi Arabia

• **Situation**

No locusts were reported during surveys carried out on 20-22 February from north Qunfidah (1907N/4004E) to Tafeal (2048N/3943E) and from the Yemeni border (1625N/4249E) to north Jizan (1743N/4201E).

• **Forecast**

During the forecast period, breeding is expecting to continue on a small scale along the Red Sea coastal plains, particularly between 19 and 20N.

Yemen

• **Situation**

No reports received.

• **Forecast**

As a result of local breeding on the Red Sea coastal plains, numbers are likely to increase during the forecast period.

Egypt

• **Situation**

Only two mature solitary adults were seen in Wadi Eikwau (2159N/3637E) on 28-29 February during a joint border survey.

• **Forecast**

No significant developments are likely.

Kuwait

• **Situation**

A late report indicates that no locusts were present in January.

• **Forecast**

No significant developments are likely.

Oman

• **Situation**

A late report indicates that no locusts were seen in the North (25 to 26N/56E) during the third dekad of December and the third dekad of January.

• **Forecast**

Scattered locusts may still be present on the Batinah coast north of Muscat. No significant developments are likely.

United Arab Emirates

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Qatar, Syria Arab Republic and Turkey

• **Forecast**

No significant developments are likely.

SOUTH-WEST ASIA

Iran

• **Situation**

No reports received in February.

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

No locusts were reported during the first fortnight of February.

• **Forecast**

Scattered adults are expected to mature and breed during the forecast period as the conditions will slowly improve in the coastal areas of Baluchistan.

India

• **Situation**

No locusts were seen during surveys in 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 locust situation reports are sent to FAO HQ by the 25th 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 email. Affected countries are encouraged to send completed FAO Locust Survey Forms with a brief interpretation of the results by email to eclo@fao.org.

EMPRES (Central Region). The planning workshop for Phase II will be held in El-Tur, Egypt, on 26-30 March 2000.

Western Region. The technical and legal consultation on the restructuring of bodies responsible for Desert Locust management in Western and North-Western Africa will be held in Rabat, Morocco, on 12-14 April 2000.

Desert Locust Technical Group. The 7th meeting of the Technical Group will be held in Rome on 12-15 June 2000.

FAO Commission for Controlling the Desert Locust in North-West Africa. The 29th Session of the Executive Committee will be held in Algiers, Algeria, on 19-22 June 2000.

Glossary of terms

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

NON-GREGARIOUS ADULTS AND HOPPERS

ISOLATED (FEW)

- very few present and no mutual reaction occurring;
- 0 - 1 adult/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)

- enough present for mutual reaction to be possible but no ground or basking groups seen;
- 1 - 20 adults/400 m foot transect (or 25 - 500/ha).

GROUP

- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL

- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL

- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM

- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE

- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE

- swarm: 500+ km^2 • 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

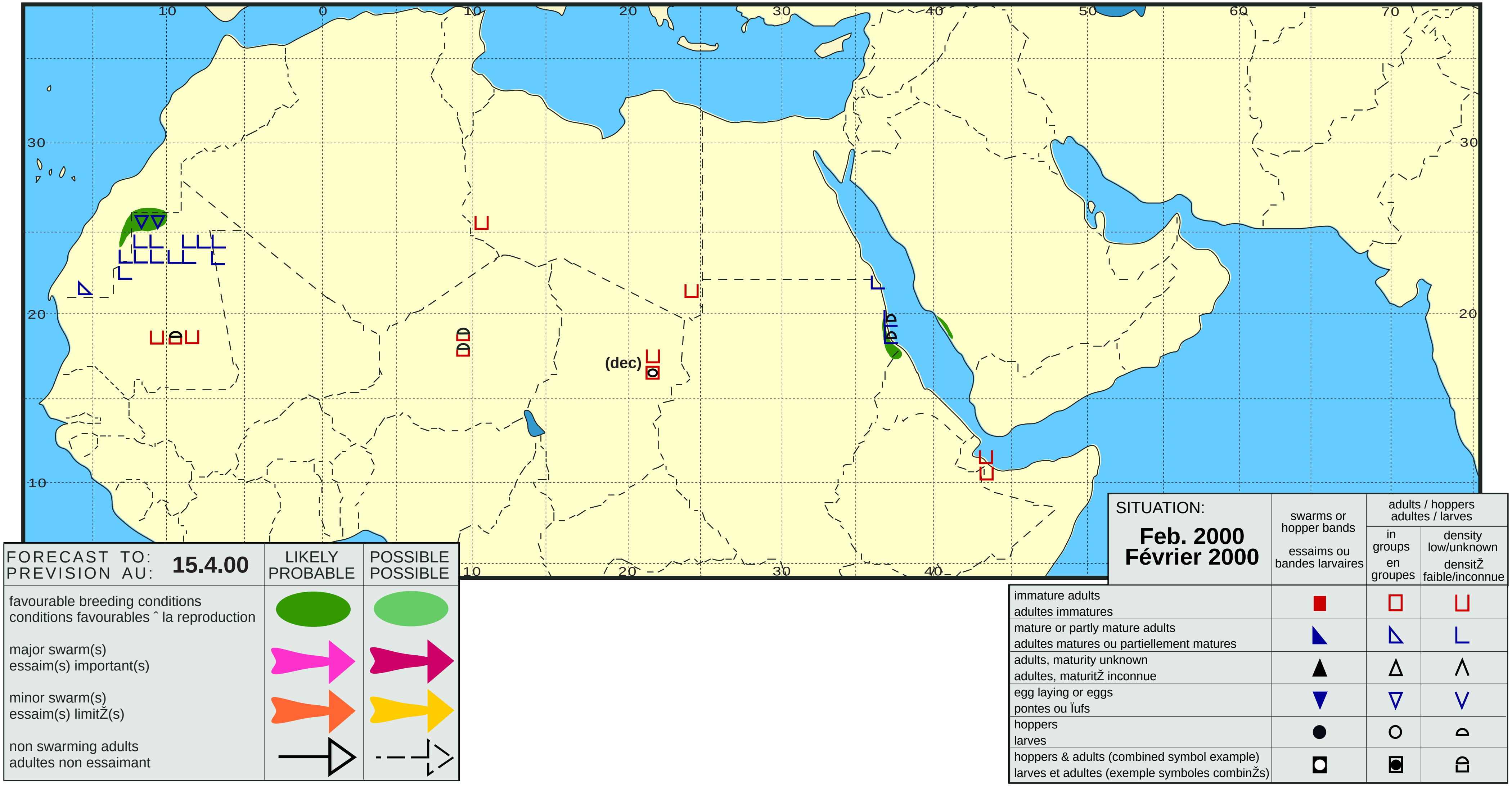
- period without widespread and heavy infestations by swarms.

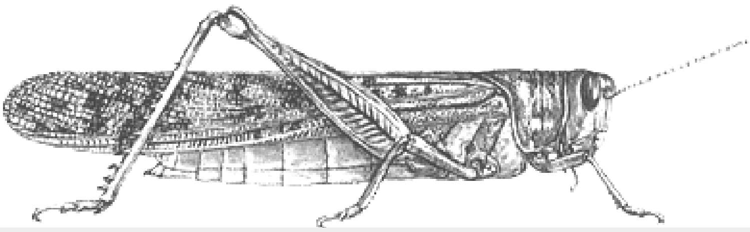
REMISSION

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

Desert Locust Summary
Criquet pèlerin - Situation résumée

257





DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations

No. 258
(4 April 2000)

General Situation during March 2000
Forecast until mid-May 2000

The Desert Locust situation continues to remain calm except for two places in West and North-West Africa. In northern Mauritania, hopper bands started forming in early March near the Moroccan border as a result of earlier breeding. Along the Algerian-Libyan border, breeding is in progress in one area where high densities of adults laid eggs towards the end of March. Control operations were undertaken and continue in all three countries. No breeding was reported along both sides of the Red Sea except for one area in Sudan where low numbers of hoppers are maturing. During the forecast period, small scale swarm formation is expected in northern Mauritania and hopper bands will form in south-eastern Algeria and south-western Libya. Locust numbers will decline on the coastal plains of Sudan. Elsewhere, the situation is likely to remain calm in view of the prevailing dry and unfavourable conditions and no significant developments are expected.

Western Region. Breeding continued in northern **Mauritania** where hatching commenced during the second week of March followed shortly thereafter by the formation of small but dense hopper bands. Most of the infestations were located near Bir Moghrein and the Moroccan border but new locations were found further south by the end of the month. Ground operations treated 340 ha during March. Hatching should come to end in early April but hopper bands will continue into May, with new swarms starting to form during the second half of April onwards. Unless further rains fall, the swarms are likely to move on a relatively small scale towards the north-east or south during May. Along the Algerian-Libyan border, high densities of adults, thought to have originated from earlier and undetected local breeding or from previous infestations in northern Mali and Niger, laid eggs between Djanet, **Algeria** and Ghat, **Libya**. Hatching and band formation are expected to occur during the forecast period. Control operations so far have treated 1600 ha in Algeria and 650 ha in Libya. In **Morocco**, small groups of adults were present in the extreme south-west and insignificant adults were reported in a few places along the southern side of the Atlas Mountains. Low numbers of adults may be present and will persist in the Adrar des Iforas, **Mali** and in the southern Air, **Niger**.

Central Region. Low numbers of solitarious hoppers continued to mature in one area on the Red Sea coastal plains of **Sudan**. There were no other reports of locusts or breeding on the coastal plains of **Eritrea** or **Saudi Arabia** nor in **Ethiopia** and **Oman** due to dry and unfavourable conditions. In northern **Somalia**, a few isolated adults were present on the central coastal plains. As this year's winter breeding produced very few locusts and further rainfall is unlikely, no significant developments are expected during the forecast period.

Eastern Region. Low numbers of solitary adults were present in the spring breeding areas of Baluchistan, **Pakistan** but there were no reports of laying due to prevailing dry and unfavourable conditions. If rain occurs, locust numbers may increase in parts of Baluchistan in **Iran** and Pakistan during the forecast period.

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
Telex: 610181 FAO 1
Internet: http://www.fao.org/news/global/locusts/locuhome.htm

Weather & Ecological Conditions in March 2000

Unusually dry weather prevailed in all locust areas. Conditions remain unfavourable for breeding except in parts of northern Mauritania and in one area along the Algerian-Libyan border.

In **West Africa**, no significant rainfall was reported during March. As a result of a strong high pressure system over North Africa that persisted for the first half of the month, the prevailing winds from the north-east shifted to the east and south-east causing temperatures to be higher than normal in northern Mauritania. Severe sandstorms occurred in northern areas of Mauritania, Mali and Niger. Despite the lack of rainfall, patches of green vegetation were present in wadis and low-lying areas of northern Mauritania near Bir Moghrein and in a few places of the Adrar des Iforas in northern Mali and parts of the southern Air, Niger.

In **North-West Africa**, no significant rainfall was reported during March. Temperatures were higher than normal in southern Morocco, southern and central Algeria, and western Libya as a result of a strong high pressure system over Libya during most of the month. Prevailing winds were from the east and south-east over the western portion of the region and varying from the north and north-east to the south and south-west over the eastern part of the region. In Morocco, vegetation was drying up in most places except for a few spots in wadis and low-lying areas south of the Atlas Mountains. In Algeria, vegetation was green from last month's rains and conditions were favourable for breeding in the Tassili N'Ajjer region of the extreme south-east adjacent to the Libyan border. Similar conditions continue across the border into south-western Libya near Ghat.

In **Eastern Africa**, prevailing winds were mainly from the north-east and no significant rainfall was reported during March. Although clouds were present at times during the second half of the month over the Red Sea coastal plains between Suakin, Sudan and Masawa, Eritrea, conditions were generally dry except for one area south of Suakin where green vegetation was present in several khors and near Sheib, Eritrea where a few patches of green vegetation were reported. In addition, satellite imagery suggests the presence of green vegetation in Tokar Delta, Khor Baraka, and on the plains to the south near Aqiq, Sudan. In Ethiopia, dry conditions persisted in the south-east as a result of an on-going drought. In northern Somalia, clouds were present at times over the central coast and mountains but conditions remained dry except for small patches of green vegetation in a few wadis on the coastal plains. Dry conditions persisted in the interior and on the escarpment.

In the **Near East**, no significant rainfall was reported during March. Consequently, vegetation was dry and conditions were unfavourable for breeding along the Red Sea and Gulf of Aden coastal plains and in the spring breeding areas of the interior of Saudi Arabia and the Batinah coast of northern Oman. Satellite imagery suggests that some green vegetation may have been present on the Red Sea coastal plains of Yemen in early March but that it was limited to just a few of the major wadis.

In **South-West Asia**, no significant rainfall was reported during March. Conditions were generally dry but may be improving slightly in a few of the spring breeding areas of Baluchistan such as the Turbat Valley in western Pakistan, and the Vashnam Plains and Bampur area of south-eastern Iran.

Area Treated

Algeria	1600 ha	(31 March)
Libya	650 ha	(21-23 March)
Mauritania	340 ha	(1-31 March)

Desert Locust Situation and Forecast

(see also the summary on the first page)

WEST AFRICA

Mauritania

• **Situation**

During March, adults continued to regroup and lay eggs in the extreme north near the Moroccan border. Hatching was first reported on the 8th at 11 locations near Bir Moghrein (2510N/1135W). During the second dekad, first instar hoppers formed dense groups and bands, ranging in size from 10 sq. m. to 5 ha. Second instar hoppers were first seen on the 14th. Most of the infestations were concentrated in the Tamreiket area about 60 km north-east of Bir Moghrein between W. Zouania (2535N/1116W) and W. El Mrhader (2535N/1105W) and to a lesser extent just to the east of Bir Moghrein. Adult groups were seen laying in a third area, Beirat Tourassine, about 110 km south-east of Bir Moghrein, where hatching started on the 18th. During the third dekad, control operations increased near Bir Moghrein, treating primarily second and third instar bands. Small patches of first instar hopper bands started forming in the Beirat Tourassine area on the 30th where no further laying was seen after the 22nd and in a fourth area of previous breeding west of Beirat Tourassine. A total of 340 ha was treated by ground teams during the month.

• **Forecast**

Hatching is likely to come to an end by early April in north-western Tiris-Zemmour but hoppers will continue to mature, forming groups and bands. Fledging is expected to start in mid April and continue for the remainder of the forecast period with the likelihood of adult groups or small swarms forming. Unless further rains fall, these will eventually move towards the north-east or southwards in May.

Mali

• **Situation**

A late report indicated that no surveys were undertaken during February but there were unconfirmed reports from nomads and travellers of the formation of small swarms in several wadis of Timetrine.

• **Forecast**

Low numbers of locusts may be present and are likely to persist in a few wadis in the Adrar des Iforas.

Niger

• **Situation**

No reports received.

• **Forecast**

Low numbers of locusts may be present and are likely to persist and mature in a few places in south-eastern Air.

Chad

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Senegal

• **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.

NORTH-WEST AFRICA

Algeria

• **Situation**

In the extreme south-east (2353-2446N/1003-1053E), there were several reports of high densities of adults, up to 70 per sq. metre, copulating south-east of Djanet near the Libyan border on 21-30 March. An estimated area of about 2,400 ha was infested. Ground teams treated 1,600 ha on the 31st at 2446N/1042E.

• **Forecast**

Hatching is expected to commence in early April south-east of Djanet and small hopper bands could form with fledging starting at the end of the forecast period. Low numbers of adults, associated with current infestations in northern Mauritania, may be present or could appear south-west of Tindouf.

Morocco

• **Situation**

In the extreme south-west, small groups of solitarious and transiens adults continued to mature in early March at three locations in the Aousserd region (ca. 2250N/1405W). A small group was seen flying on the 22nd towards the south-east near the Mauritania border in the Bir Guendouz (2123N/1634W) area.

On the southern side of the Atlas Mountains, isolated adults were present on 5-7 March near Ourzazate (3057N/0650W) and Tinjdade (3131N/0501W). Scattered adults at densities of 30-40 per ha were reported in Oued Draa at Ksar Chair (2911N/0759W) on the 21st.

• **Forecast**

Locust numbers are expected to decline in the extreme south-west as adults move out of the area. Numbers along the southern side of the Atlas Mountains and in Oued Draa will probably decline unless enough rain falls to allow for small scale breeding. The area of current infestations in northern Mauritania may extend into Morocco south of Smara where breeding could be in progress.

Libyan Arab Jamahiriya

• SITUATION

Mature adults were reported to be copulating and laying in the southwest near Ghat and the Algerian border during March. Ground operations treated a total of 650 ha at four locations in Wadi Tanezzuft (2500N/1014E) and nearby areas on 21-23 March.

• FORECAST

Despite control operations, small scale laying probably occurred at several places. The extent of the laying and subsequent hatching which is expected to start in early April is likely to be limited to the Ghat area but could be locally dense. Hoppers are likely to start fledging at the end of the forecast period.

Tunisia

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

EASTERN AFRICA

Sudan

• SITUATION

In early March, low numbers of mature solitarious adults persisted in a few places along the coastal plains between Suakin and Tokar Delta, primarily in Khor Ashat (1844N/3728E) and Khor Gowb (1850N/3720E). Solitarious and transiens hoppers at densities of up to 50 per sq. m. continued to mature in these places, reaching fifth instar by 8 March. These fledged and are thought to have dispersed towards the southwest. No further locusts were reported during the second half of the month.

On the northern coast and subcoastal areas, no locusts were seen during surveys in Wadi Diib and in the eastern Nubian Desert on 3-4 March.

• FORECAST

As no further rains have been reported and conditions are drying up, locust numbers are expected to decline on the Red Sea coastal plains south of Port Sudan. Low numbers of immature adults may appear in Khor Baraka or on the western side of the Red Sea Hills. No significant developments are likely.

Eritrea

• SITUATION

No locusts were reported on the Red Sea coastal plains during February and March.

• FORECAST

No significant developments are expected.

Somalia

• SITUATION

Isolated immature adults were seen at five places during surveys carried out in central coastal and interior areas of the north on 4-20 March. The adults were present near the coast between Berbera (1028N/4502E) and Meit (1058N/4705E).

• FORECAST

No significant developments are expected.

Ethiopia

• SITUATION

No locusts were seen during surveys on 13-17 March near Dire Dawa.

• FORECAST

No significant developments are likely.

Djibouti

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Kenya, Tanzania and Uganda

• FORECAST

No significant developments are likely.

NEAR EAST

Saudi Arabia

• SITUATION

No locusts were reported during surveys carried out on the Red Sea coast near Al Lith and Khulais, and in the spring breeding areas of the interior from 26 February to 14 March

• FORECAST

As no rainfall has been reported and dry conditions persist, no significant developments are likely in coastal and interior areas.

Yemen

• SITUATION

No reports received.

• FORECAST

As no rainfall has been reported and dry conditions persist, no significant developments are likely on the Red Sea and Gulf of Aden coastal plains.

Egypt

• **Situation**

No reports received.

• **Forecast**

As no rainfall has been reported and dry conditions persist, no significant developments are likely on the Red Sea coastal plains and in the adjacent interior areas.

Kuwait

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Oman

• **Situation**

No locusts were seen during surveys on the Batinah coast between Sohar and Muscat from 27 February to 4 March.

• **Forecast**

A few isolated adults may be present on the Batinah coast but laying is not expected unless rainfall occurs.

United Arab Emirates

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Qatar, Syria Arab Republic and Turkey

• **Forecast**

No significant developments are likely.

SOUTH-WEST ASIA

Iran

• **Situation**

Late reports indicated that no locusts were seen during surveys in Hormozgan and Kerman provinces and near Jask from December to February.

• **Forecast**

Low numbers of adults may begin to appear on the south-eastern coastal plains from Jask to Chabahar and in the interior from Jaz Murian to Iranshahr. Small scale breeding is expected if rainfall occurs.

Pakistan

• **Situation**

During the second fortnight of February, a few individual maturing and mature adults were seen at several locations throughout coastal (Pasni and Gwadar) and interior (Turbat and Panjgur) areas of Baluchistan as well as in Uthal.

During the first fortnight of March, a similar situation prevailed in the above areas and extended further north into Khuzdar.

• **Forecast**

Low numbers of adults will persist in Baluchistan and lay with the onset of the rains. As conditions continue to remain dry and there is no indication that rains have started, small scale breeding may only occur in a few coastal and interior areas and locust numbers will only slightly increase. No significant developments are likely in the absence of rainfall.

India

• **Situation**

No locusts were seen during surveys in the first half of March.

• **Forecast**

No significant developments are likely.

Afghanistan

• **Situation**

No reports received.

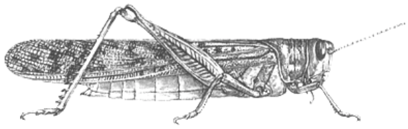
• **Forecast**

No significant developments are likely.

Announcements

Locust reporting. Affected countries are kindly reminded to make sure that locust situation reports are sent to FAO HQ by the 25th 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 email. Affected countries are encouraged to send completed FAO Locust Survey Forms with a brief interpretation of the results by email to eclo@fao.org.



No. 258

DESERT LOCUST BULLETIN

Latest webpage updates. Details and photos from the *FAO/NRI Train the Trainers Course in Oman* (http://www.fao.org/NEWS/GLOBAL/locusts/OMNtrain/OMNmain.htm) and the results and photos from *the First Joint Survey of the Desert Locust Winter Breeding Areas on the Egyptian-Sudanese Border* (http://www.fao.org/NEWS/GLOBAL/locusts/EGYSUD/JSmain.htm) are available. The locust publications page (http://www.fao.org/NEWS/GLOBAL/locusts/PUBS1.htm) has been redesigned.

Iran / Pakistan Joint Survey. The annual joint border survey in the spring breeding areas of Iran and Pakistan will take place from 15 April to 15 May. The final report will be posted on the locust webpages.

Glossary of terms

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

NON-GREGARIOUS ADULTS AND HOPPERS

ISOLATED (FEW)
- very few present and no mutual reaction occurring;
- 0 - 1 adult/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)
- enough present for mutual reaction to be possible but no ground or basking groups seen;
- 1 - 20 adults/400 m foot transect (or 25 - 500/ha).

GROUP
- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL
- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL
- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM
- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE
- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE
- swarm: 500+ km^2 • 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.

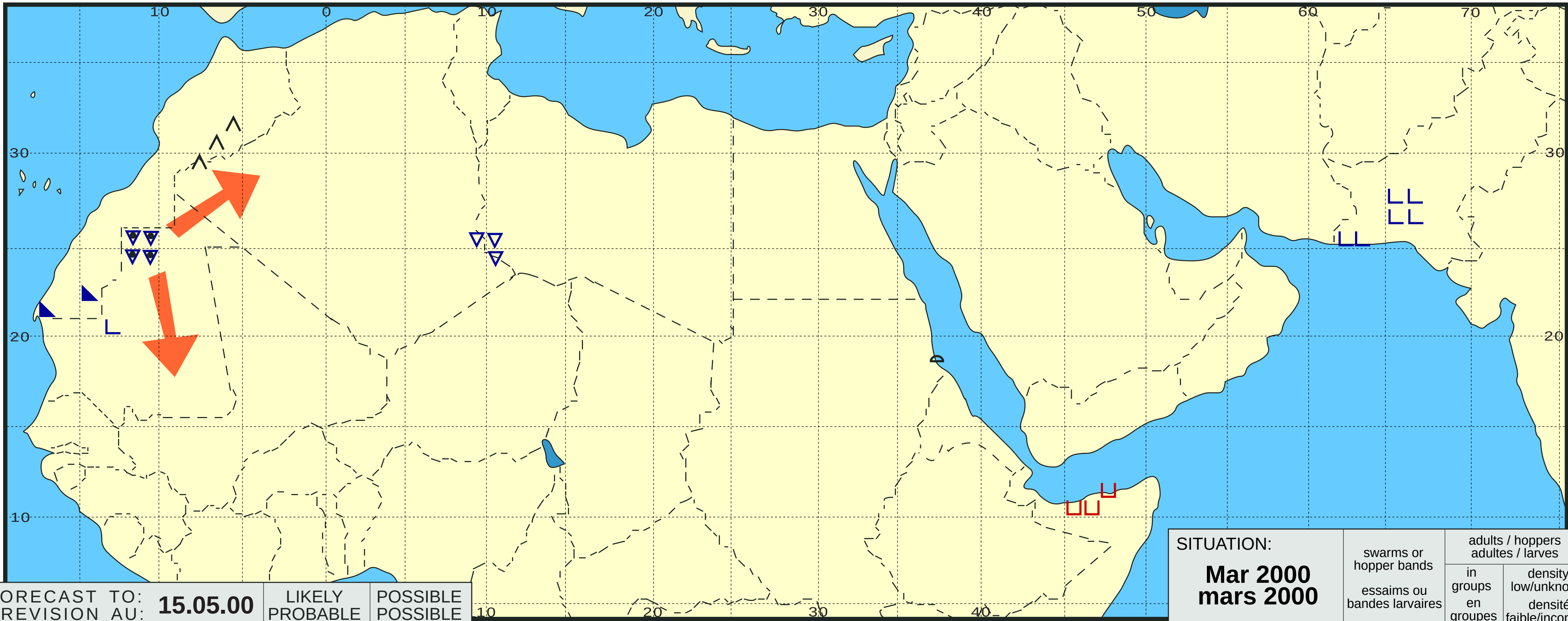
PLAGUE
- a period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously.

RECESSION
- period without widespread and heavy infestations by swarms.

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

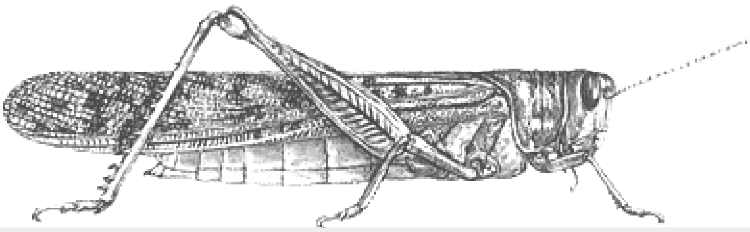
Desert Locust Summary
Criquet pèlerin - Situation résumée

258



FORECAST TO: PREVISION AU: 15.05.00	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **Mar 2000 mars 2000**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves: in groups en groupes	adults / hoppers adultes / larves: 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)			



D E S E R T L O C U S T B U L L E T I N

FAO Emergency Centre for Locust Operations

No. 259
(4 May 2000)

General Situation during April 2000
Forecast until mid-June 2000

The Desert Locust situation remained calm during April in all regions except for two small outbreaks that were in progress in North-West Africa. Control operations intensified in northern Mauritania and in one area along the Algerian-Libyan border against small hopper bands from earlier breeding. By the end of the month, operations had finished in Mauritania where only small residual populations remained. These could eventually move towards southern from May onwards. Small groups and perhaps a few swarmlets could form from current infestations along the Algerian-Libyan border by the end of May. These are expected to move towards the summer breeding areas of the Sahel in June. Elsewhere, dry conditions prevailed and no significant developments are likely.

Western Region. Small patches and bands of hoppers continued to persist in the extreme north of **Mauritania** near the Moroccan border. Fledging commenced during the first week of April in one location as the remaining hoppers matured. Ground control operations finished on 20 April, having treated 350 ha during the month. Only low numbers of hoppers and adults remain in the north. As vegetation becomes drier, these may form small groups and move from mid May onwards to the summer breeding areas of southern Mauritania while there is a very slight possibility that a few could move, at times of warm southerly winds, towards Morocco or Algeria. Breeding is in progress in a second area near the border of south-eastern **Algeria** and south-western **Libya** where high densities of hoppers had reached mid instar by late April. Control operations in both countries treated 4,500 ha during April. Any escapees are likely to form small adults groups or swarmlets from late May onwards. These are expected to move south towards the summer breeding areas of the Sahel. Isolated adults were reported in north-eastern **Morocco.** Small scale breeding occurred in south-eastern Air, **Niger** where solitarious hoppers and a few small bands were present and are likely to persist.

Central Region. Dry conditions prevailed throughout the Region. Isolated adults were only reported in northern **Somalia** and low numbers of adults may be present in eastern **Sudan** where heavy rains fell which could lead to eventual breeding.

Eastern Region. Low numbers of adults are thought to be present in western **Pakistan** where generally dry conditions prevailed. This suggests that the movement from spring breeding areas towards the summer breeding areas along the Indo-Pakistan border will be insignificant this year.

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
Telex: 610181 FAO 1
Internet: http://www.fao.org/news/global/locusts/locuhome.htm

Weather & Ecological Conditions in April 2000

For the second consecutive month, unusually dry weather prevailed in all locust areas during April. Conditions remained unfavourable for breeding except in one area along the Algerian-Libyan border.

In **West Africa**, no rainfall was reported. The prevailing winds (harmattan) were from the north-east over the Sahelian countries except in north-western Mauritania where north-westerly winds occurred. Some sandstorms affected the northern areas of West Africa during the second dekad. Despite the lack of rainfall, some patches of green vegetation persisted in wadis and low-lying areas of northern Mauritania near Bir Moghrein, in a few places of the Adrar des Iforas in northern Mali and in parts of the south-eastern Aïr, Niger. These patches were in the process of drying out.

In **North-West Africa**, moderate to heavy rains were only reported on the coast of Morocco near Agadir. As a result of several depressions over the Mediterranean basin, south-westerly winds prevailed over the Region. Stronger winds, varying from the south-west to the south-east, were often observed primarily during the first dekad. In Morocco, vegetation continued to dry out and conditions were unfavourable for locust survival or breeding. In Algeria, vegetation was dry in the south-west and in the central Sahara. Some green patches persisted in a few wadis of the Tassili N'Ajjer area, especially south-east of Djanet where conditions remained suitable for breeding. Similar conditions prevailed across the border in south-western Libya.

In **Eastern Africa**, prevailing winds were mainly from the north and the north-east. Light to locally heavy rain was reported in eastern Sudan from Derudeb to Sinkat and Port Sudan as well as from a few places in northern Somalia. Dry conditions persisted throughout the Region except from one area on the Red Sea coastal plain of Eritrea north Massawa where a few patches of green vegetation were reported.

In the **Near East**, only light rain fell in the Asir Mountains of southern Saudi Arabia. Consequently, vegetation was dry and conditions were unfavourable for breeding along the Red Sea and Gulf of Aden coastal plains, in the spring breeding areas of the interior of Saudi Arabia and on the Batinah coast of northern Oman.

In **South-West Asia**, no significant rainfall was reported from the Region. Conditions continued to be dry in the spring breeding areas of Baluchistan in western Pakistan and in the adjacent areas of south-eastern Iran. However, heavy rains may have fallen on the south-western coast of Pakistan at Jiwani where the conditions could improve.

Area Treated

Algeria	4305 ha	(1-25 April)
Libya	200 ha	(20 April)
Mauritania	352 ha	(1-20 April)

Desert Locust Situation and Forecast

(see also the summary on the first page)

<u>WEST AFRICA</u>

Mauritania

• **SITUATION**

During the first two dekads of April, small patches and bands of hoppers continued to form and mature in the extreme north near the Moroccan border. Most of the infestations were concentrated in the Tamreiket area north-east of Bir Moghrein (2510N/1135W) between W. Zouania (2535N/1116W) and W. El Mrhader (2535N/1105W) where third to fifth instar hoppers were present during the first dekad. Fledging commenced on the 4th and by the end of the dekad most of the remaining hoppers had reached the fifth instar. Control operations treated 290 ha. During the second dekad, teams focused on infestations on a smaller scale south of Bir Moghrein in the Beirat Tourassine area where breeding occurred last month. Most of these consisted of small patches and bands of first to third instar hoppers. Control operations treated 62 ha. During the last dekad, only a few residual populations remained in the above areas. Scattered solitary first to third instar hoppers were found from south of the above areas to Zouerate which is probably an extension of the breeding in Tourassine. There were unconfirmed reports of adults in the El

Hank and Oudane areas of the north-east, probably from local breeding earlier this year. There were also reports of adults in Tagant near Tichit (1821N/0929W), probably those that were seen during February in the same area.

• **Forecast**

Residual populations as well as any that escaped control or detection may form small adult groups in the north and north-east. As vegetation dries out, most of these are expected to move south towards the summer breeding areas in Tagant and the two Hodhs where they are likely to disperse and may be difficult to detect. There is a slight possibility that some may move towards the north or north-east during rare periods of warm southerly winds associated with the passage of Mediterranean depressions. Adults in the Tichit area are likely to slowly mature and lay if rainfall occurs.

Mali

• **Situation**

No reports received.

• **Forecast**

Low numbers of locusts may be present and are likely to persist in a few wadis in the Adrar des Iforas.

Niger

• **Situation**

Scattered immature adults, at densities up to 300 per ha, were seen in several wadis of south-eastern Air during surveys carried out from 30 March to 4 April. Most of the locusts were solitarious although at a few places both solitarious and transiens adults were present. At one location (1804N/1001E), small but dense second to fourth instar bands were present on 1 April.

• **Forecast**

Hoppers will continue to mature in south-eastern Air and probably persist as adults, perhaps in small groups, in the limited 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.

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

• **Forecast**

No significant developments are likely.

NORTH-WEST AFRICA

Algeria

• **Situation**

In the extreme south-east, copulating and laying by high densities of adults, up to 70 per sq. metre, continued during the first half of April at 11 places south-east of Djanet near the Libyan border. First to third instar hoppers at densities up to 1100 per bush were first reported on the 18th and continued to the end of the month. Ground control operations treated 4,305 ha of adults and hoppers on 1-25 April.

• **Forecast**

Hopper groups and bands will continue to mature and form groups of adults and perhaps a few small swarms from mid May onwards. If no further rain falls, vegetation will become dry and adults are likely to start moving south towards the summer breeding areas of the Sahel by the end of the forecast period. There is a slight possibility of adults and perhaps a few groups moving from northern Mauritania in May to the central and western Sahara where they are likely to disperse.

Morocco

• **Situation**

Scattered immature adults were reported in the north-east at Bourdim (3201N/0312W) on 10-23 April.

• **Forecast**

Locust numbers will decline along the southern side of the Atlas Mountains in the north-east. The area of current infestations in northern Mauritania may extend into Morocco south of Smara. There is a slight possibility of adults and perhaps a few groups moving from these areas towards the southern side of the Atlas Mountains during periods of warm southerly winds in May.

Libyan Arab Jamahiriya

• **Situation**

Mature adults, at densities of 6-7 per sq. metre, and first instar hopper bands, at densities of 20-35 per sq. metre, were reported in the extreme south-west near Ghat and the Algerian border at Tetaghassin (2533N/

0955E) on 14-22 April. Scattered mature adults were also reported nearby at Tanazoft (2456N/1014E). Ground control operations treated 200 ha of adults and hoppers on the 20th.

• **Forecast**

Hopper groups and bands will continue to mature and form groups of adults and perhaps a few small swarms from mid May onwards. If no further rain falls, vegetation will become dry and adults are likely to start moving south towards the summer breeding areas of the Sahel by the end of the forecast period.

Tunisia

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

EASTERN AFRICA

Sudan

• **Situation**

No locusts were reported during April.

• **Forecast**

Low numbers of adults may be present on the western side of the Red Sea Hills north of Kassala. If additional rain falls, small scale breeding could commence at the end of the forecast period.

Eritrea

• **Situation**

A few isolated adults were seen on the Red Sea coastal plains north of Massawa during surveys carried out on 26-28 April. No locusts were seen on the plains south of Massawa.

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

Isolated immature adults were seen at one location in the east near Meleden (1024N/4950E) on 30 March. No locusts were seen elsewhere in the interior during surveys carried out from 28 March to 2 April.

• **Forecast**

No significant developments are likely.

Ethiopia

• **Situation**

No locusts were seen during surveys carried out in April from Dire Dawa to the Djibouti border and from Jijiga to the Somali border.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Kenya, Tanzania and Uganda

• **Forecast**

No significant developments are likely.

NEAR EAST

Saudi Arabia

• **Situation**

No locusts were seen during surveys on the Red Sea coast and in the spring breeding areas of the interior during the first half of April.

• **Forecast**

No significant developments are likely.

Yemen

• **Situation**

No reports received.

• **Forecast**

A few scattered adults may be present in areas of recent rainfall on the Tihama; however, no significant developments are expected.

Egypt

• **Situation**

No locusts were seen during surveys on the Red Sea coastal plains and adjacent subcoastal areas from Safaga to the Sudanese border as well as in the Western Desert at Sh. Owainat on 24 April.

• **Forecast**

No significant developments are likely.

Kuwait

• **Situation**

No locusts were seen during March.

• **Forecast**

No significant developments are likely.

Oman

• **Situation**

No locusts were seen during surveys on the Batinah coast on 19-20 March.

• **Forecast**

No significant developments are likely.

United Arab Emirates

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Qatar, Syria Arab Republic and Turkey

• **FORECAST**

No significant developments are likely.

SOUTH-WEST ASIA

Iran

• **SITUATION**

No reports received.

• **FORECAST**

Low numbers of adults may be present in a few places on the south-eastern coastal plains between Jask and Chabahar and in the interior between Jaz Murian and Iranshahr. If so, numbers will decrease as conditions become dry.

Pakistan

• **SITUATION**

During the second fortnight of March, low numbers of solitarious adults, up to 5 per ha, continued to mature in coastal and interior areas of Baluchistan. New populations were found further north between Dal Bandin (2856N/6430E) and the Afghanistan border as well as closer to the Iranian border west of Turbat.

No reports were received for April.

• **FORECAST**

Locust numbers will decrease as conditions become dry and adults move east towards the summer breeding areas along the Indo-Pakistan border. This movement is expected to be insignificant.

India

• **SITUATION**

No locusts were seen during surveys in the second half of March and first half of April.

• **FORECAST**

No significant developments are likely.

Afghanistan

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Locust situation in Madagascar

Malagasy Migratory Locust. During April, an estimated 25,000 ha of residual swarms, varying from 20 to 700 ha in size, were present in the mid west of the country between Miandrivazo, Tsiroanomandidy, Manja and Morondava. Elsewhere, the situation was calm.

Red Locust. Numerous populations persisted in the north (east of Nayunga) and in the south-west (south-east of Tulear) during April.

Announcements

Locust reporting. Affected countries are kindly reminded to make sure that locust situation reports are sent to FAO HQ by the 25th 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 email. Affected countries are encouraged to send completed FAO Locust Survey Forms with a brief interpretation of the results by email to eclo@fao.org.

Egypt / Sudan Joint Survey. The report of *the First Joint Survey of the Desert Locust Winter Breeding Areas on the Egyptian-Sudanese Border* is available on the Internet at: http://www.fao.org/news/global/locusts/egysud/jsmain.htm.

DLCC Technical Group. The 7th session of the Technical Group of the FAO Desert Locust Control Committee will be held in Rome on 12-15 June. The Group will discuss Desert Locust guidelines, environmental monitoring, training and research networking, and the DLCC mandate.

NW Africa Executive Committee. The 29th session of the Executive Committee of the FAO Commission for Controlling the Desert Locust in North-West Africa will be held in Algiers on 24-29 June.

Glossary of terms

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

NON-GREGARIOUS ADULTS AND HOPPERS

ISOLATED (FEW)
- very few present and no mutual reaction occurring;
- 0 - 1 adult/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)
- enough present for mutual reaction to be possible but no ground or basking groups seen;
- 1 - 20 adults/400 m foot transect (or 25 - 500/ha).

GROUP
- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL
- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL
- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM
- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE
- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE
- swarm: 500+ km^2 • 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.

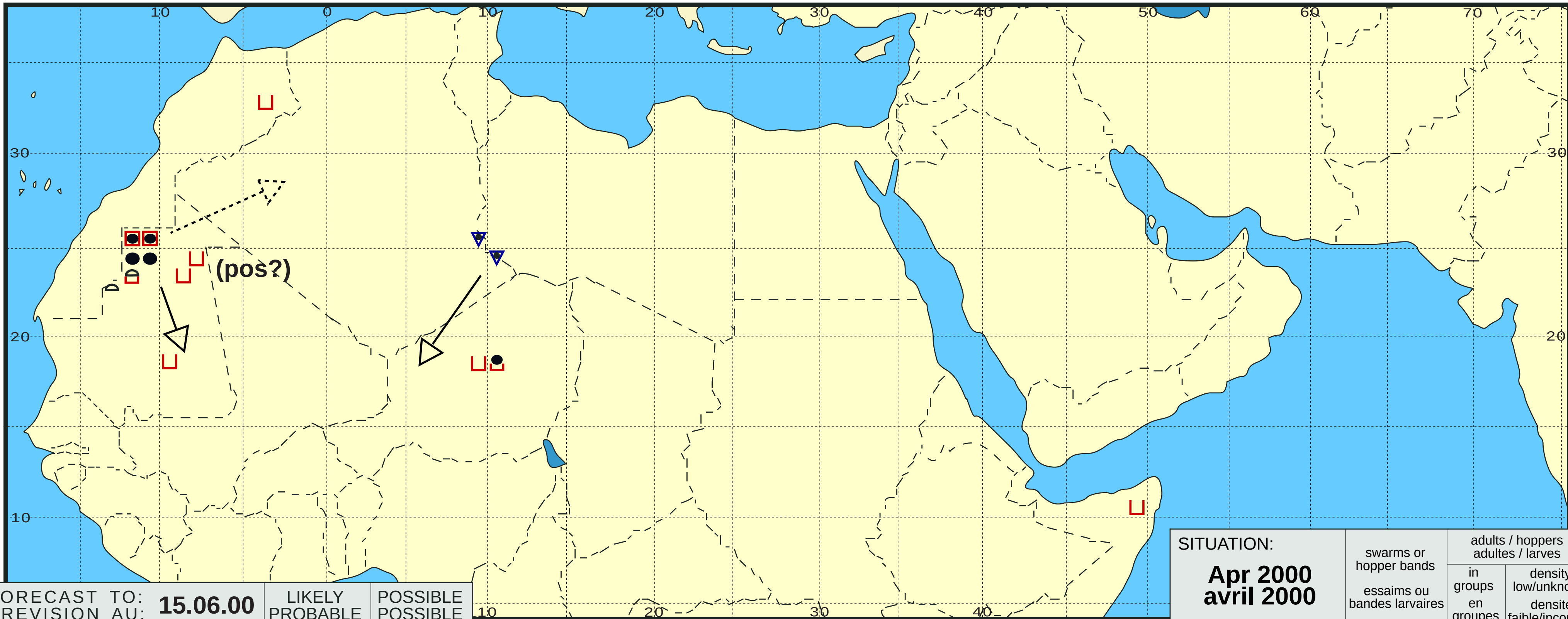
PLAGUE
- a period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously.

RECESSION
- period without widespread and heavy infestations by swarms.

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

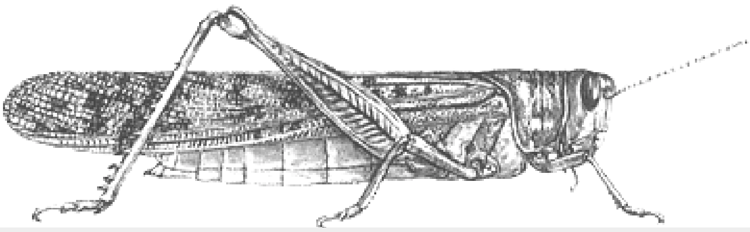
Desert Locust Summary
Criquet pèlerin - Situation résumée

259



FORECAST TO: PREVISION AU: 15.06.00	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions / conditions favourables à la reproduction		
major swarm(s) / essaim(s) important(s)		
minor swarm(s) / essaim(s) limité(s)		
non swarming adults / adultes non essaimant		

SITUATION: Apr 2000 avril 2000	swarms or hopper bands / essaims ou bandes larvaires	adults / hoppers, adultes / larves: in groups / en groupes	adults / hoppers, adultes / larves: 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)			



D E S E R T L O C U S T B U L L E T I N

FAO Emergency Centre for Locust Operations

No. 260
(5 June 2000)

General Situation during May 2000
Forecast until mid-July 2000

The Desert Locust situation remained calm during May in all regions. No locusts were reported from the previously infested areas of Algeria and Libya. Breeding conditions are improving in Sudan and Somalia where small scale laying may occur during the forecast period. By the end of the period, small scale laying may also occur in southern Mauritania if the rains starts.

Western Region. No locusts were reported during May except for an unconfirmed sighting of flying groups in Adrar, **Mauritania**. A few small adult groups were reported in the extreme south-west of **Morocco** and a few adults were also seen in the north-east. No locusts were observed during surveys carried out in the south-east and in the central Sahara of **Algeria**, nor were any seen in **Libya**. A late report indicated that 710 ha of fifth instar hoppers and fledglings were treated in mid-April in south-eastern Aïr, **Niger**. Low numbers of adults are likely to appear in southern Mauritania during the forecast period and lay with the onset of the rains.

Central Region. Scattered and isolated adults were present in northern **Somalia**. No locusts were reported in the summer breeding areas of **Sudan**. Small scale breeding may commence during the forecast period in areas of recent rainfall in the interior of Sudan and in northern Somalia.

Eastern Region. Low numbers of adults were present during April and throughout May in the coastal areas of Baluchistan, western **Pakistan**. No locusts were reported from Rajasthan, **India** from mid-April to mid-May. The low numbers of locusts present in the spring breeding areas of Baluchistan suggest that movement towards the Indo-Pakistan border and subsequent breeding will be on a very small scale this summer.

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
Telex: 610181 FAO 1
Internet: http://www.fao.org/news/global/locusts/locuhome.htm

Weather & Ecological Conditions in May 2000

Dry weather prevailed in most locust areas during May. Conditions were drying up and remained unfavourable for breeding except in northern Somalia and Sudan where they may be improving as a result of recent rainfall.

In **West Africa**, the Inter-Tropical Convergence Zone (ITCZ) moved progressively northwards reaching about 15°N by the middle of May and then fluctuating between 15°N and 20°N during the remainder of the month. As a result, light rainfall was reported during the second half of the month in some areas of the northern Sahelian belt. An important Mediterranean depression which affected Morocco and Algeria in the beginning of the third dekad produced some light to medium rainfall in northern Mauritania (Bir Moghrein) where standing water was reported. The prevailing winds (harmattan) were from the north-east and east over the Sahelian countries except in western Mauritania where northerly winds occurred. Despite these sporadic and isolated showers, most of the vegetation in northern Mauritania is drying out. A few patches of green vegetation remained in wadis and low-lying areas near Bir Moghrein, in a few places of the Adrar des Iforas in northern Mali and in parts of the south-eastern Aïr, Niger. Unfavourable breeding conditions prevailed in nearly all areas.

In **North-West Africa**, light to heavy rains were reported by most stations from Morocco to western Libya. As a result of several depressions over the Mediterranean basin, warm south-westerly winds prevailed over the Region. Vegetation was reported to be drying out or totally dry in all countries. Consequently, conditions are not favourable for locust breeding.

In **Eastern Africa**, widespread light to locally heavy rains fell in the northern Sahelian area of Sudan during the second dekad of May, with El Fasher receiving 19 mm and El Obeid 36 mm. This is about two and three times the monthly long term average, respectively. Widespread moderate rains fell in northern Somalia throughout the entire month. As a result, vegetation was green on the central northern coastal plains and in the adjacent interior areas and breeding conditions were improving. The south-westerly wind flow over the Horn of Africa that is associated with the South-West Asian monsoon became well established from the second dekad onwards.

In the **Near East**, only light rain fell in the Asir Mountains of southern Saudi Arabia. Consequently, vegetation was dry and conditions continued to be unfavourable for breeding along the Red Sea and Gulf of Aden coastal plains, in the spring breeding areas of the interior of Saudi Arabia, and on the Batinah coast of northern Oman.

In **South-West Asia**, no significant rainfall was reported from the Region. Conditions continued to be dry in the spring breeding areas of Baluchistan in western Pakistan and in the adjacent areas of south-eastern Iran. A serious drought persisted in Rajasthan, India which was temporarily broken by light rainfall in Barmer during the first half of May.

Area Treated

Algeria	**650 ha**	**(26-27 April)**
Niger	**710 ha**	**(13-15 April)**

Desert Locust Situation and Forecast

(see also the summary on the first page)

<u>WEST AFRICA</u>

Mauritania

• Situation

During the first week of May, there was an unconfirmed report of a few flying groups in Adrar, east of Oudane (2055N/1125W). No other locust activity was reported during the month.

• Forecast

Scattered residual populations may persist in the remaining green patches of vegetation along the wadis in the Bir Moghrein and El Hank areas. As the vegetation dries out, these populations are expected to move south towards the summer breeding areas in Tagant and the two Hodhs where they are expected to mature and lay with the onset of the rains. Adults in the Dhar of Tichitt will slowly mature as ecological conditions improve.

Mali

• **Situation**

No reports received.

• **Forecast**

Low numbers of locusts may be present and are likely to persist in a few wadis in the Adrar des Iforas. Limited laying could commence at the end of the forecast period if rainfall occurs.

Niger

• **Situation**

During April, scattered solitarious adults and transiens populations were seen during surveys carried out on the 10-17th in south-eastern Aïr towards Areschima-Sud (1801N/0958E). Control operations treated 710 ha on the 13-15th at three sites against fifth instar hoppers at densities up to 6,000 hoppers per bush and fledglings at densities varying from 100 to 10,000 per ha.

• **Forecast**

Untreated adults may persist in the limited areas of green vegetation. These could move west towards Tamesna and lay at the end of the forecast period if rainfall occurs.

Chad

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Senegal

• **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.

NORTH-WEST AFRICA

Algeria

• **Situation**

On 26-27 April, first to third instar hoppers at densities up to 250 per bush were treated on 650 ha south-east of Djanet (2434N/0930E). No locusts were observed in this area and in the Central Sahara during May.

• **Forecast**

Any locusts that may have escaped detection or control may move on a small scale towards the summer breeding areas of the Sahel. No significant developments are expected during the forecast period.

Morocco

• **Situation**

A few isolated immature adults were reported in the north-east at El Khat (3250N/0227W) on 12 May. Seven small groups were seen in the extreme south-west at Bir Guendouz (2124N/1634W) on the 15th.

• **Forecast**

Locusts in the south-west will, as a result of drying conditions, probably move on a small scale south-east towards the summer breeding areas of Mauritania. Locust numbers will continue to decline along the southern side of the Atlas Mountains in the north-east.

Libyan Arab Jamahiriya

• **Situation**

No locusts were reported during May.

• **Forecast**

Any hoppers that may have escaped detection or control in the extreme south-west, near the Algerian border, will continue to develop and fledge at the beginning of the forecast period. As the vegetation dries and conditions are no longer suitable for breeding, these adults are expected to move south towards the summer breeding areas of the Sahel. Further breeding is unlikely along the Algerian border.

Tunisia

• **Situation**

No locusts were reported during April.

• **Forecast**

No significant developments are likely.

EASTERN AFRICA

Sudan

• **Situation**

No locusts were reported in the summer breeding areas up to 25 May.

• **Forecast**

Low numbers of adults may be present on the western side of the Red Sea Hills north of Kassala. These could move west towards Northern Kordofan and Northern Darfur during the forecast period and perhaps lay on a small scale in areas of recent rainfall, if additional rain falls.

Eritrea

• **Situation**

No locusts were reported during May.

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

Scattered and isolated mature adults were seen on the coastal plains north Erigavo at Wadi Ukrooi (1101N/4733E) and at Hadaftimo (1044N/4807E), respectively, on 26-27 May. No other locusts were seen during a survey carried out on 23-29 May on the coastal plains and the interior.

• **Forecast**

Small scale breeding may start in the above areas during the forecast period. No significant developments are likely.

Ethiopia

• **Situation**

No locusts were seen during surveys carried out on 6-14 May in the eastern part of the country from Dire Dawa to the Djibouti border.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Kenya, Tanzania and Uganda

• **Forecast**

No significant developments are likely.

NEAR EAST

Saudi Arabia

• **Situation**

No locusts were reported from the spring breeding areas of the Red Sea coastal plains and in the interior during May.

• **Forecast**

No significant developments are likely.

Yemen

• **Situation**

No locusts were reported up to 8 May.

• **Forecast**

No significant developments are likely.

Egypt

• **Situation**

No locusts were seen on 23 May during surveys on the Red Sea coastal plains from Safaga to the Sudanese border, in adjacent subcoastal areas, and in the Western Desert at Sh. Owainat.

• **Forecast**

No significant developments are likely.

Kuwait

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Oman

• **Situation**

No locusts were seen during surveys in the spring breeding areas on the Batinah coast and in the interior on 11-18 May.

• **Forecast**

No significant developments are likely.

United Arab Emirates

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Qatar, Syria Arab Republic and Turkey

• **Forecast**

No significant developments are likely.

SOUTH-WEST ASIA

Iran

• **Situation**

A late report indicated that no locusts were seen during a joint survey of coastal and interior areas of Sistan-Baluchistan, Hormozgan and Kerman provinces during the second half of April. No locusts were seen during a survey carried out on the coastal plains near Jask (2540N/5746E) on 15 May.

• **Forecast**

No significant developments are likely.

Pakistan

• **SITUATION**

During April, low numbers of mature and maturing solitary adults, up to 4 per ha, were reported from 24 places throughout the coastal and interior areas of Baluchistan.

During May, isolated locusts were found at only 13 places in the above mentioned areas. Densities remained the same as in April.

• **FORECAST**

Locust numbers will decline in the spring breeding areas of Baluchistan and only isolated individuals are expected to move towards the Indo-Pakistan border during the forecast period. Consequently, initial locust numbers in the summer breeding areas will be extremely low this year and no significant developments are likely.

India

• **SITUATION**

No locusts were seen during surveys carried out in Rajasthan during the second half of April and the first half of May.

• **FORECAST**

A few isolated adults are likely to appear in Rajasthan and lay on a very small scale with the onset of the monsoon rains. 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 locust situation reports are sent to FAO HQ by the 25th 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 email. Affected countries are encouraged to send completed FAO Locust Survey Forms with a brief interpretation of the results by email to eclo@fao.org.

DLCC Technical Group. The 7th session of the Technical Group of the FAO Desert Locust Control Committee will be held in Rome on 12-15 June. The Group will discuss Desert Locust guidelines, environmental monitoring, training and research networking, and the DLCC mandate.

NW Africa Executive Committee. The 29th session of the Executive Committee of the FAO Commission for Controlling the Desert Locust in North-West Africa will be held in Algiers on 24-29 June.

Glossary of terms

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

NON-GREGARIOUS ADULTS AND HOPPERS

ISOLATED (FEW)
- very few present and no mutual reaction occurring;
- 0 - 1 adult/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)
- enough present for mutual reaction to be possible but no ground or basking groups seen;
- 1 - 20 adults/400 m foot transect (or 25 - 500/ha).

GROUP
- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL
- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL
- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM
- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE
- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE
- swarm: 500+ km^2 • 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.

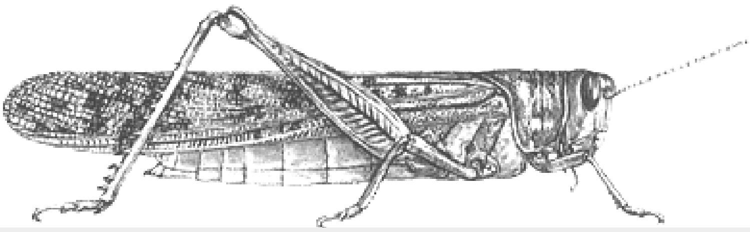
REMISSION
- period of deep recession marked by the complete absence of gregarious populations.

Desert Locust Summary
Criquet pèlerin - Situation résumée

260

FORECAST TO: PREVISION AU: 15.07.00	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favourables 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 2000 mai 2000**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves in groups en groupes	adults / hoppers adultes / larves 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. 261
(4 July 2000)

General Situation during June 2000
Forecast until mid-August 2000

The Desert Locust situation remained calm during June in all regions and continued to be free from any gregarious activity. Only a few insignificant adults were reported in north-western Mauritania, in Niger, Egypt and northern Somalia. Breeding conditions are currently improving in the northern Sahel from Mali to Sudan where small scale laying may occur during the forecast period.

Western Region. There was a report of mature adults in the Dakhlet, **Mauritania** in mid June. Some scattered solitarious adults were seen in central Aïr, **Niger** and isolated adults were seen in **Morocco**. Although no reports were received from other countries in the Region, the current situation is expected to be calm with only a possibility of some adults in south-eastern **Algeria**. Low numbers of adults are likely to appear in southern Mauritania during the forecast period and lay with the onset of the rains. Adults may also appear and lay in areas of recent rainfall in the eastern Tamesna, Niger. Both areas require regular monitoring in the coming months.

Central Region. Mature adult populations were treated in a cultivated area in the Western Desert of **Egypt**. Scattered and isolated adults were present in northern **Somalia**. No locusts were reported in the summer breeding areas of **Sudan**. Small scale breeding is expected to commence during the forecast period in areas of recent rainfall in the interior of Sudan. Elsewhere, the situation will remain calm.

Eastern Region. No locusts were reported in the Region. Low numbers of adults may appear in the summer breeding areas along the **Indo-Pakistan border** and lay with the onset of the monsoon rains. Breeding this year is expected to be on a very small scale.

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
Telex: 610181 FAO 1
Internet: http://www.fao.org/news/global/locusts/locuhome.htm

No. 261

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in June 2000

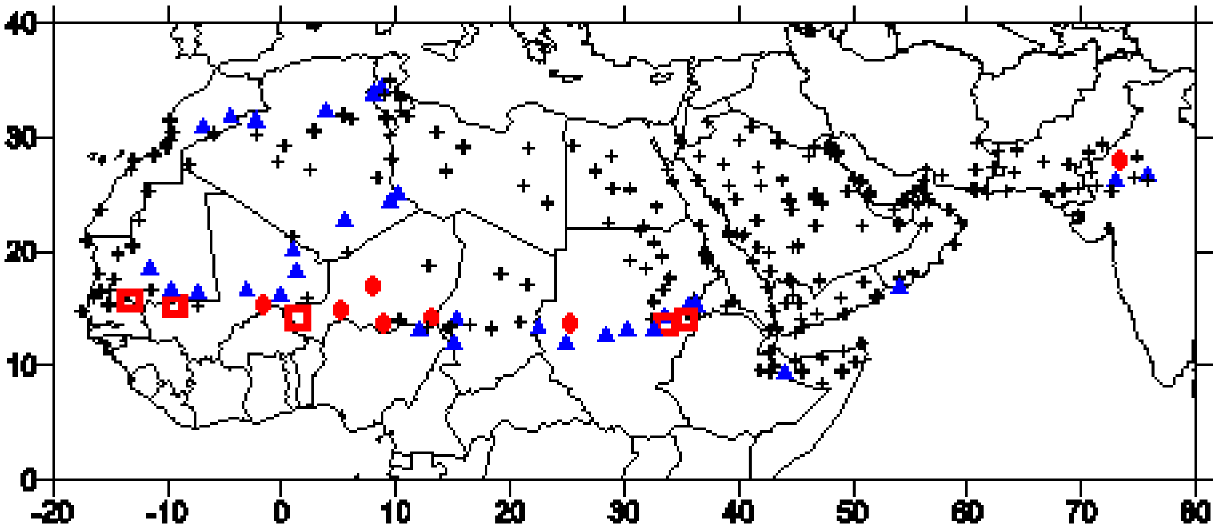
The rainy season has progressively started in the northern portion of the Sahel from Mali to Sudan where conditions are slowly becoming favourable for breeding but dry weather and unfavourable breeding conditions prevailed in southern Mauritania. Dry conditions prevailed in the summer breeding areas of South-West Asia.

In **West Africa**, the Inter-Tropical Convergence Zone (ITCZ) broadly fluctuated between 14°N and 18°N during June. As a result some light to heavy rains fell in parts of the northern Sahel except in southern Mauritania where only sporadic light rains were reported (see map). Most of these rains were below the thirty year average for June except in the Aïr region of Niger where nearly 40 mm of rain fell in Agadez which is almost four times the monthly long term average. Winds were highly variable over the Sahelian countries as a result of the fluctuating ITCZ position. Despite sporadic light rain showers, most of the vegetation in southern Mauritania is dry and conditions remain unfavourable for breeding. Elsewhere in the northern Sahel, favourable breeding conditions should slowly develop.

In **North-West Africa**, light rain was reported by few stations from Morocco to Tunisia. During the first dekad of June, light to perhaps heavy showers were reported in the Hoggar Mountains of southern Algeria, extending to the Djanet area. Analysis of SPOT-Vegetation satellite imagery suggested that current vegetation continues to dry out or is completely dry in locust areas of all countries in the Region.

In **Eastern Africa**, light rains fell in parts of the summer breeding areas in Northern Darfur, Northern Kordofan and near Kassala, Sudan and moderate rains were reported at El Fasher (21 mm). Although these amounts were well below the long term average for June, green vegetation was present and conditions are favourable for breeding in Northern Kordofan as a result of rainfall during the past two months. A few light showers occurred in northern Somalia where vegetation is drying out on the central northern coastal plains but remains green in the wadis as well as on the escarpment in the interior. The south-westerly wind flow over the Horn of Africa that is associated with the South-West Asian monsoon is well established. Dry conditions persisted on the coastal plains of Eritrea.

In the **Near East**, no significant rainfall was reported from the Region except for the Tihama coastal plains of Yemen where light rains fell in the north and heavier rains falls in the south on 28 June. Vegetation was dry and conditions continued to be unfavourable for breeding along the Red Sea and Gulf of Aden coastal plains, in the interior of Saudi Arabia, and on the Batinah coast of northern Oman.



June 2000 rainfall — ***Pluie mensuelle: Juin 2000***

+ Unsignificant - *Nulle* (< 1 mm)
▲ Light - *Faible* (1-20 mm)
● Moderate - *Moyenne* (20-50 mm)
□ Heavy - *Forte* (> 50 mm)

In **South-West Asia**, no significant rainfall was reported from the Region where a serious drought continues. Only few areas of eastern Rajasthan, India reported light to moderate showers during one day in June. Dry conditions persisted in Baluchistan of western Pakistan and south-eastern Iran.

Area Treated

Egypt	no details	(24 June)

Desert Locust Situation and Forecast

(see also the summary on the first page)

WEST AFRICA

Mauritania

• **SITUATION**

On the 14th of June, some groups of mature adults were reported east of Nouadhibou in the Dakhlet near Bou Lanouar (2116N/1630W) and the Moroccan border. These populations are probably those previously seen in the extreme south-western Morocco near Bir Guendouz (2124N/1634W) during May [see DL Bulletin No. 260] which are in the process of moving south towards the summer breeding areas. No other locust activity was reported during the month.

• **FORECAST**

Low numbers of adults are likely to appear in the summer breeding areas of Tagant and the two Hodhs and lay with the onset of the rains. The first generation of breeding is expected to be on a small scale but dispersed throughout the south and south-east, depending on the nature of the rainfall. No further activity is likely in the north due to dry conditions.

Niger

• **SITUATION**

During the first week of June, scattered solitarious adults were seen in central and northern Aïr near Assode (1825N/0838E), Oued Zilalet and Iko (1846N/0804E). No locusts were seen elsewhere in northern Air near Tadreck nor in the Irhazer area of the Tamesna during the month.

• **FORECAST**

The scattered residual populations previously and currently reported in the Aïr area could move west towards Tamesna and lay during the forecast period in areas of recent rainfall.

Mali

• **SITUATION**

No reports received.

• **FORECAST**

Low numbers of locusts are likely to be present and will persist in a few wadis in the Adrar des Iforas where small scale laying could commence during the forecast period if rainfall occurs.

Chad

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Senegal

• **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.

NORTH-WEST AFRICA

Algeria

• **SITUATION**

No reports received.

• **FORECAST**

Low numbers of adults may be present and could persist in areas of recent rainfall in the south-east near Djanet or in areas of run-off near the Hoggar Mountains. No significant developments are expected during the forecast period.

Morocco

• **SITUATION**

A few isolated adults were reported near Errachidia at Merzouga (3102N/0400W) on 5 June.

• **FORECAST**

No significant developments are likely.

Libyan Arab Jamahiriya

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Tunisia

• **Situation**

A late report indicated that a single mature adult was seen on 8 May in the Matmata El Jadida (3340N/ 1001E) region of the south.

• **Forecast**

No significant developments are likely.

EASTERN AFRICA

Sudan

• **Situation**

No locusts were seen during surveys carried out in Northern Kordofan from 7-30 June. There was an unconfirmed report of a swarm on 1 June in the extreme north of Northern Kordofan flying from the south-east towards the north in Wadi Almuhbes (1545N/2947E). Given the low population numbers in the Region and generally dry conditions up to now, this may not be a swarm.

• **Forecast**

Low numbers of adults may be present on the western side of the Red Sea Hills north of Kassala and in parts of Northern Kordofan and Northern Darfur. Small scale breeding is expected to occur primarily in areas of Northern Kordofan which have received rainfall during the past two months and, to a lesser extent, in Northern Darfur and Kassala. Low numbers of hoppers are likely to appear during the forecast period.

Eritrea

• **Situation**

No locusts were reported along the Red Sea coast and in the interior during June.

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

Scattered mature adults were seen on the northern coast west of Berber near Sabawanak (1033N/4405E) and near the foothills in Wadi Osoli (1033N/4348E) on 4 June, and east of Berber near Hodmo (1034N/ 4618E) on the 20th.

• **Forecast**

Low numbers of adults may persist in a few coastal and subcoastal areas. No significant developments are likely.

Ethiopia

• **Situation**

No locusts were seen during surveys carried out on 11-19 June in the eastern part of the country from Dire Dawa to the Djibouti border.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Kenya, Tanzania and Uganda

• **Forecast**

No significant developments are likely.

NEAR EAST

Saudi Arabia

• **Situation**

No locusts were reported along the Red Sea coastal plains or in the interior during June.

• **Forecast**

No significant developments are likely.

Yemen

• **Situation**

No locusts were reported during the first half of June from the Red Sea and Gulf of Aden coastal plains.

• **Forecast**

Low numbers of adults may appear and persist in areas of recent rainfall on the Tihama.

Egypt

• **Situation**

Mature transiens adults at densities of 2-3 per sq. m. in cropping areas were treated on 26 June in El-Heiz (2802N/2838E) in the Western Desert. It is unclear if these are Desert Locust or a local species of grasshopper. No other locusts were seen during surveys on the Red Sea coastal plains from Safaga to the Sudanese border, in adjacent subcoastal areas, and in other parts of the Western Desert.

• **Forecast**

No significant developments are likely.

Kuwait

• **Situation**

No locusts were reported during May.

• **Forecast**

No significant developments are likely.

Oman

• **SITUATION**

The situation is reported to be calm and no surveys were conducted during June.

• **FORECAST**

No significant developments are likely.

United Arab Emirates

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Qatar, Syria Arab Republic and Turkey

• **FORECAST**

No significant developments are likely.

SOUTH-WEST ASIA

Iran

• **SITUATION**

A late report indicated that no locusts were seen during surveys carried out on 22 April to 23 May in Hormozgan and Kerman provinces.

• **FORECAST**

No significant developments are likely.

Pakistan

• **SITUATION**

No locusts were reported during June.

• **FORECAST**

Low numbers of adults are likely to appear in parts of the summer breeding areas, primarily Tharparkar and to a lesser extent Khairpur and Bahawalpur. Laying will occur on a small scale with the onset of the monsoon rains.

India

• **SITUATION**

No locusts were seen during surveys carried out in Rajasthan during the second half of May and the first half of June.

• **FORECAST**

A few isolated adults are likely to appear in Rajasthan and lay on a very small scale with the onset of the monsoon rains. No significant developments are likely.

Afghanistan

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Other Locust species

Madagascar. Gregarious Malagasy Migratory Locust (*Locusta migratoria capito*) adults persisted and swarms continued to form mainly in the central western portion of the country during May and early June. The situation is reported to have deteriorated during the rainy season which suggests that there is a risk of a re-invasion later this year.

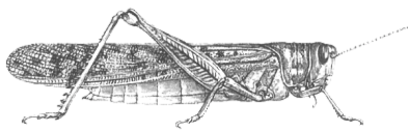
Kazakhstan. During June, large-scale operations were in progress against the Italian Locust (*Calliptamus italicus*) north of the 49th parallel from the north-western to the eastern part of the country. All hopper instars were present and hatching is continuing in a few areas. Some adults appeared in the south in mid-June.

China. Dry weather has favoured the development of a serious locust outbreak in the eastern provinces as well as another outbreak in the north-west. In mid June, about 1 million ha were reported to be infested in the former area by what is thought to be Migratory Locust (*Locusta migratoria*) at densities up to 4,000 adults per sq. m. About 33,000 ha infested by Migratory Locust and 2 million ha by Italian Locust, at densities up to 1,000 adults per sq. m., were reported in the north-west. Control operations are in progress.

Peru. An outbreak of Peruvian Locust (*Schistocerca piceifrons peruviana*) has developed in the northern highlands and in the adjacent coastal areas where crop damage has been reported. There may be a risk that some swarms could move to southern Ecuador.

Announcements

Locust reporting. Affected countries are kindly reminded to make sure that locust situation reports are sent to FAO HQ by the 25th 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 email. Affected countries are encouraged to send completed FAO Locust Survey Forms with a brief interpretation of the results by email to eclo@fao.org.

FAO Commission for Controlling the Desert Locust in the Eastern Region of its Distribution Area in South West Asia. The 13th session of the Executive Committee and the 22nd session of the Commission will be held in Tehran, I.R. Iran on 17-21 September.

Glossary of terms

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

NON-GREGARIOUS ADULTS AND HOPPERS

ISOLATED (FEW)
- very few present and no mutual reaction occurring;
- 0 - 1 adult/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)
- enough present for mutual reaction to be possible but no ground or basking groups seen;
- 1 - 20 adults/400 m foot transect (or 25 - 500/ha).

GROUP
- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL
- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL
- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM
- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE
- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE
- swarm: 500+ km^2 • 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.

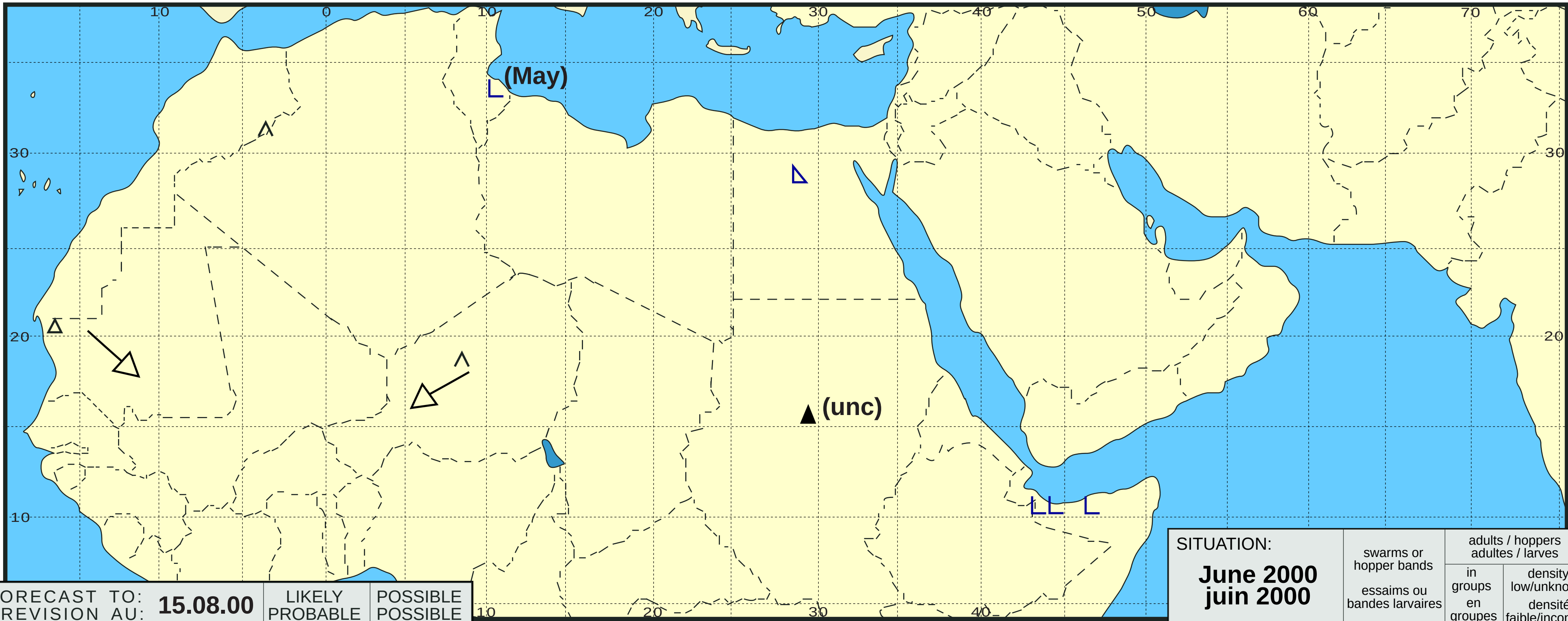
PLAGUE
- a period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously.

RECESSION
- period without widespread and heavy infestations by swarms.

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

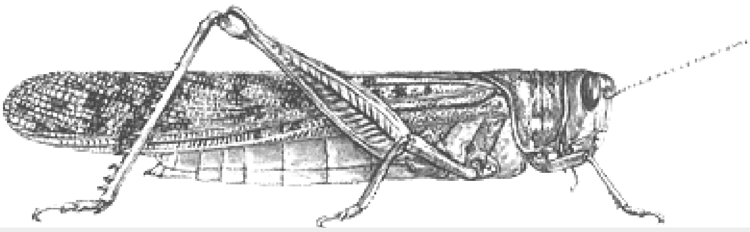
Desert Locust Summary
Criquet pèlerin - Situation résumée

261



FORECAST TO: PREVISION AU: **15.08.00**	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favourables 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 2000 juin 2000**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves: in groups en groupes	adults / hoppers adultes / larves: 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. 262
(4 August 2000)

General Situation during July 2000
Forecast until mid-September 2000

Only a few countries reported Desert Locust during July and the situation remains calm. Little information was provided by the Sahelian countries where locust habitat conditions are improving but where no surveys were in progress except in Niger. In Morocco, 456 ha were treated against hopper and fledgling groups. Breeding will take place during the forecast period in the Sahelian countries. Its scale needs to be assessed but is likely to be only at a low level. Elsewhere, only a few scattered adults were reported in Sudan, Somalia and Pakistan where small scale breeding may occur during the forecast period .

Western Region. Only two immature adults were reported in **Mauritania**, near Aioun El Atrouss. In **Morocco**, 456 ha infested by groups of hoppers mixed with fledglings were located and treated in the Drâa and Ziz wadis around the latitude 3030N. Some adults were present in south-eastern **Algeria**. No locusts were reported from **Libya**. No reports were received from other countries in the Region. A small scale breeding may be in progress in southern Mauritania, north-eastern **Mali** and northern **Niger** where good rainfall occurred during the month. These areas require regular monitoring in the coming months.

Central Region. Only scattered mature adults were present in the summer breeding areas of North Kordofan, in **Sudan**, and in the north-western part of **Somalia**. Small scale breeding may be in progress in some parts of the interior of Sudan where sufficient rainfall occurred for the last three months.

Eastern Region. No locusts were seen from the end of May to early July in eastern **Iran**. Low numbers of adults were still present in Baluchistan, **Pakistan**, and started to appear in the eastern deserts, near the Indian border, during the first half of July. No locusts were reported from Rajasthan, **India**, from mid-June to the end of July. These low populations indicate that the summer breeding will be on a very small scale.

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
Telex: 610181 FAO 1
Internet: http://www.fao.org/news/global/locusts/locuhome.htm

No. 262

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in July 2000

The rainy season has started in the northern part of the Sahel from Mauritania to Sudan where conditions are now quite favourable for breeding. In the summer breeding areas of South-West Asia, the monsoon has started during the first dekad of the month and conditions are slowly becoming suitable for breeding.

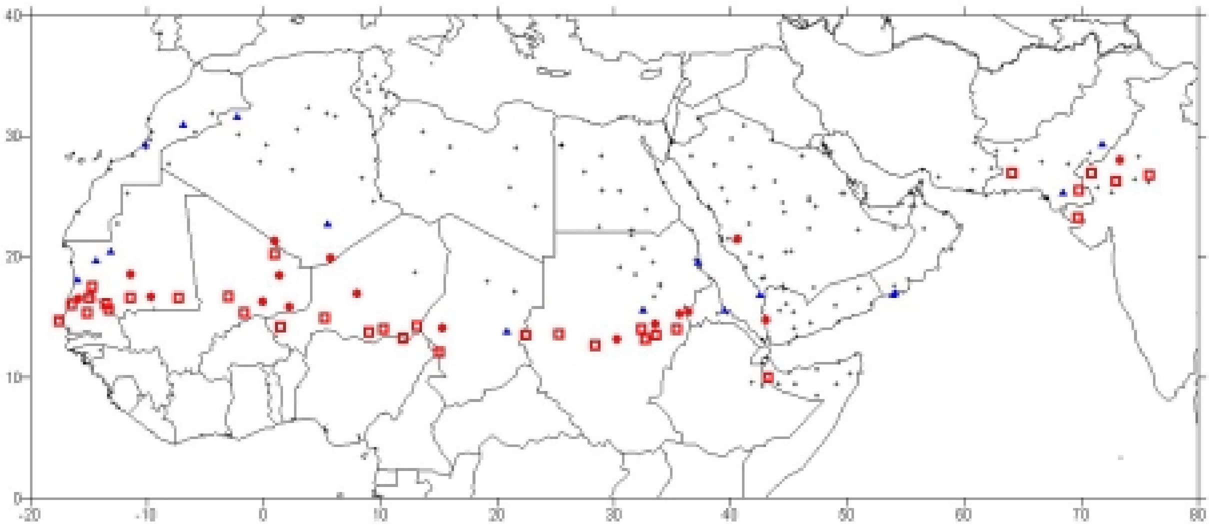
In **West Africa**, the Inter-Tropical Convergence Zone (ITCZ) broadly fluctuated between 15ϒN and 20ϒN during July. As a result some moderate to very heavy rains fell in most parts of the northern Sahel (see map). Most of these rains were equal to or above the thirty year average for July in Senegal, Mauritania and Niger. In Mali, however, the reported rainfalls were quite below the expected level for the month, except in the Adrar des Iforas where 80 mm of rain fell in Tessalit which is almost three times the monthly long term average. Winds were highly variable over the Sahelian countries as a result of the fluctuating ITCZ position. As a result of these relatively good rains, most of the vegetation in northern Sahel is greening and conditions are becoming favourable for breeding.

In **North-West Africa**, only light rains were reported from a few stations in the north-western part of the Region. During the third dekad of July, light to moderate showers were reported in the southern Hoggar Mountains of southern Algeria. Analysis of SPOT-Vegetation satellite imagery suggested that current vegetation continues to dry out or is completely dry in locust areas of all countries in the Region.

In **Eastern Africa**, prevailing winds were mainly from the north and the north-east. Moderate to locally heavy rains were reported in the northern Sahelian belt of Sudan where seasonal vegetation is greening and conditions becoming favourable for breeding. On the Red Sea coast, some light rains were locally reported in Sudan and Eritrea but most of the vegetation is drying out, especially on the central northern coastal plains of Somalia where no rains fell during the month.

In the **Near East**, only a few light to moderate rains fell in some areas of the Tihama coastal plain of southern Saudi Arabia and western Yemen where patches of vegetation are greening. Nevertheless, the vegetation remained generally dry and conditions continued to be unfavourable for breeding along the Red Sea and Gulf of Aden coastal plains, in the interior of Saudi Arabia, and on the Batinah coast of northern Oman.

In **South-West Asia**, the monsoon started during the first dekad of July. Most stations located in eastern Pakistan and western India have reported heavy rains. Vegetation in greening and conditions were recently reported to be highly favourable for breeding. Dry conditions persisted in Baluchistan of western Pakistan and south-eastern Iran.



July 2000 rainfall — ***Pluie mensuelle - Juillet 2000***

+ Unsignificant - *Nulle* (< 1 mm)
▲ Light - *Faible* (1-20 mm)
● Moderate - *Moyenne* (20-50 mm)
□ Heavy - *Forte* (> 50 mm)

Area Treated

Morocco	456 ha	(18-31 July)

Desert Locust Situation and Forecast

(see also the summary on the first page)

<u>**WEST AFRICA**</u>

Mauritania

• **SITUATION**

Only two isolated solitarious immature adults were observed on 10 July at two locations near Aioun El Atrouss (1644N/0858W and 1610N/1022W). Routine surveys have not yet started and no other locust activity was reported during the month.

• **FORECAST**

Low numbers of adults are expected to be present and breed in the parts of the southern Tagant, Brakna, Assaba and the two Hodhs which received rains. The scattered hoppers which may consequently appear will be difficult to detect. No activity is likely in the north due to dry conditions.

Mali

• **SITUATION**

No report received for July.

• **FORECAST**

Low numbers of locusts may be present in the Adrar des Iforas. Small scale breeding is likely to occur in areas of recent rainfall or run-off during the forecast period.

Niger

• **SITUATION**

No report on the current survey in Tamesna and central Aïr was received.

• **FORECAST**

The scattered populations previously reported in the Aïr mountains may have bred in areas where rainfall occurred in June and July. Low numbers of adults of the next generation may appear at the end of the forecast period.

Chad

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Senegal

• **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.

<u>**NORTH-WEST AFRICA**</u>

Algeria

• **SITUATION**

A few scattered adults were still observed in the south-east near Djanet during July.

• **FORECAST**

The residual populations are expected to breed at a small scale in the south-east, in the areas of recent rainfall or run-off. Low number of hoppers could appear during the forecast period.

Morocco

• **SITUATION**

On 18 July, a few 3rd and 4th instar hopper groups (1 to 2 hoppers per sq.m.) were located south of Errachidia, at Bour Khamlia (3030N/0425W), over a 70 ha cultivated area. On 21 July, 5th instar hoppers mixed with fledglings at maximum densities of 2 individuals per sq.m. were observed at Bour Khamlia and El Khraoua (3100N/0410W) respectively on 100 and 15 ha. At a third place in the same area, 150 ha were infested by 3rd to 5th instar hoppers and fledglings at an average density of 2 individuals per sq.m. Nomads reported a similar situation from Foum Bousseroual (3003N/0415W). All the identified patches were treated between 20 and 31 July.

On 26 July, small groups of solitary adults at densities of 6-7 per sq.m. were located in the Ouarzazate Province, near the Aît Ali Ouhassou dam (3030N/ 0600W). The 50 ha infested area was treated on 27 July.

• **FORECAST**

The infested patches having all been treated and conditions no longer being suitable, no further significant developments are likely.

Libyan Arab Jamahiriya

• **SITUATION**

No locusts were reported during July.

• **FORECAST**

No significant developments are likely.

Tunisia

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

EASTERN AFRICA

Sudan

• **Situation**

During surveys carried out in Northern Kordofan on 14- 21 July, scattered mature adults were seen near Korib (1607N/2947E), near Nagat (1609N/2943E) and west of Abu Zaema (1835N/2814E).

• **Forecast**

Small scale breeding may occur in some areas of Northern Kordofan, Northern Darfur and Kassala which have received good rainfall during the past three months. Low numbers of hoppers are likely to appear during the forecast period.

Eritrea

• **Situation**

No locusts were reported along the Red Sea coast during July.

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

During surveys carried out from 27 June to 2 July, scattered mature adults were seen in the north-western part of the country in Wadi Togga Dhud, near Meleden (1028N/4948E) and near Ufeyn (1038N/4946E), and in the Nogal Valley, near Xalin (0904N/4838E).

• **Forecast**

Low numbers of adults may persist in a few coastal and subcoastal areas. No significant developments are likely.

Ethiopia

• **Situation**

No locusts were seen during a survey carried out in the summer breeding areas in July.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Kenya, Tanzania and Uganda

• **Forecast**

No significant developments are likely.

NEAR EAST

Saudi Arabia

• **Situation**

No locusts were reported along the Red Sea coastal plains or in the interior during July.

• **Forecast**

No significant developments are likely.

Yemen

• **Situation**

No locusts were reported during surveys carried out in the areas of recent rainfall of the Tihama coastal plains from 11 to 17 July.

• **Forecast**

Low numbers of adults may persist in areas of recent heavy rainfall on the Tihama coastal plains.

Egypt

• **Situation**

No locusts were seen during surveys carried out during July on the Red Sea coastal plains from Safaga to the Sudanese border, in adjacent subcoastal areas and in several parts of the Western Desert.

• **Forecast**

No significant developments are likely.

Kuwait

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Oman

• **Situation**

The situation is reported to be calm and no surveys were conducted during July.

• **Forecast**

No significant developments are likely.

United Arab Emirates

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Qatar, Syria Arab Republic and Turkey

• **Forecast**

No significant developments are likely.

SOUTH-WEST ASIA

Iran

• **Situation**

Two reports indicated that no locusts were seen during surveys carried out from 27 May to 19 June and from 24 June to 3 July in Hormozgan and Kerman provinces.

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

During the first fortnight of July, low numbers of solitarious maturing adults, up to 3 per ha, were present in the Cholistan, Tharparkar and Lasbela deserts.

• **Forecast**

Small scale breeding may start in the areas of recent rainfall in the Tharpakar desert and, to a lesser extent, in the interior of Baluchistan.

India

• **Situation**

No locusts were seen during surveys carried out in Rajasthan during the second half of June and July.

• **Forecast**

Small scale breeding may start in the areas of recent rainfall in Rajasthan. No significant developments are likely.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Other Locust species

Italian Locust, *Calliptamus italicus,* plague in Central Asia. According to official source, control operations have been carried out on 7,3 million ha in **Kazakhstan** from the beginning of the campaign, in May, to the end of July. Swarm control is now in progress in north-western, central and north-eastern parts of the country. As during summer 1999, the most heavily infested areas of **Russia**. are concentrated along the Kazakh border where 1,3 million ha were already treated.

Announcements

Locust reporting. Affected countries are kindly reminded to make sure that locust situation reports are sent to FAO HQ by the 25th 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.

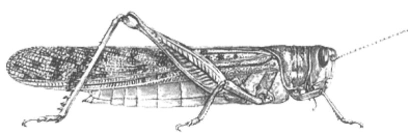
Reporting by email. Affected countries are encouraged to send completed FAO Locust Survey Forms with a brief interpretation of the results by email to eclo@fao.org.

FAO Commission for Controlling the Desert Locust in the Eastern Region of its Distribution Area in South West Asia. The 13th session of the Executive Committee and the 22nd session of the Commission will be held in Tehran, I.R. Iran, on 17-21 September.

Monthly rainfall maps. Maps of monthly rainfall for 2000 (January - July) are available on the locust webpages at: http://www.fao.org/news/global/locusts/archiv00.htm.

Pictures from the recent national training course on Desert Locust survey and control in Pakistan are available on the locust webpages at: http://www.fao.org/news/global/locusts/paktrain/pakmain.htm.

The 1999 Report of the Pesticide Referee Group is available for downloading on the locust webpages at: http://www.fao.org/news/global/locusts/reports1.htm.



Glossary of terms

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

NON-GREGARIOUS ADULTS AND HOPPERS

ISOLATED (FEW)
- very few present and no mutual reaction occurring;
- 0 - 1 adult/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)
- enough present for mutual reaction to be possible but no ground or basking groups seen;
- 1 - 20 adults/400 m foot transect (or 25 - 500/ha).

GROUP
- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL
- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL
- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM
- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE
- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE
- swarm: 500+ km^2 • 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.

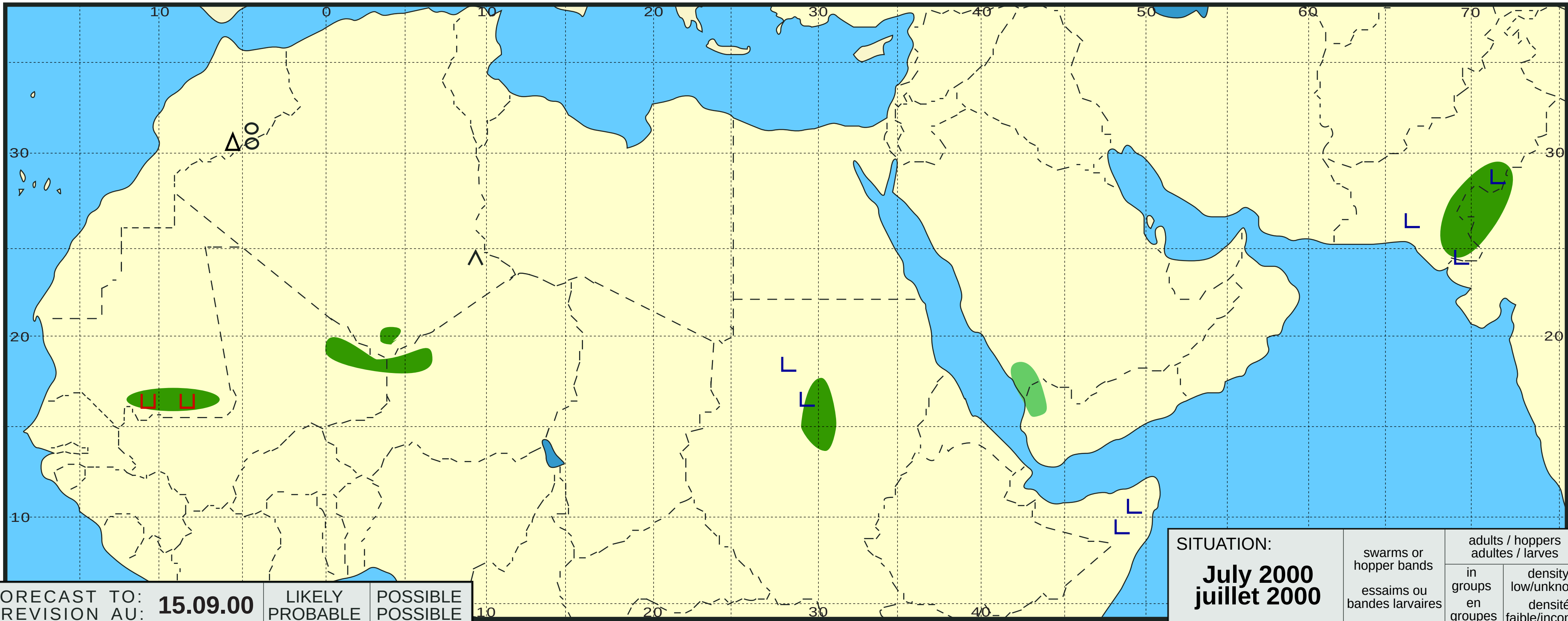
PLAGUE
- a period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously.

RECESSION
- period without widespread and heavy infestations by swarms.

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

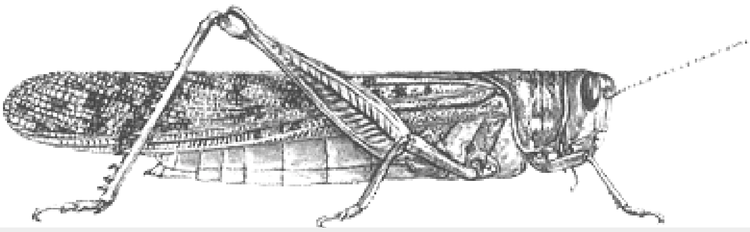
Desert Locust Summary
Criquet pèlerin - Situation résumée

262



FORECAST TO: PREVISION AU: 15.09.00	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favourables 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 2000 juillet 2000**	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. 263
(4 Sept 2000)

General Situation during August 2000
Forecast until mid-October 2000

The Desert Locust situation continued to remain calm and no significant infestations were reported during August. Although conditions are favourable for breeding in many areas of the Sahel in West Africa and Sudan, only scattered adults and a few hoppers have been reported so far in southern Mauritania. Breeding is expected to continue in Mauritania during the forecast period and to be in progress in parts of northern Mali, Niger and the interior of Sudan. Small scale control operations were carried out against hoppers and fledglings in Morocco. Elsewhere, only a few scattered adults were reported in Somalia, Pakistan and India where small scale breeding may occur during the forecast period.

Western Region. Small scale breeding is in progress in southern and central **Mauritania** where locust numbers will increase, but remain at low levels, as breeding continues during the forecast period. There is possibility that small numbers of adults are present and breeding in the Adrar des Iforas, **Mali** and in Aïr, **Niger** where conditions are favourable but there is no indication that surveys are being carried out. On the southern side of the Atlas Mountains in **Morocco**, 225 ha of small hopper groups and fledglings were treated in early August.

Central Region. Although locusts were not seen during surveys in the summer breeding areas of **Sudan**, conditions are favourable and there is a possibility that low numbers are present and breeding in a few places in Northern Kordofan and Northern Darfur. Scattered adults were reported in northern **Somalia**. Good rains fell along the southern Red Sea coastal plains of **Saudi Arabia** and **Yemen** where low numbers of locusts may be present and could start to breed on a small scale in the coming weeks.

Eastern Region. Low numbers of adults were present in the eastern deserts of **Pakistan** and a late report indicated that they started to appear in Rajasthan, **India** at the end of July. Small scale breeding is expected to occur along both sides of the Indo-Pakistan border where good rains have fallen but no significant developments are likely. No locusts were reported from south-eastern **Iran**.

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
Telex: 610181 FAO 1
Internet: http://www.fao.org/news/global/locusts/locuhome.htm

No. 263

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in August 2000

Frequent and heavy rains fell in the northern part of the Sahel from Mauritania to Sudan where conditions are very favourable for breeding. Conditions are improving on the coastal plains of the southern Red Sea in Yemen and Saudi Arabia where heavy rains fell during the first half of the month. Conditions are suitable for breeding in some places along the Indo-Pakistan border.

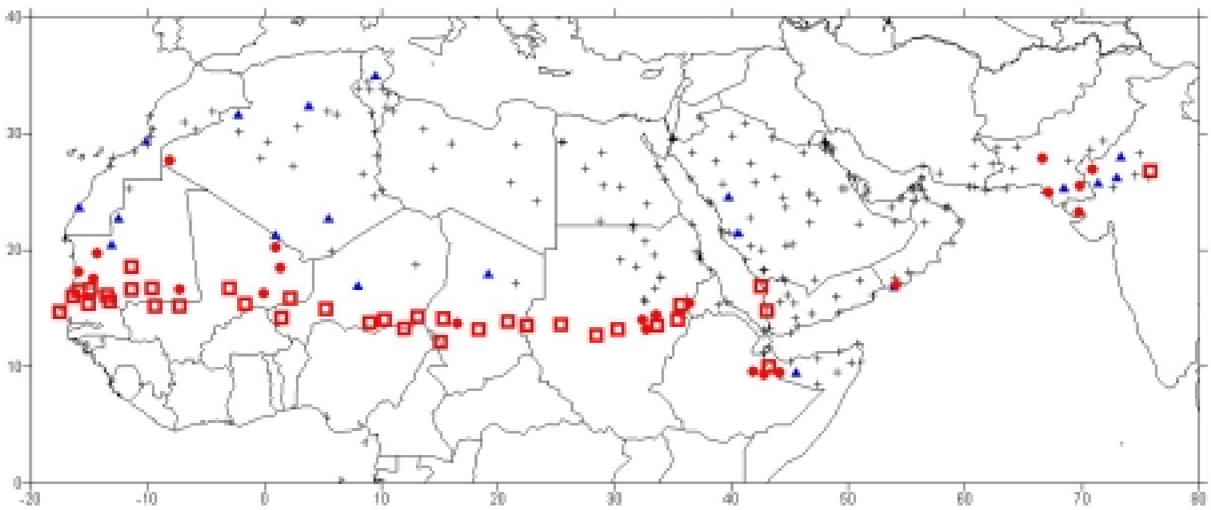
In **West Africa**, the Inter-Tropical Convergence Zone (ITCZ) broadly fluctuated around 18°N during August. As a result, some moderate to very heavy rains fell in most parts of the northern Sahel (see map) which caused damaging floods along the Senegal-Mauritanian border and in the Adrar des Iforas, Mali. Consequently, most of the vegetation in the northern Sahel is green or becoming greening, and conditions are highly favourable for breeding.

In **North-West Africa**, only light rains were reported from a few places south of the Atlas Mountains in Morocco and Algeria as well as in the southern Hoggar Mountains of southern Algeria. Vegetation remained dry and conditions were unfavourable for breeding.

In **Eastern Africa**, moderate to locally heavy rains were reported in the northern Sahelian belt of Sudan where seasonal vegetation is green or greening up and conditions are favourable for breeding over large parts of Northern Darfur and Northern Kordofan. On the Red Sea coast, vegetation is drying out due to a lack of rainfall. Nevertheless, some wadis have been flooded in Sudan and Eritrea which could give rise to patches of vegetation. No rainfall was reported on the northern coastal plains of Somalia where vegetation remained dry.

In the **Near East**, frequent light to moderate rains as well as few very heavy rains fell in several places along the Red Sea coastal plain from Jizan, Saudi Arabia to Zabid, Yemen where patches of vegetation are becoming green. Dry conditions prevailed on the coastal plains of the Gulf of Aden and in the adjacent interior due to a lack of significant rainfall over the past four months.

In **South-West Asia**, light to moderate rains were reported from a few places of the summer breeding areas along the Indo-Pakistan border, mainly in southern Tharparkar, Pakistan and near Jaisalmer, India. Vegetation is green from southern Tharparkar to Bikaner, India and along the Indo-Pakistan border north-east of Jaisalmer. Conditions appear to be drier in Khipro and southern Cholistan deserts of Pakistan. Dry conditions prevailed in Baluchistan of western Pakistan and south-eastern Iran.



August 2000 rainfall — ***Pluie mensuelle: Août 2000***

+ Unsignificant - *Nulle* (< 1 mm)
▲ Light - *Faible* (1-20 mm)
● Moderate - *Moyenne* (20-50 mm)
□ Heavy - *Forte* (> 50 mm)

Area Treated

Morocco	225 ha	(1-6 August)

Desert Locust Situation and Forecast

(see also the summary on the first page)

<u>WEST AFRICA</u>

Mauritania

• SITUATION

Low numbers of mature adults were present during August in four areas: in southern Trarza near Rkiz (1700N/1530W and 1700N/1450W), in Brakna west of Moudjera (1750N/1250W), in Hodh el Gharbi north of Aioun el Atrous (1700N/0940W), and in Hodh Ech Chargui near Oualata (1715N/0700W). Limited breeding started in mid-July as indicated by the presence of a few second and third instar hoppers near Aioun el Atrous during the first decade of the month. Small scale breeding is in progress near Moudjera where females were seen laying during the first fortnight and a few hoppers started to appear by the end of the month.

• FORECAST

As a result of the widespread rainfall last month, small scale breeding will continue in the above areas and may extend north towards Tidjikja. Consequently, locust numbers will increase with additional hatching expected during September and new adults appearing from mid-month onwards. There may be a slight shift of populations towards the west at the end of the forecast period when vegetation starts to become dry.

Mali

• SITUATION

No report received.

• FORECAST

Low numbers of locusts may be present and breeding on a small scale in the Adrar des Iforas. This situation is expected to continue during the forecast period.

Niger

• SITUATION

Scattered adults were seen in the eastern Aïr in Oued Tagora (1758N/0909E).

• FORECAST

Small scale breeding may be in progress in the western and southern parts of the Aïr mountains and southern Tamesna where ecological conditions are favourable.

Chad

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Senegal

• SITUATION

No locusts were reported during August.

• FORECAST

No significant developments are likely.

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

• FORECAST

No significant developments are likely.

<u>NORTH-WEST AFRICA</u>

Algeria

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Morocco

• SITUATION

During the first week of August, small groups of solitarious fourth and fifth instar hoppers mixed with fledglings at densities of 1 to 2 individuals per sq. m. were treated south of Errachidia at Khamlia El Khraoua (3100N/0410W), Laktit Rhiate (3045N/0425W) and Oued Tafraout (3150N/0440W).

• FORECAST

No significant developments are likely.

Libyan Arab Jamahiriya

• SITUATION

No locusts were reported during August.

• FORECAST

No significant developments are likely.

Tunisia

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

EASTERN AFRICA

Sudan

• **Situation**

No locusts were seen during surveys carried out in Northern Kordofan between Sodiri (1425N/2905E) and Saiyala (1425N/3105E) on 8-23 August.

• **Forecast**

Low numbers of adults are likely to be present and breeding on a small scale in those areas of Northern Kordofan and Northern Darfur, and perhaps north of Kassala, where recent rains have fallen and ecological conditions are favourable. Low numbers of hoppers are expected to appear during the forecast period, but these may be difficult to detect.

Eritrea

• **Situation**

No locusts were reported along the Red Sea coast during August.

• **Forecast**

No significant developments are likely although breeding conditions may start to become favourable in a few places along the Red Sea coastal plains.

Somalia

• **Situation**

During surveys carried out from 31 July to 27 August, scattered immature adults were seen in northern coastal areas east of Mait in Wadi Durdure (1109N/4843E) and in Wadi Hidid (1103N/4724E). Isolated immature adults were seen on the nearby escarpment north of Erigavo (1039N/4722E) and in the north-west, in the Dobo Valley (1021N/4322E).

• **Forecast**

Low numbers of adults may persist and mature in a few coastal and subcoastal areas. No significant developments are likely.

Ethiopia

• **Situation**

No locusts were seen during a survey carried out from 27 July to 4 August in the Harar Region.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Kenya, Tanzania and Uganda

• **Forecast**

No significant developments are likely.

NEAR EAST

Saudi Arabia

• **Situation**

No locusts were reported along the Red Sea coastal plains or in the interior during August.

• **Forecast**

Low numbers of adults could appear and breed on a small scale may occur on the coastal plains near Jizan.

Yemen

• **Situation**

The situation is reported to be calm and no surveys were conducted during August.

• **Forecast**

Low numbers of locusts may be present and breeding on a small scale may occur in areas of recent heavy rainfall on the Red Sea coastal plains between Zabid and Midi.

Egypt

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Kuwait

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Oman

• **Situation**

No surveys were conducted during August.

• **Forecast**

No significant developments are likely.

United Arab Emirates

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Qatar, Syria Arab Republic and Turkey

• **Forecast**

No significant developments are likely.

SOUTH-WEST ASIA

Iran

• **Situation**

No locusts were seen during surveys carried out on 29-30 July and on 25-26 August in Hormozgan and Kerman provinces.

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

During the second fortnight of July and the month of August, low numbers of solitarious maturing adults, up to 7 per ha, were present at 37 locations in Cholistan and Tharparkar deserts as well as in Lasbela, west of Karachi.

• **Forecast**

Small scale breeding is likely to be in progress, but difficult to detect, in parts of Cholistan and Tharparkar. Locust numbers will increase slightly during the forecast period in these areas.

India

• **Situation**

A late report indicated that a few locusts were seen at Birloka (2658N/7303E) on 28 July during surveys carried out in Rajasthan. No locusts were reported during the first fortnight of August.

• **Forecast**

Small scale breeding may be in progress in areas of recent rainfall in Rajasthan. No significant developments are likely.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Other Locust species

Kazakhstan. Large-scale control operations against Italian Locust infestations were completed by 10 August. Egg pod surveys are currently in progress to estimate the potential size of next year's populations.

Announcements

Locust reporting. Affected countries are kindly reminded to make sure that locust situation reports are sent to FAO HQ by the 25th 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 email. Affected countries are encouraged to send completed FAO Locust Survey Forms with a brief interpretation of the results by email to eclo@fao.org.

FAO Commission for Controlling the Desert Locust in the Eastern Region of its Distribution Area in South West Asia. The 13th session of the Executive Committee and the 22nd session of the Commission will be held in Tehran, I.R. Iran, on 17-21 September.

Monthly rainfall maps. Maps of monthly rainfall for 2000 (January - August) are available on the locust webpages at: http://www.fao.org/news/global/locusts/archiv00.htm.

Pictures from the recent national training course on Desert Locust survey and control in Pakistan are available on the locust webpages at: http://www.fao.org/news/global/locusts/paktrain/pakmain.htm.

The 1999 Report of the Pesticide Referee Group is available for downloading on the locust webpages at: http://www.fao.org/news/global/locusts/reports1.htm.

Central Asia. Representatives of Kazakhstan, Kyrgyzstan, Russia, Tajikistan and Uzbekistan signed a resolution at a Round Table meeting, organized by the Government of Kazakhstan and FAO in Almaty on 23-24 August, requesting FAO to study the possible creation of a Regional Locust Commission for Central Asia.

Reporting by email. Affected countries are encouraged to send completed FAO Locust Survey Forms with a brief interpretation of the results by email to eclo@fao.org.

FAO Commission for Controlling the Desert Locust in the Eastern Region of its Distribution Area in South West Asia. The 13th session of the Executive Committee and the 22nd session of the Commission will be held in Tehran, I.R. Iran on 17-21 September.

Glossary of terms

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

NON-GREGARIOUS ADULTS AND HOPPERS

ISOLATED (FEW)
- very few present and no mutual reaction occurring;
- 0 - 1 adult/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)
- enough present for mutual reaction to be possible but no ground or basking groups seen;
- 1 - 20 adults/400 m foot transect (or 25 - 500/ha).

GROUP
- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL
- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL
- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM
- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE
- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE
- swarm: 500+ km^2 • 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.

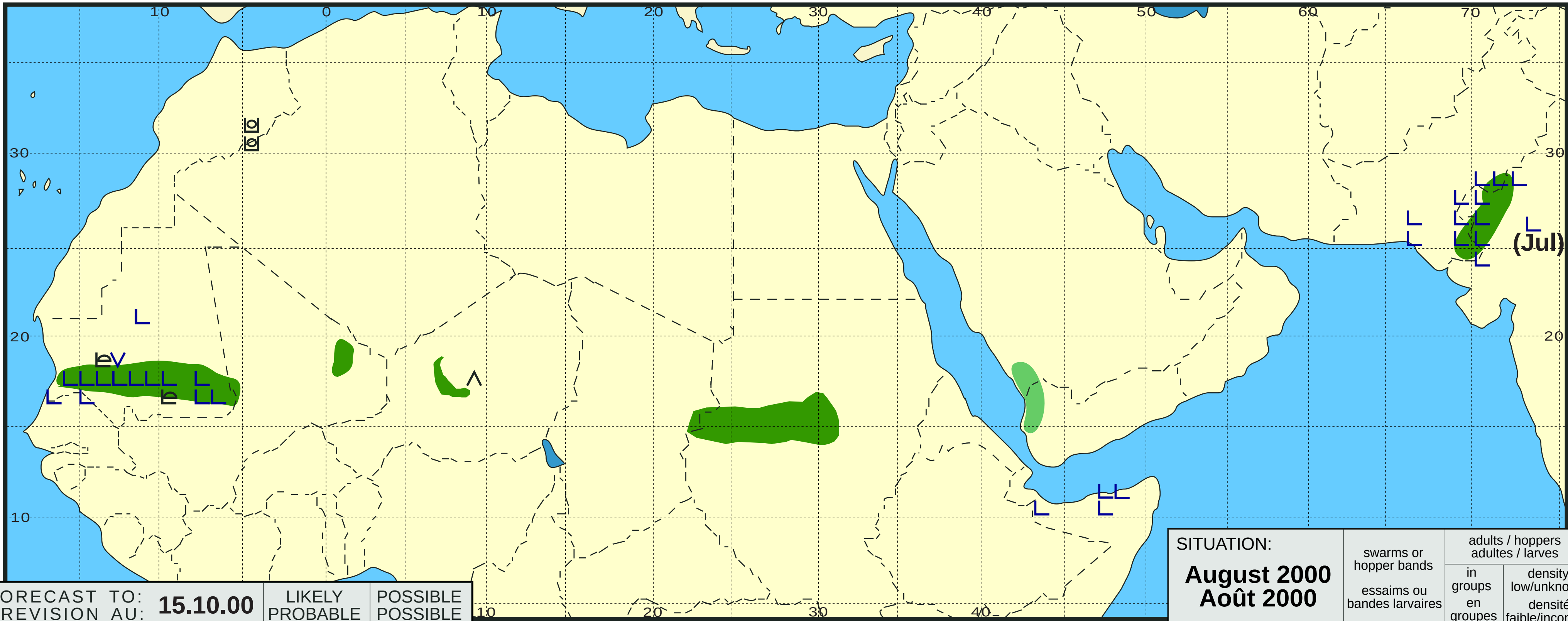
PLAGUE
- a period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously.

RECESSION
- period without widespread and heavy infestations by swarms.

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

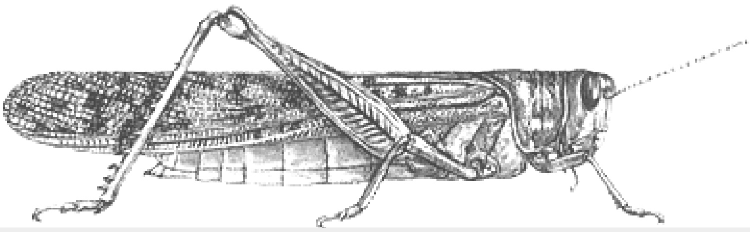
Desert Locust Summary
Criquet pèlerin - Situation résumée

263



FORECAST TO: PREVISION AU: **15.10.00**	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favourables 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 2000 Août 2000**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves: in groups en groupes	adults / hoppers adultes / larves: 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)			



D E S E R T L O C U S T B U L L E T I N

FAO Emergency Centre for Locust Operations

No. 264
(4 October 2000)

General Situation during September 2000
Forecast until mid-November 2000

Despite good rainfall and favourable breeding conditions in some of the summer breeding areas, the Desert Locust situation continued to remain calm during September. Only low numbers of solitarious adults and small scale breeding were reported in Mauritania. Isolated adults were present in northern Somalia and along the Indo-Pakistan border. During the forecast period, vegetation will start to dry up and, in a few places, adults could become concentrated as they start to shift from summer to winter breeding areas. This movement is expected to be on a very small scale this year.

Western Region. Small scale breeding is in progress in southern and central **Mauritania** where locust numbers are expected to increase slightly as breeding continues during October. Once vegetation starts to dry out, adults are likely to move on a small scale towards northern Mauritania. In north-western **Algeria**, late reports stated that 5 ha of hopper and adult groups were treated at the end of August. This may have been related to similar populations that were treated in adjacent areas of Morocco in early August (see Bulletin 263). Elsewhere, no significant developments are likely.

Central Region. Although no locusts were seen during surveys in the summer breeding areas of **Sudan**, conditions remained favourable over a large area and there is a possibility that low numbers are present and breeding in a few places. Adults are likely to start moving east towards the winter breeding areas along the Red Sea coastal plains but the scale of this movement is estimated to be insignificant. Low numbers of adults were present in north-western **Somalia**. No locusts were reported from eastern **Ethiopia**. Good rains fell along the southern Red Sea coastal plains of **Saudi Arabia** and **Yemen** where low numbers of locusts may be present or could appear in the coming weeks and start to breed on a small scale. Ground control operations treated 3211 ha of mature adults and hopper groups in a few oases in southern **Egypt** but it is not clear what species was involved.

Eastern Region. Only low numbers of solitarious adults were reported in the summer breeding areas of **Pakistan** along the border with India. Numbers declined by the end of September as a result of increasingly dry conditions. No locusts were reported in **India**. Very few locusts are expected to move towards the spring breeding areas of western Pakistan this year.

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
Telex: 610181 FAO 1
Internet: http://www.fao.org/news/global/locusts/locuhome.htm

Weather & Ecological Conditions in September 2000

Breeding conditions remained favourable in several parts of the Sahel in West Africa and Sudan as a result of good rainfall during the month. Conditions were improving on the Red Sea coastal plains of Yemen where moderate to heavy rains fell. Conditions were drying out along the Indo-Pakistan border.

In **West Africa**, the ITCZ fluctuated between 15-20N during the month. Good rains fell over most of southern, central and western Mauritania throughout the month (see map). Green vegetation was present and conditions were favourable for breeding in Brakna (north and west of Moudjeria), in south-western Tagant (south of Tidjikja), in Inchiri (south and west of Akjoujt). In Mali, light rains fell in the Adrar des Iforas and near Tombouctou where vegetation was green in most wadis but started to dry out during the second half of the month. Vegetation was dry or becoming dry and conditions were generally unfavourable for breeding in Tamesna and Air, Niger and in Chad.

In **North-West Africa**, only light rains were reported from a few places in northern Algeria and Tunisia as well as in the southern Hoggar Mountains of southern Algeria. Vegetation remained dry and conditions were generally unfavourable for breeding.

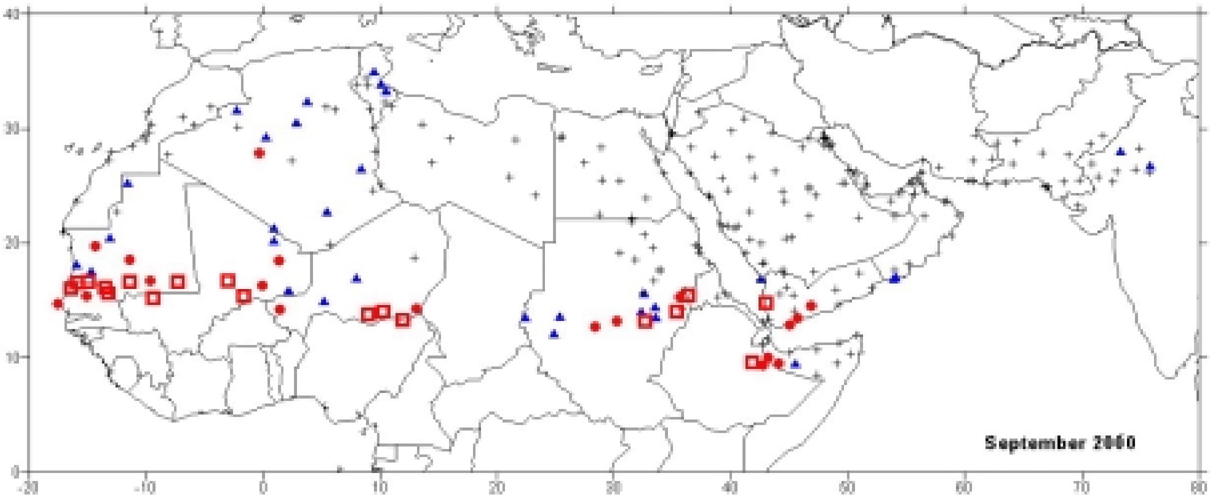
In **Eastern Africa**, moderate to locally heavy rains were reported in the northern Sahelian belt of Sudan where seasonal vegetation was green and conditions were favourable for breeding over large areas of Northern Kordofan and Northern Darfur up to about 15N as well as along parts of the Atbara River and between Kassala and Derudeb. Green vegetation was also present in the western lowlands of Eritrea in Khor Baraka. On the Red Sea coast, vegetation was becoming green in a few areas near Sheib, Shelshela and Foro where rains fell. No rainfall was reported on the northern coastal plains of Somalia. Elsewhere, conditions were dry except for some localized green vegetation from Harer in eastern Ethiopia to Hargeisa in north-western Somalia where good rains had fallen.

In the **Near East**, moderate rains fell on several different days during the month on the southern Red Sea coastal plains from Jizan, Saudi Arabia to Zabid, Yemen. Vegetation is greening in the Jizan area and in most of the major wadis along the Yemeni plains. Showers were also reported on the coastal plains near Aden and in the interior near Shabwa. Conditions are expected to be favourable for breeding in most of these areas.

In **South-West Asia**, conditions were dry in the summer breeding areas of Pakistan and India where no rain was reported and most vegetation was dry or drying out. Breeding conditions were unfavourable.

Area Treated

Egypt	3211 ha	(24 September)
Algeria	5 ha	(End of August)



September 2000 rainfall ***Pluie mensuelle: Septembre 2000***

+ Unsignificant - *Nulle* (< 1 mm)
▲ Light - *Faible* (1-20 mm)
● Moderate - *Moyenne* (20-50 mm)
□ Heavy - *Forte* (> 50 mm)

Desert Locust Situation and Forecast

(see also the summary on the first page)

WEST AFRICA

Mauritania

• **Situation**

Low numbers of immature and mature adults were present during September in parts of Trarza, Brakna, Tagant, and the two Hodhs. During the first dekad of the month, solitarious locusts were mostly found near Nema (1636N/0715W), Aioun el Atrous (1700N/0940W), and between Moudjeria (1750N/1250W) and Akjoujt (1945N/1421W). During the second and third dekads, adults were more dispersed and scattered over a large area between Aioun, Tidjikja and Akjoujt. Small scale breeding was in progress north of Moudjeria where laying was seen and a few first to fourth instar hoppers were reported during the month.

• **Forecast**

Additional hatching on a small scale is expected to occur during October in those areas that recently received good rainfall. As a result, locust numbers will increase slightly and new adults could start to appear from November onwards. Once vegetation starts to dry out, adults are likely to concentrate and move on a small scale north towards Inchiri and Adrar.

Mali

• **Situation**

No reports received.

• **Forecast**

Low numbers of locusts are likely to be present in parts of the Adrar des Iforas and breeding on a small scale is likely in areas of recent rainfall. Breeding will probably persist as long as conditions remain favourable.

Niger

• **Situation**

No locusts were reported during the first two dekads of September.

• **Forecast**

Low numbers of adults may be present in parts of central Tamesna and on the western side of the Air but breeding is likely to be limited due to the prevailing dry and unfavourable conditions.

Chad

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Senegal

• **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.

NORTH-WEST AFRICA

Algeria

• **Situation**

A late report indicated that 5 ha were treated in the end of August against groups of adults and hoppers south of Bechar at Abadla (3101N/0244W). These may have been related to similar populations reported in adjacent areas of Morocco in early August (see Bulletin 263). There was an unconfirmed report from nomads of adults mixed with hoppers in Oued Tamanrasset (ca. 2200N/0100E) during the second half of August which suggests that isolated summer breeding may have occurred in parts of the south. No locusts were reported during September.

• **Forecast**

Low numbers of adults may persist and mature in areas of recent rainfall near Tamanrasset. No significant developments are likely.

Morocco

• **Situation**

No locusts were reported in the South and South-East of the country during September.

• **Forecast**

No significant developments are likely.

Libyan Arab Jamahiriya

• **Situation**

No locusts were reported during September.

• **Forecast**

No significant developments are likely.

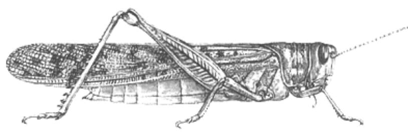
Tunisia

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.



EASTERN AFRICA

Sudan

• **Situation**

No locusts were seen during surveys in Northern Kordofan during September.

• **Forecast**

Low numbers of solitarious adults may be present in areas of green vegetation and recent rains in Northern Darfur, Northern Kordofan, near the Atbara River, and between Kassala and Derudeb. Small scale breeding may be in progress in these areas but at such a low level that it could be difficult to detect. Isolated adults may start to appear on the western side of the Red Sea Hills and on the coastal plains south of Suakin by the end of the forecast period.

Eritrea

• **Situation**

No locusts were seen during surveys along the Red Sea Coast and its hinterlands during September.

• **Forecast**

Low numbers of locusts may be present and perhaps breeding on a small scale in Khor Baraka in the western lowlands. Isolated adults could start to appear in a few places along the coastal plains north of Massawa and near Foro during the forecast period. No significant developments are likely.

Somalia

• **Situation**

A few immature adults were seen north-east of Hargeisa at Bildhaley (1007N/4412E) and Faruur (1007N/4427E) during surveys carried out from 29 August to 2 September on the northwest plateau.

• **Forecast**

Low numbers of adults may persist and mature in a few areas where ecological conditions are favourable. No significant developments are likely.

Ethiopia

• **Situation**

Although ecological conditions were found to be favourable, no locusts were seen east of Dire Dawa on 16-20 September.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Kenya, Tanzania and Uganda

• **Forecast**

No significant developments are likely.

NEAR EAST

Saudi Arabia

• **Situation**

No reports received.

• **Forecast**

Isolated adults may be present near Jizan where numbers could gradually increase as a result of breeding in areas of recent rainfall.

Yemen

• **Situation**

No surveys were conducted on the Red Sea coastal plains in September due to an outbreak of Rift Valley Fever.

• **Forecast**

Low numbers of locusts may be present and breeding may be taking place on a small scale where rains have recently fallen on the Red Sea coastal plains between Zabid and the Saudi Arabian border, the coastal plains west of Aden, and in the interior of Shabwa.

Egypt

• **Situation**

On 24 September, transiens adults and dense first to fifth instar hopper groups were treated by ground-spraying in cultivated areas of a few oases in the Western Desert in the extreme south: 3169 ha at Sh. Oweinat (2240N/2845E) and 42 ha at Tushka (2228N/3158E to 2230N/3140E). It is unclear what species was involved. Confirmation is awaited.

• **Forecast**

Isolated adults may persist in a few oases in the Western Desert. No significant developments are likely.

Kuwait

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Oman

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

United Arab Emirates

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Qatar, Syria Arab Republic and Turkey

• **Forecast**

No significant developments are likely.

SOUTH-WEST ASIA

Iran

• **Situation**

No locusts were seen during surveys carried out in coastal areas of Hormozgan Province near Jask (2540N/5746E) on 30 September.

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

During the month of September, isolated mature adults at densities of up to six locusts per ha were reported at 36 places in Cholistan and Tharparkar deserts near the border with India. Lower numbers were present in Lasbela, west of Karachi.

• **Forecast**

Locust numbers will decline further in summer breeding areas and no significant developments are likely.

India

• **Situation**

No locusts were reported during the first fortnight of September.

• **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 locust situation reports are sent to FAO HQ by the 25th 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 email. Affected countries are encouraged to send completed *FAO Desert Locust Survey and Control Forms* with a brief interpretation of the results by email to eclo@fao.org.

EMPRES (Desert Locust) Central Region Programme. Three events have been arranged in next few months. The 8th EMPRES Liaison Officers meeting will be held in Muscat, Oman from 22-26 October. A Research Workshop will be held in Cairo, Egypt from 6-8 November. The 3rd EMPRES Consultative Committee will be held in Rome from 4-5 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 km^2 • band: 1 - 25 m^2

SMALL
- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM
- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE
- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE
- swarm: 500+ km^2 • 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.

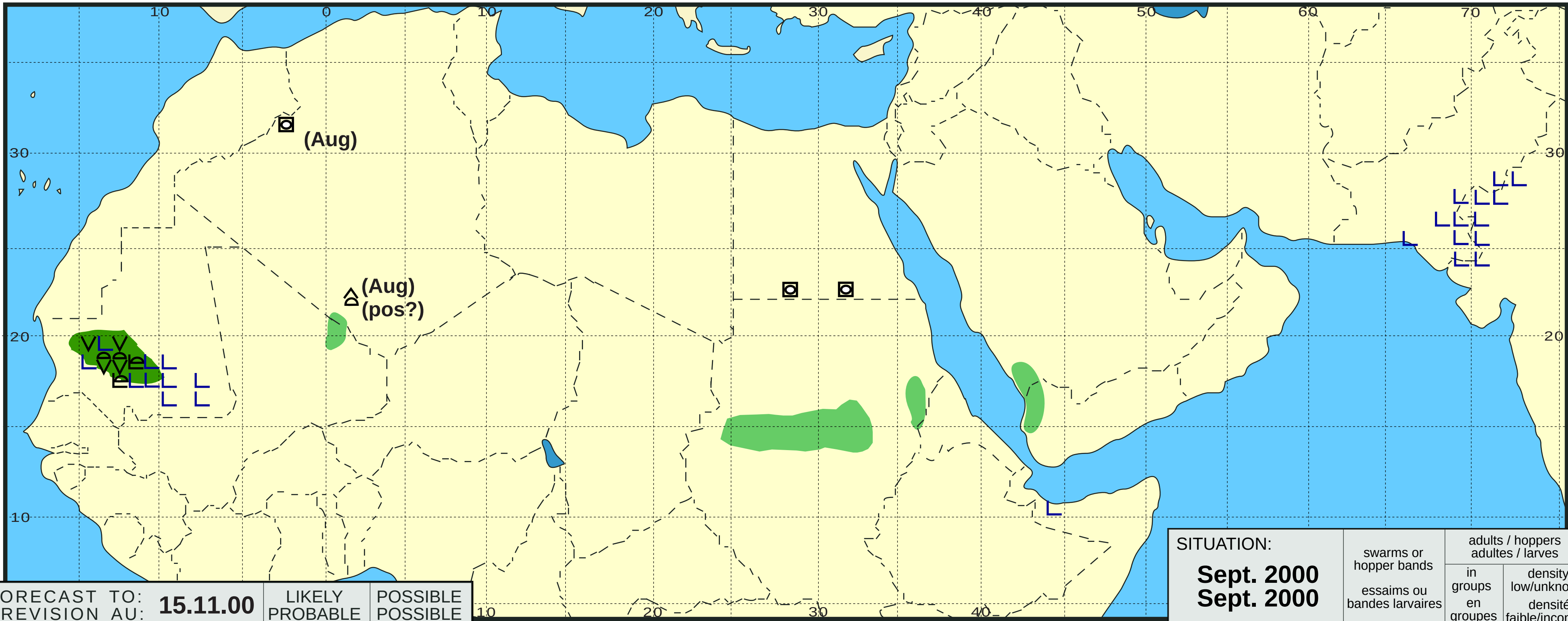
PLAGUE
- a period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously.

RECESSION
- period without widespread and heavy infestations by swarms.

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

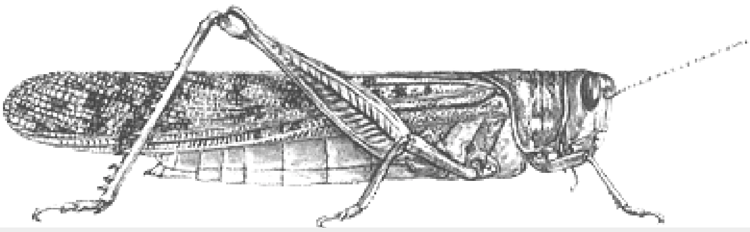
Desert Locust Summary
Criquet pèlerin - Situation résumée

264



FORECAST TO: PREVISION AU: 15.11.00	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **Sept. 2000** **Sept. 2000**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves: in groups en groupes	adults / hoppers adultes / larves: 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. 265
(6 November 2000)

General Situation during October 2000
Forecast until mid-December 2000

A small outbreak has developed in central Mauritania where above-average rains fell and hoppers have started to form a few small bands. A similar outbreak may be in progress in northern Mali. During the forecast period, groups and perhaps a few small swarms could form in both countries. Those in northern Mali are likely to move towards southern Algeria or northern Mauritania. Elsewhere, small scale breeding occurred in central Sudan and isolated adults were present on the Red Sea coast of Yemen, in north-western Somalia, and along the Indo-Pakistan border. During the forecast period, low numbers of adults are likely to appear on the Red Sea coastal plains where conditions are already favourable for breeding.

Western Region. Summer breeding continued in central **Mauritania** and has led to a small outbreak. Hopper groups and bands started to form by the end of October and control operations were carried out on about 54 ha. As unusually heavy and late rains fell over a large part of the summer breeding areas, locust populations may persist a bit longer than normal. However, once vegetation starts to dry out, small groups of adults and perhaps a few swarmlets are likely to move towards northern Mauritania. In northern **Mali**, travellers and nomads reported adult groups and swarms in early September. They also reported early instar hopper bands in late September and again in early October. Fledging is likely from mid October until December. As vegetation is starting to become dry, small groups and swarms may form in early November. Some are likely to move towards southern **Algeria** where low numbers of locusts may already be present while others may move towards northern Mauritania. In September, scattered adults were present in north-western **Niger**.

Central Region. Isolated adults and hoppers were seen in central **Sudan** indicating that small scale summer breeding has occurred but is not likely to continue as conditions are drying out. Low numbers of adults were present in north-western **Somalia** and on the Red Sea coast of **Yemen**. As a result of good rainfall, breeding conditions are becoming favourable along the coastal plains on both sides of the Red Sea in Sudan, Eritrea, Saudi Arabia and Yemen. The locusts reported in southern **Egypt** during September (Bulletin No. 264) were confirmed as Desert Locust.

Eastern Region. Only low numbers of solitarious adults were present in the summer breeding areas of **Pakistan** along the border with India. No locusts were reported in **India**. No significant developments are likely in these areas and very few adults are expected to move towards the spring breeding areas of western Pakistan this year.

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
Telex: 610181 FAO 1
Internet: http://www.fao.org/news/global/locusts/locuhome.htm

Weather & Ecological Conditions in October 2000

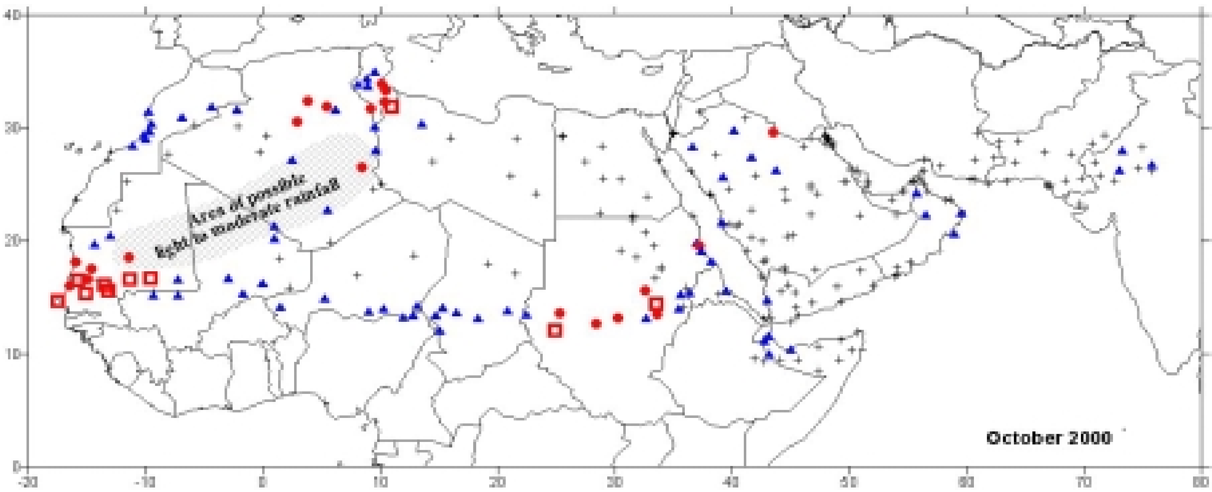
Breeding conditions remained favourable in some parts of Mauritania where exceptional rains fell during October. Elsewhere in West Africa, the vegetation is drying out as the seasonal rains have ended. Conditions are improving on the Red Sea coastal plains of Yemen, Saudi Arabia, Sudan and Eritrea where moderate to heavy rains fell. Conditions were no longer favourable for breeding along the Indo-Pakistan border.

In **West Africa**, the ITCZ retreated progressively southwards during October, from 12-18N in the first dekad to about 5-10N at the end of the month. Associated with this retreat, north-easterly and easterly winds (the harmattan) became established by the second fortnight of the month. Exceptional rains, about four times the monthly long-term average, fell over most of southern, central and western Mauritania during the two first dekads, compared to the rest of the West-African Sahel where the rains finished at the end of September (see map). As a result, vegetation remained green and conditions were favourable for breeding in central and western Mauritania from western Inchiri to northern Brakna and south-western Tagant. Elsewhere in Mauritania and in northern Mali, green vegetation was confined to most wadis and low-lying areas. Vegetation was dry or becoming dry and conditions were generally unfavourable for breeding in Tamesna and Air, Niger and in Chad. Light to moderate rains, associated with several eastward moving depressions, may have fallen during a five day period in parts of an area extending from eastern Mauritania to northern Mali.

In **North-West Africa**, devastating floods resulted from moderate to locally heavy rains reported from several places in northern Algeria and Tunisia as well as along the Algerian-Libyan border. Moderate rains, associated with the depressions mentioned above, may have fallen in or near the Hoggar Mountains of southern Algeria. Vegetation remained generally dry and conditions were unfavourable for breeding in the Region except, perhaps, for a few wadis in southern Algeria.

In **Eastern Africa**, moderate to locally heavy rains were reported in the southern Sahelian belt of Sudan where seasonal vegetation was green. North of this belt, most areas of Northern Kordofan and Northern Darfur were drying out and conditions were unfavourable for breeding at the end of the month. As a result of good rains, breeding conditions were becoming favourable on the Red Sea coast where vegetation was greening in many areas from Eight, north of Port Sudan, to southern Eritrea. Light rains fell on the north-western coastal plains of Somalia.

In the **Near East**, moderate rains fell on several different days during the month on the southern Red Sea coastal plains from southern Saudi Arabia to Yemen. Vegetation is greening in the Jizan area and is already green in the main wadis on the Red Sea coastal plains of Yemen. Conditions are favourable for breeding in most of these areas.



October 2000 rainfall / ***Pluie mensuelle: Octobre 2000***

+ Unsignificant - *Nulle* (< 1 mm)
▲ Light - *Faible* (1-20 mm)
● Moderate - *Moyenne* (20-50 mm)
□ Heavy - *Forte* (> 50 mm)

In **South-West Asia**, no rainfall was reported for the second consecutive month along the Indo-Pakistan border and conditions were not favourable for breeding.

Area Treated

Mauritania 54 ha (21-31 October)

Desert Locust Situation and Forecast

(see also the summary on the first page)

WEST AFRICA

Mauritania

• SITUATION

Low numbers of mature adults were present and breeding continued during October in parts of Trarza, Brakna, Tagant, and Inchiri. Solitarious hoppers increased throughout the month and some of these became progressively more gregarious, forming small groups in a few places by mid month. Most of the hopper infestations were present where locusts were reported in September: between Moudjeria (1750N/1250W), Tidjikja (1832N/1125W) and Akjoujt (1945N/1421W). By the end of the month, several dense patches of hoppers were found in southern Adrar and bands at densities up to 500 per sq. m were reported from Trarza. The sizes of the groups and bands varied from several square metres to several hectares. Ground teams initiated control operations during the last dekad and treated 54 ha of small hopper groups and bands. In Inchiri, scattered hoppers of all instars were reported for the first time in the Benichab/Akchar area (ca. 1930N/1530W) at the end of the month, suggesting that breeding had started in that area in early September.

• FORECAST

Hoppers will continue to form groups and small bands during November primarily in Trarza and southern Adrar but this could extend to parts of Brakna, Tagant and Inchiri. The majority of fledging is expected to occur during the second half of November, and adult groups and small swarms are likely to form. These may persist a bit longer than normal due to the unusually good rains that recently fell. However, once vegetation starts to dry out, they are likely to move northwards into Inchiri, Adrar and Tiris-Zemmour. These locusts may be joined by scattered locusts and possibly swarmlets from Mali.

Mali

• SITUATION

During September, maturing swarms and adult concentrations were seen in western Adrar des Iforas mainly between Tessalit (2012N/0059E and the Algerian frontier) early in the month and first to third instar bands mixed with adults were seen at nine locations in that area in the last dekad.

During the first dekad of October, several first to third instar bands were seen at five locations farther south in western Adrar des Iforas.

• FORECAST

Additional hatching and band formation could occur for a few more weeks. Several swarms could start to form from the beginning of November onwards. As conditions are beginning to dry out, these scattered locusts and swarmlets may move north into southern Algeria or north-west into northern Mauritania.

Niger

• SITUATION

A late report indicated that low numbers of adults were present during September near In Abanrherit, Tamesna. No locusts were reported during the first two dekads of October.

• FORECAST

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.

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

• FORECAST

No significant developments are likely.

NORTH-WEST AFRICA

Algeria

• **SITUATION**

No locusts were reported during October.

• **FORECAST**

Low numbers of locusts are likely to be present in parts of the Tassili region and in the south-west where breeding on a small scale could occur in these areas of recent rainfall. Moreover, a few groups or swarmlets could appear in the south from northern Mali during November.

Morocco

• **SITUATION**

No locusts were reported in the south and south-east during October.

• **FORECAST**

No significant developments are likely.

Libyan Arab Jamahiriya

• **SITUATION**

No locusts were reported during October.

• **FORECAST**

No significant developments are likely.

Tunisia

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

EASTERN AFRICA

Sudan

• **SITUATION**

A few immature adults mixed with solitary fifth and sixth instar hoppers and fledglings were seen in Northern Kordofan at Umm Sabiba (1415N/3109E) during October. No locusts were reported in the winter breeding areas on the Red Sea coastal plains although ecological conditions were already favourable.

• **FORECAST**

Low numbers of solitarious adults are likely to appear and breed in areas of recent rainfall along the Red Sea coastal plains from north of Port Sudan to Karora.

Eritrea

• **SITUATION**

No locusts were seen during surveys along the Red Sea coast during October.

• **FORECAST**

Low numbers of adults could start to appear and breed in a few places along the coastal plains north of Massawa and near Foro during the forecast period. No significant developments are likely.

Somalia

• **SITUATION**

A few immature adults were seen in the greening wadi Baregid (1055N/4342E) on 12 October along the coastal plain north of Hargeisa. No other locusts were seen during surveys carried out from 8 to 13 October on the northwestern plateau and coastal plain.

• **FORECAST**

Low numbers of adults may persist and mature in a few areas where ecological conditions are favourable. No significant developments are likely.

Ethiopia

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Djibouti

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Kenya, Tanzania and Uganda

• **FORECAST**

No significant developments are likely.

NEAR EAST

Egypt

• **SITUATION**

The locusts reported in the south during September were confirmed as Desert Locust. During surveys carried out in October, no locusts were seen on the Red Sea coastal plains from Safaga to the Sudanese border, in adjacent subcoastal areas and in oases in the Western Desert.

• **FORECAST**

No significant developments are likely.

Saudi Arabia

• **SITUATION**

No reports received.

• **FORECAST**

Isolated adults may be present near Jizan where numbers could gradually increase as a result of breed-

ing in areas of significant rainfall recorded over the last few dekads.

Yemen

• **Situation**

A few mature adults were seen on the Red Sea coastal plain at Deer Abdalla (1531N/4304E) during surveys carried out from 11 to 12 October.

• **Forecast**

Locust numbers are expected to increase slightly as small scale breeding is likely in areas of recent rainfall on the Red Sea coastal plains between Zabid and the Saudi Arabian border. Low numbers of adults may present on the coastal plains west of Aden and in the interior of Shabwa where rains have fallen.

Kuwait

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Oman

• **Situation**

A late report indicated that no locusts were seen during surveys carried out in northern Oman from 17 to 30 September.

• **Forecast**

No significant developments are likely.

United Arab Emirates

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Qatar, Syria Arab Republic and Turkey

• **Forecast**

No significant developments are likely.

SOUTH-WEST ASIA

Iran

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

During the second fortnight of October, low numbers of solitarious maturing adults, up to 5 per ha, were present at 13 locations in Cholistan and Tharparkar deserts.

• **Forecast**

Small number of locusts may move towards the winter and spring areas of coastal Baluchistan.

India

• **Situation**

No locusts were reported from the second half of September to the end of October.

• **Forecast**

No significant developments are likely.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

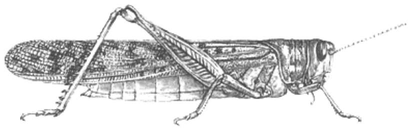
Announcements

Locust reporting. Affected countries are kindly reminded to make sure that locust situation reports are sent to FAO HQ by the 25th 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 email. Affected countries are encouraged to send completed *FAO Desert Locust Survey and Control Forms* with a brief interpretation of the results by email to eclo@fao.org.

EMPRES (Desert Locust) Central Region Programme. Two events have been arranged in next few weeks. A Research Workshop will be held in Cairo, Egypt from 6-8 November. The 3rd EMPRES Consultative Committee will be held in Rome from 4-5 December.

EMPRES (Desert Locust) Western Region Programme. The Planning Workshop: EMPRES activities in the Western Region – Phase I: Pledges and operations, will be held in Nouakchott, Mauritania from 12-16 February 2001.



No. 265

DESERT LOCUST BULLETIN

The Commission for Controlling the Desert Locust in the Central Region. The 24th Session of the Commission will be held in Cairo, Egypt in April 2001.

Desert Locust Control Committee. The 36th Session of the DLCC will be held in Rome in early June 2001.

Commission for Controlling the Desert Locust in North-West Africa. The 23rd Session of the Commission will be held in Algiers, Algeria from 15-22 June 2001.

Mali information. The dekadal Agro-Hydro-Meteorological Bulletins from Mali, including current crop pest situation and rainfall, are available on the internet at:
http://www.cip.ogp.noaa.gov/rcp/a/country/mali.html

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).

RAINFALL

LIGHT
- 1 - 20 mm of rainfall.

MODERATE
- 21 - 50 mm of rainfall.

HEAVY
- more than 50 mm of rainfall.

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL
- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL
- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM
- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE
- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE
- swarm: 500+ km^2 • band: 50+ ha

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.

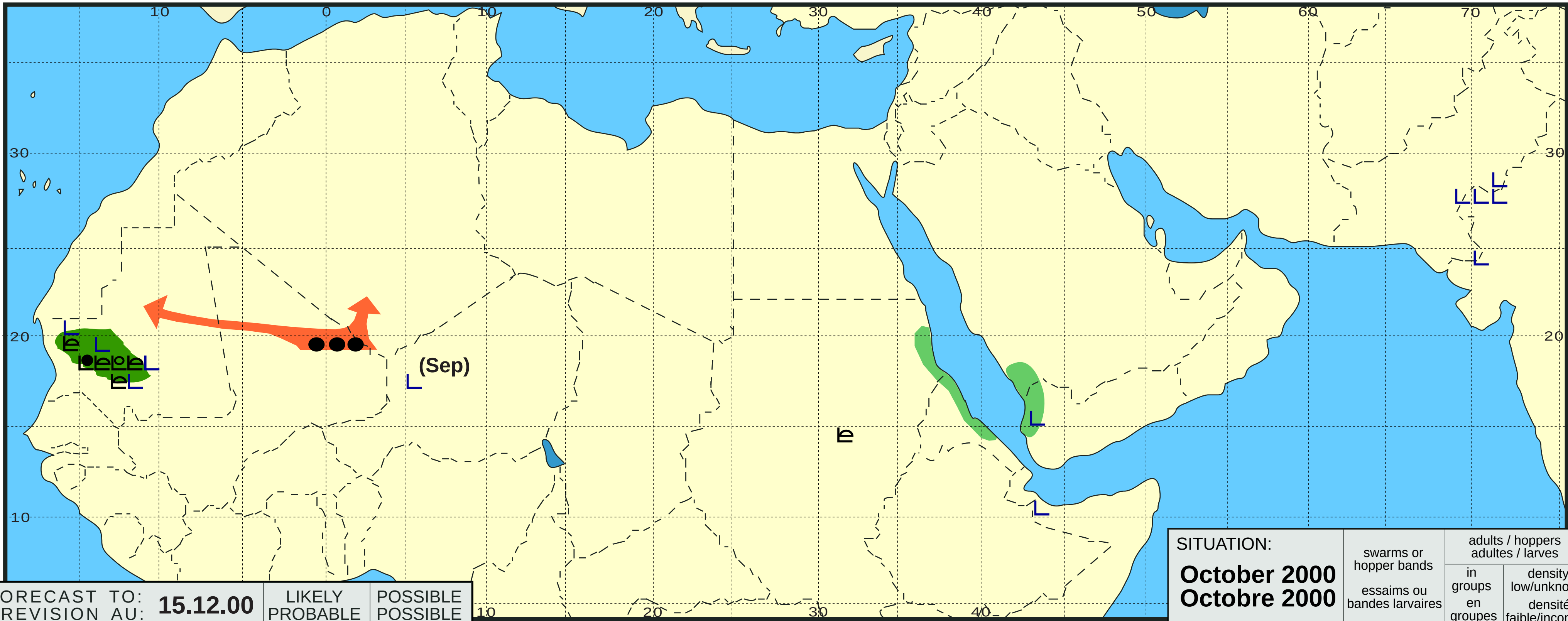
PLAGUE
- a period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously.

RECESSION
- period without widespread and heavy infestations by swarms.

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

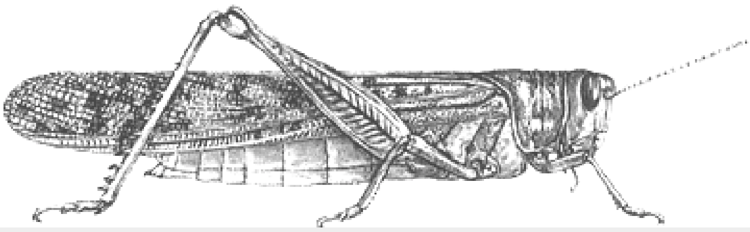
Desert Locust Summary
Criquet pèlerin - Situation résumée

265



FORECAST TO: / PREVISION AU: 15.12.00	LIKELY / PROBABLE	POSSIBLE / POSSIBLE
favourable breeding conditions / conditions favourables à la reproduction		
major swarm(s) / essaim(s) important(s)		
minor swarm(s) / essaim(s) limité(s)		
non swarming adults / adultes non essaimant		

SITUATION: October 2000 / Octobre 2000	swarms or hopper bands / essaims ou bandes larvaires	adults / hoppers / adultes / larves: in groups / en groupes	adults / hoppers / adultes / larves: 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. 266
(6 Dec 2000)

General Situation during November 2000
Forecast until mid-January 2001

An outbreak continued during November in central Mauritania where control operations are in progress. The important locust populations reported in northern Mali during September and October have declined. Locust numbers are expected to increase in northern Mauritania, southern Algeria, and southern Morocco in the coming weeks. Elsewhere, scattered adults were present in northern Niger, southern Egypt, eastern Sudan and in northern Somalia. Good rains have fallen on both sides of the Red Sea where small scale breeding is expected during the forecast period.

Western Region. The small outbreak that began last month in central and western **Mauritania** continued as more hopper groups and bands formed during November. By the end of the month, small swarms had started to form and another generation of breeding was detected. Ground control operations treated over 10,000 ha during the month. Current infestations may extend into areas of recent rainfall in Inchiri and into adjacent areas of southern **Morocco**. There is a strong possibility that some adults have already moved into the extreme north of Mauritania and started to lay in areas that have received rainfall. These populations are likely to be supplemented by small swarms arriving from current infestations. In northern **Mali**, few locusts remain suggesting that the adult groups and swarms reported since early September may have migrated into southern **Algeria** or northern Mauritania where they dispersed. There were unconfirmed reports of locusts in both areas. Scattered adults were present in north-western **Niger**.

Central Region. Some adults were present in southern **Egypt**, eastern **Sudan**, and in northern **Somalia**. Good rains fell for the second consecutive month along coastal plains on both sides of the Red Sea in Sudan, **Eritrea**, **Saudi Arabia** and **Yemen**. Although no locust activity was reported, numbers are expected gradually to increase during the forecast period as a result of small scale breeding.

Eastern Region. Dry conditions prevailed and no locusts were reported in **Pakistan** and **India**. No significant developments are likely in the Region.

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
Telex: 610181 FAO 1
Internet: http://www.fao.org/news/global/locusts/locuhome.htm

No. 266

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in November 2000

Breeding conditions remained favourable in some parts of central Mauritania and are improving in northern Mauritania where good rains fell during the first half of November. Elsewhere in West Africa, the vegetation is still green in some wadis of southern Algeria, northern Mali and northern Niger. Conditions were improving on the coastal plains on both sides of the Red Sea where moderate to heavy rains fell for the second consecutive month.

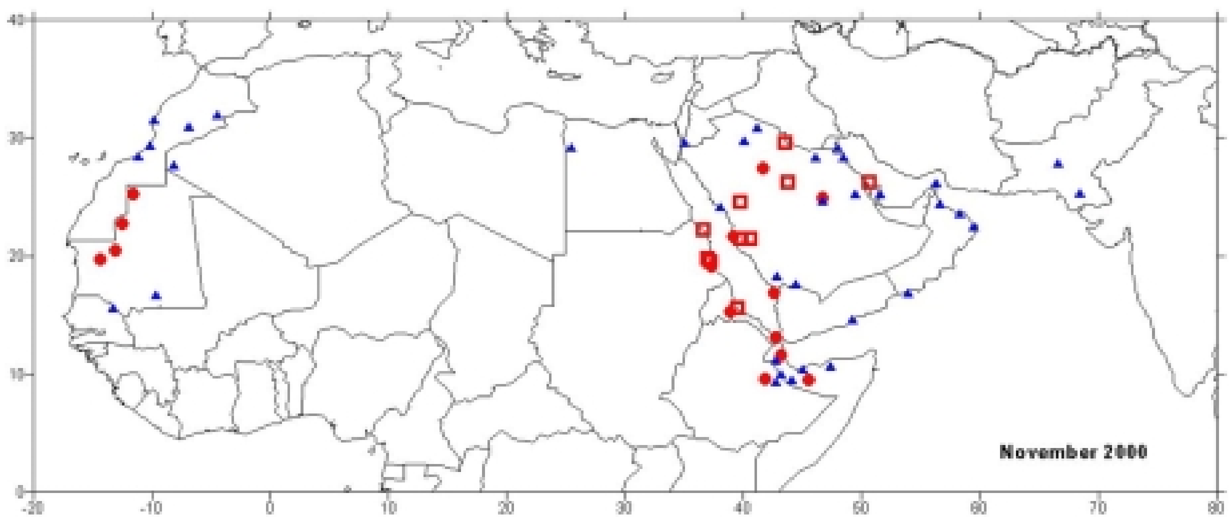
In **West Africa**, moderate rains fell over northern Mauritania from 12-14 November (22mm at Atar, 20mm at Zouerate and 17mm at Bir Moghrein) while no rainfall was reported in the other Sahelian countries (see map). As a result, vegetation should start to become green in northern Mauritania during the next few weeks. Vegetation was still green and conditions were favourable for breeding in central and western Mauritania from western Inchiri to south-western Tagant where moderate rains fell during the second dekad of the month. Elsewhere in Mauritania, in the Adrar des Iforas of northern Mali, and in Air of northern Niger, green vegetation was limited and confined to wadis and low-lying areas. Vegetation was dry or becoming dry and conditions were generally unfavourable for breeding in Tamesna, Niger and in Chad.

In **North-West Africa**, dry conditions prevailed with the exception of central Morocco where light rain fell. Light to moderate rains may have also fallen in southern Morocco near the Mauritanian border as indicated by Meteosat satellite imagery. Vegetation remained dry and conditions were unfavourable for breeding in the Region except for wadis near the Hoggar Mountains in southern Algeria where ecological conditions were reported to be favourable for breeding.

In **Eastern Africa**, moderate to heavy rains were reported on the Red Sea coast for the second consecutive month where vegetation was green or becoming green in most areas from Port Sudan to Assab, Eritrea. Light to moderate rains fell on the north-western coastal plains of Somalia. In the interior of Sudan, no rainfall was reported, vegetation was drying out and conditions were no longer favourable for breeding.

In the **Near East**, moderate to heavy rains fell on several different days during the month on the Red Sea coastal plains from Jeddah, Saudi Arabia to Zabid, Yemen. As a result, vegetation is greening in most of these areas and conditions are favourable for breeding. Light rain fell over parts of the coastal plains of northern Oman between Sur and the Musandam Peninsula, but vegetation remained dry.

In **South-West Asia**, no rain was reported in November and dry conditions prevailed in the Region.



July 2000 rainfall | ***Pluie mensuelle - Juillet 2000***

+ Unsignificant - *Nulle* (< 1 mm)
▲ Light - *Faible* (1-20 mm)
● Moderate - *Moyenne* (20-50 mm)
□ Heavy - *Forte* (> 50 mm)

Area Treated

Mauritania 10,655 ha (1-30 November)

Desert Locust Situation and Forecast

(see also the summary on the first page)

WEST AFRICA

Mauritania

• **SITUATION**

The small outbreak that began last month in central and western Mauritania continued as more hopper groups and bands formed during November in northern Brakna, eastern Trarza, south-western Adrar, and in Inchiri. The infestations were confined to an area east of Nouakchott between Tidjikja, Boutilimit and Akjoujt. Parts of this area could not be accessed by survey and control teams. By the end of the month, the hoppers had reached fourth and fifth instar with densities up to 45 hoppers per sq. m. Fledging was in progress and small swarms had started to form. On the 29th, there was a report of new hatchlings and small first and second instar bands at densities up to 80 hoppers per sq. m. within 3,200 ha in the Tamkarkart area (ca. 1910N/1300W) of south-western Adrar. This suggests that another generation of breeding had taken place from laying during the second week of November. Although there was no confirmation that adults had started to move northwards, nomads indicated that some locusts were present in the extreme north. Ground control operations increased in the above areas throughout the month, treating a total of 10,655 ha during November.

• **FORECAST**

The formation of small swarms will continue early in the forecast period in the currently infested areas. As the vegetation becomes dry and during periods of warm southerly winds, these swarms are expected to move north into northern Inchiri and Tiris-Zemmour and slowly mature, perhaps laying in areas of any rainfall. Second generation hoppers in Tamkarkart as well as other nearby areas will continue to form bands and slowly mature. By the end of the forecast period, additional swarms could start to form resulting in a second wave of small swarms moving northwards into northern Mauritania in January.

Mali

• **SITUATION**

Low numbers of solitarious and transiens immature and mature adults mixed with fourth to fifth instar hoppers were present at 23 locations in Timetrine, the Tilemsi Valley and the central Adrar des Iforas during surveys carried out on 13-28 November. This suggests that the hopper bands present during October fledged and many of the resulting adults probably moved towards southern Algeria or northern Mauritania where they may have dispersed.

• **FORECAST**

As the vegetation becomes dry, only low numbers of adults are likely to persist in a few wadis of the Adrar des Iforas and no significant developments are expected.

Niger

• **SITUATION**

Low numbers of immature adults were seen at four locations in green wadis in south-western and south-eastern Aïr during surveys carried out on 6-15 November.

• **FORECAST**

A few isolated adults may persist in southern Air; however, no significant developments are expected.

Chad

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Senegal

• **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.

NORTH-WEST AFRICA

Algeria

• **SITUATION**

No locusts were seen by any of the three survey teams in the Hoggar and Tassili regions during November. There was an unconfirmed report of some adult populations in several areas of southern and south-western Hoggar. Details are awaited.

• FORECAST

There is a possibility that small groups of adults may have appeared from northern Mali during October and November and dispersed into the extreme south. If so, these could persist and eventually lay in wadis near the Hoggar Mountains where favourable conditions have been reported.

Morocco

• SITUATION

No locusts were reported during November in the south near the Mauritanian border at Bir Gandouz, Techla and Aousard, and further north near Galtat Zemmour.

• FORECAST

Low numbers of locusts may be present in parts of the south where small scale breeding could occur if rains recently fell. Moreover, a few small swarms could appear in these areas from central and western Mauritania during periods of warm southerly winds.

Libyan Arab Jamahiriya

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Tunisia

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

EASTERN AFRICA

Sudan

• SITUATION

A few mature solitarious adults were present at 5 locations in the winter breeding areas on the Red Sea coastal plains around Suakin (1908N/3717E) during surveys carried out on 23-24 November.

• FORECAST

Low numbers of solitarious adults are likely to appear and breed in areas of recent rainfall along all the Red Sea coastal plains from Port Sudan to Karora.

Eritrea

• SITUATION

No locusts were seen during surveys along the Red Sea coast during November.

• FORECAST

Low numbers of adults could start to appear and breed in a few places along the coastal plains north of Massawa and near Foro during the forecast period. No significant developments are likely.

Somalia

• SITUATION

Low numbers of immature adults were seen in a few green wadis along the coastal plains north of Erigavo at Xidid (1104N/4725E) and east of Berbera at Biyodader (1024N/4527E) during surveys on 8-25 November. No other locusts were seen on the north-western escarpment or coastal plain.

• FORECAST

Low numbers of adults may persist and mature in a few areas where ecological conditions are favourable. No significant developments are likely.

Ethiopia

• SITUATION

No locusts were reported during November.

• FORECAST

No significant developments are likely.

Djibouti

• SITUATION

No locusts were seen during surveys carried out on 20-23 November along the coastal plains near Djibouti.

• FORECAST

No significant developments are likely.

Kenya, Tanzania and Uganda

• FORECAST

No significant developments are likely.

NEAR EAST

Saudi Arabia

• SITUATION

No locusts were reported along the Red Sea coastal plains or in the interior during November.

• FORECAST

Isolated adults may be present near Jizan where numbers could gradually increase as a result of breeding in areas where good rains fell during the past two months.

Yemen

• SITUATION

No reports received

• FORECAST

Low numbers of solitarious adults are likely to be present in a few places of the Red Sea coastal plains where small scale breeding is expected to occur in areas of recent rainfall. Consequently, locust numbers will increase during the forecast period.

Egypt

• SITUATION

During surveys carried out in November, isolated solitarious adults mixed with grasshoppers were seen at a few farms in the agricultural scheme near the Sudanese border at Sharq Oweinat (2234N/2834E). No locusts were reported from the Red Sea coastal plains, adjacent subcoastal areas or in the oases of the Western Desert.

• FORECAST

No significant developments are likely.

Kuwait

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Oman

• SITUATION

No locusts were seen during surveys carried out in northern Oman from 18 October to 5 November.

• FORECAST

No significant developments are likely.

United Arab Emirates

• SITUATION

No reports received.

• FORECAST

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Qatar, Syria Arab Republic and Turkey

• FORECAST

No significant developments are likely.

SOUTH-WEST ASIA

Iran

• SITUATION

No locusts were seen during surveys carried out in the Hormozgan, Kerman and Bushehr Provinces on 6 November.

• FORECAST

No significant developments are likely.

Pakistan

• SITUATION

No locusts were reported during the first half of November.

• FORECAST

A few isolated adults may have moved towards the winter and spring areas of Baluchistan. No significant developments are likely.

India

• SITUATION

No locusts were reported during the first half of November.

• 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 locust situation reports are sent to FAO HQ by the 25th 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 email. Affected countries are encouraged to send completed *FAO Desert Locust Survey and Control Forms* with a brief interpretation of the results by email to eclo@fao.org.

Locust survey in Egypt. Photos of a survey in the Western Desert are available on the Internet at: http://www.fao.org/NEWS/GLOBAL/locusts/EGY0011/EGY.htm

EMPRES Consultative Committee. The 3rd meeting will be held in Rome on 7-8 December.

EMPRES (Desert Locust) Western Region Programme. A Planning Workshop: EMPRES activities in the Western Region – Phase I: Pledges and operations, will be held in Nouakchott, Mauritania from 10-15 February 2001.

The Commission for Controlling the Desert Locust in the Central Region. The 23rd Session will be held in Cairo, Egypt in April 2001.

The Commission for Controlling the Desert Locust in North-West Africa. The 23rd Session will be held in Algiers, Algeria from 2-7 June 2001.

Desert Locust Control Committee. The 36th Session will be held in Rome from 24-28 September 2001.

Glossary of terms

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

NON-GREGARIOUS ADULTS AND HOPPERS

ISOLATED (FEW)
- very few present and no mutual reaction occurring;
- 0 - 1 adult/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)
- enough present for mutual reaction to be possible but no ground or basking groups seen;
- 1 - 20 adults/400 m foot transect (or 25 - 500/ha).

GROUP
- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL
- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL
- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM
- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE
- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE
- swarm: 500+ km^2 • 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.

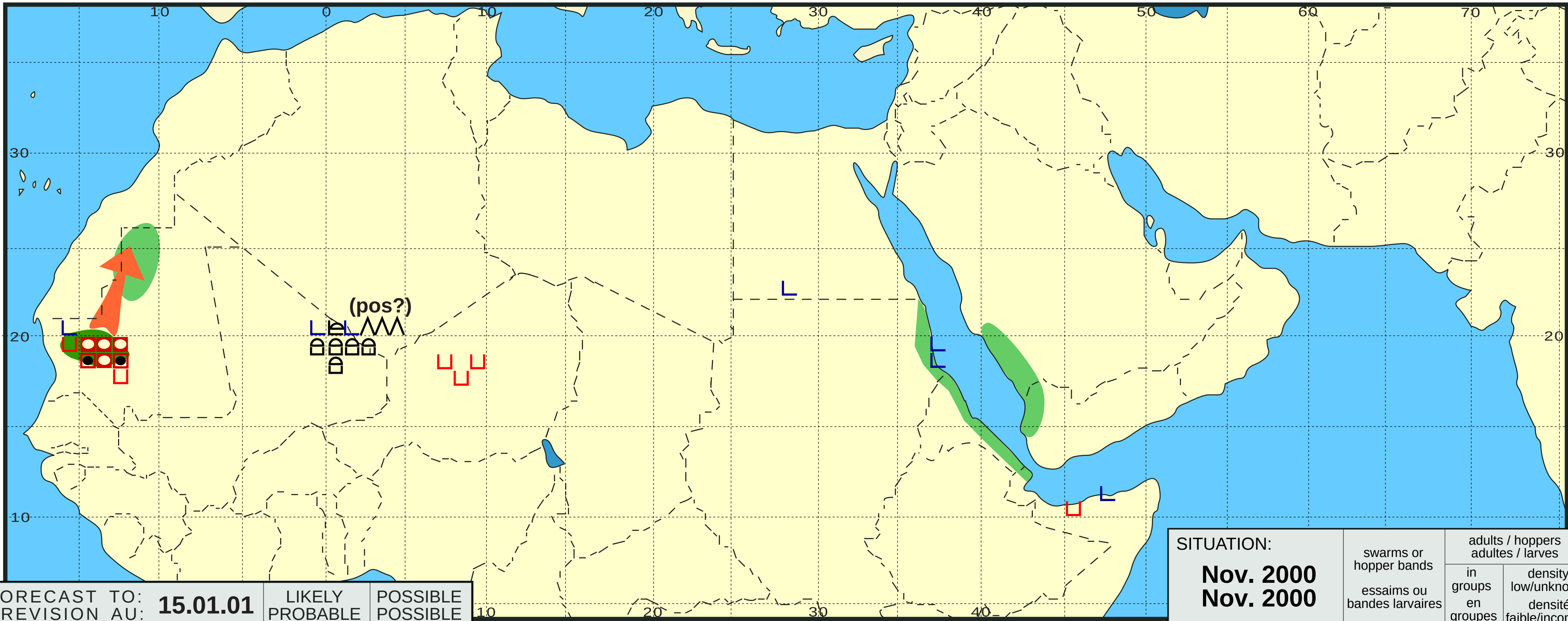
PLAGUE
- a period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously.

RECESSION
- period without widespread and heavy infestations by swarms.

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

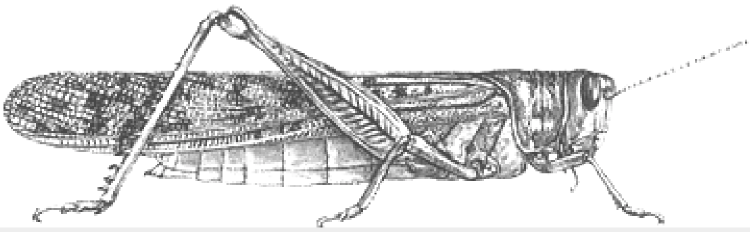
Desert Locust Summary
Criquet pèlerin - Situation résumée

266



FORECAST TO: PREVISION AU: 15.01.01	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favourables 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. 2000 Nov. 2000	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves: in groups en groupes	adults / hoppers adultes / larves: 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. 267
(4 Jan 2001)

General Situation during December 2000
Forecast until mid-February 2001

A Desert Locust outbreak continued for the third consecutive month in central Mauritania where ground teams treated small hopper bands during December. By the end of the month, control had finished and there were indications that only low numbers of adults were moving into northern Mauritania. Although there were no reports of significant populations in neighbouring countries, some locusts may appear during the forecast period. On the Red Sea coastal plains, a few locusts were seen in Sudan and are likely to be present in Eritrea, Saudi Arabia and Yemen where good rains fell. Small scale breeding is expected during the forecast period. Elsewhere, the situation is calm.

Western Region. Small hopper bands continued to mature in central and western **Mauritania** where they started to form groups of adults in early December. Control teams treated nearly 3,000 ha of hopper bands and adults. By the third dekad of the month, no further bands were found and control ceased. The newly formed groups of adults moved northwest into Inchiri while others are in the process of moving towards northern Mauritania. There is a possibility that some of these could appear in parts of southern **Morocco** and western **Algeria**. The scale of the recent breeding and the current movement is much less than one year ago which suggests that breeding in northern Mauritania during the coming months is likely to be on a relatively small scale and only limited control may be required. No reports were received from other countries in the Region.

Central Region. Scattered adults were present on the southern coastal plains of the Red Sea in **Sudan** where small scale breeding is expected but may be difficult to detect due to the extremely low numbers of locusts. Although no reports were received, a similar situation is expected in **Eritrea**, **Saudi Arabia** and **Yemen** where good rains fell for the third consecutive month. Scattered adults were present in northern **Somalia** and no locusts were seen in **Egypt** during December.

Eastern Region. No locusts were reported in **Iran**, **Pakistan** and **India**. No significant developments are likely in the Region.

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
Telex: 610181 FAO 1
Internet: http://www.fao.org/news/global/locusts/locuhome.htm

Weather & Ecological Conditions in December 2000

Breeding conditions have become favourable in parts of northern Mauritania as a result of November rainfall. Conditions remain good along both sides of the Red Sea coast as a result of further rainfall during December. Scattered showers fell in the winter/spring breeding areas of Baluchistan, Pakistan.

In **West Africa**, no significant rainfall was reported during December in the Region. In Mauritania, temperatures declined steadily throughout the month, dropping to 23-30°C (maximum) and 8-19°C (minimum) by the end of the month. Conditions were favourable for the survival of locusts in the Tamkarkart, southern Adrar and Inchiri areas of central and western Mauritania but started to dry out during the last dekad. Although there was no indication of recent rainfall in the extreme north of Mauritania where locusts are expected to arrive, conditions have become favourable as a result of November rainfall between Zouerate and Bir Moghrein. In northern Mali, sparse vegetation is thought to be present in parts of the Adrar des Iforas which should be enough to provide shelter for locusts. Elsewhere in the Region, it is dry and unfavourable for breeding.

In **North-West Africa**, heavy rains fell in Morocco in late December, mainly north of the Atlas Mountains but light showers extended south along the coast to Laayoune. In north-western Algeria, Oueds Bechar and Saoura were reported to be flooded between Bechar and Beni Abbes. Elsewhere, no significant rainfall was reported. Conditions are expected to be generally unfavourable for locust breeding but there may be enough sparse vegetation in parts of southern Algeria and the extreme south-west of Morocco to allow locust survival.

In **Eastern Africa**, heavy rains fell on the Red Sea coast of Sudan between Port Sudan (54 mm) and Tokar on 18 December where conditions continue to be favourable for breeding. It is likely that good breeding conditions extend further south along the coastal plains into Eritrea as far as Tio as a result of rainfall and runoff from the highlands. In Djibouti, light showers fell on the coast east of the capital. In northern Somalia, green vegetation was reported in several places along the escarpment and coastal foothills.

In the **Near East**, moderate rains fell during the second week of December along most of the Red Sea coast of Egypt, including southern areas near the Sudanese border, and on the coastal plains of Saudi Arabia at Jizan. Consequently, breeding conditions should be improving in most of these areas. In Yemen, conditions continue to be favourable for breeding along the northern and central Red Sea coast as well as in places along the coastal plains east and west of Aden. Light rains fell at mid month in some coastal and interior areas of northern Oman.

In **South-West Asia**, moderate showers fell in a few places in coastal (Jiwani, 50 mm) and subcoastal (Turbat, 37 mm) Baluchistan, Pakistan during the first half of December. Light rains fell in the northern interior at Nushki (5 mm) and Quetta (7 mm) during the same period. Elsewhere in the region, dry conditions prevailed.

Mauritania

Area Treated

2,902 ha (December)

Desert Locust Situation and Forecast

(see also the summary on the first page)

<u>WEST AFRICA</u>

Mauritania

• **Situation**

In early December, the small hopper groups and bands that were present south of Akjoujt (1945N/1421W) and south of Atar (2032N/1308W) during the previous month continued to mature, reaching densities of up to 80 hoppers per sq. m., and to fledge, forming adult groups at densities up to 12 locusts per sq. m. Ground control operations continued against the bands, treating 2,902 ha during the first two dekads. By the third dekad, no further hoppers were reported in the breeding areas and control operations had ended. Most of the adult groups moved northwest into southern Inchiri and north towards Tiris Zemmour while a few persisted near the breeding areas south of Akjoujt and Atar. Reports from the north at the end of the month suggested that low numbers of adults had arrived in Tiris Zemmour where they were seen near

Zouerate (2244N1221W) on the 27th and near Bir Moghrein (2510N/1135W) on the 31st while others were continuing to move into the region.

• **Forecast**

Scattered adults and small groups will continue to arrive in parts of Inchiri, northwest of Akjoujt, and in Tiris Zemmour north and northeast of Zouerate. This is likely to occur during periods of warm southerly winds. Although adult maturation may be delayed by cool temperatures, small scale laying could commence in February in those areas where conditions remain favourable from earlier rains, mainly between Zouerate and Bir Moghrein, giving rise to hoppers at the end of the forecast period.

Mali

• **Situation**

No reports received.

• **Forecast**

Low numbers of adults are likely to persist in a few wadis of the Adrar des Iforas. No significant developments are expected.

Niger

• **Situation**

No reports received.

• **Forecast**

A few isolated adults may persist in parts of the Air. No significant developments are expected.

Chad

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Senegal

• **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.

NORTH-WEST AFRICA

Algeria

• **Situation**

Further details of locusts reported in the south during November indicate that individual solitarious adults were present in Oued Tamanrasset (2158N/0414E) and at three places near Djanet (2434N/0930E) in the south-east during the month. No reports were received for December.

• **Forecast**

Low numbers of adults will persist and slowly mature in the south near Tamanrasset and Djanet. Additional adults and perhaps a few small groups could appear from Mauritania in the north-west near Tindouf during periods of warm southerly winds.

Morocco

• **Situation**

No reports received.

• **Forecast**

Low numbers of locusts may be present in parts of the extreme south-west where small scale breeding could occur if rains recently fell. Early in the forecast period, scattered adults and perhaps a few small groups could appear during periods of warm southerly winds in the south from the Mauritanian border to the Draa Valley. Breeding may occur in areas of rainfall.

Libyan Arab Jamahiriya

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Tunisia

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

EASTERN AFRICA

Sudan

• **Situation**

On 1-2 December, very low numbers of mature adults were reported on the Red Sea coastal plains at four places near Suakin (1908N/3717E) and Port Sudan (1938N/3707E). During the second half of the month, similar populations were found at an additional seven places in the same area as well as in the wadis south of Suakin, in Tokar Delta and in the Red Sea Hills near Tomala (2003N3551E).

• **Forecast**

Locust numbers will gradually increase along the Red Sea coastal plains between Port Sudan and Karora as a result of small scale breeding during the forecast period. As initial numbers are very low, it may be difficult to detect the first generation of hoppers.

Eritrea

• **Situation**

No Desert Locusts were reported during December.

• **Forecast**

Low numbers of solitarious adults are likely to be present in a few areas along the Red Sea coastal plains between Tio and Karora. Small scale breeding is expected to occur in those areas of recent rainfall or runoff. Consequently, locust numbers will gradually increase during the forecast period but no significant developments are likely.

Somalia

• **Situation**

Scattered immature adults were present at one location on the escarpment between Hargeisa (0931N/4402E) and Berbera (1028N/4502E) on 2 December and at another location south-east of Bosaso (1118N/4910E) on the 4th.

• **Forecast**

Low numbers of adults will mature and breeding could occur in a few areas along the coast and on the escarpment where ecological conditions are favourable. No significant developments are likely.

Ethiopia

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No surveys were carried out during December.

• **Forecast**

No significant developments are likely.

Kenya, Tanzania and Uganda

• **Forecast**

No significant developments are likely.

NEAR EAST

Saudi Arabia

• **Situation**

No reports received

• **Forecast**

Low numbers of solitarious adults are likely to be present and breeding near Jizan in areas of recent rainfall. Isolated adults are likely to appear and start to breed in other areas along the Red Sea coastal plains between Jizan and Jeddah. Consequently, locust numbers will slowly increase during the forecast period.

Yemen

• **Situation**

No surveys were carried out during November and December.

• **Forecast**

Low numbers of solitarious adults are likely to be present and breeding on a small scale in a few places of the Red Sea coastal plains in areas of recent rainfall. Consequently, locust numbers will slowly increase during the forecast period.

Egypt

• **Situation**

No locusts were seen during surveys carried out on the Red Sea coastal plains and in the Western Desert during December.

• **Forecast**

A few isolated adults may appear on the Red Sea coastal plains between Halaib and Shalatyn. No significant developments are likely.

Kuwait

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Oman

• **Situation**

No surveys were carried out during December.

• **Forecast**

No significant developments are likely.

United Arab Emirates

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Qatar, Syria Arab Republic and Turkey

• **Forecast**

No significant developments are likely.

SOUTH-WEST ASIA

Iran

• **Situation**

No locusts were seen during surveys carried out in December on the south-eastern coastal plains near Jask and Chabahar and in the interior near Iranshahr and Kerman.

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

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

• **Forecast**

A few isolated adults may appear in coastal areas of Baluchistan. No significant developments are likely.

India

• **Situation**

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

• **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 locust situation reports are sent to FAO HQ by the 25th 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 email. Affected countries are encouraged to send completed *FAO Desert Locust Survey and Control Forms* with a brief interpretation of the results by email to eclo@fao.org.

EMPRES (Desert Locust) Western Region Programme. A Planning Workshop: EMPRES activities in the Western Region – Phase I: Pledges and operations, will be held in Nouakchott, Mauritania from 10-15 February 2001.

The Commission for Controlling the Desert Locust in the Central Region. The 23rd Session will be held in Cairo, Egypt in April 2001.

The Commission for Controlling the Desert Locust in North-West Africa. The 23rd Session will be held in Algiers, Algeria from 2-7 June 2001.

Desert Locust Control Committee. The 36th Session will be held in Rome from 24-28 September 2001.

Locust activities in Peru. The Locust Group is providing assistance to Peru under a Technical Cooperation Programme (TCP) project for control of the Peruvian Locust (*Schistocerca piceiferons peruviana*). The project was approved in December for two years to provide technical and contractual assistance, materials, supplies and equipment, and training.

Glossary of terms

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

NON-GREGARIOUS ADULTS AND HOPPERS

ISOLATED (FEW)
- very few present and no mutual reaction occurring;
- 0 - 1 adult/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)
- enough present for mutual reaction to be possible but no ground or basking groups seen;
- 1 - 20 adults/400 m foot transect (or 25 - 500/ha).

GROUP
- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL
- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL
- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM
- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE
- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE
- swarm: 500+ km^2 • 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

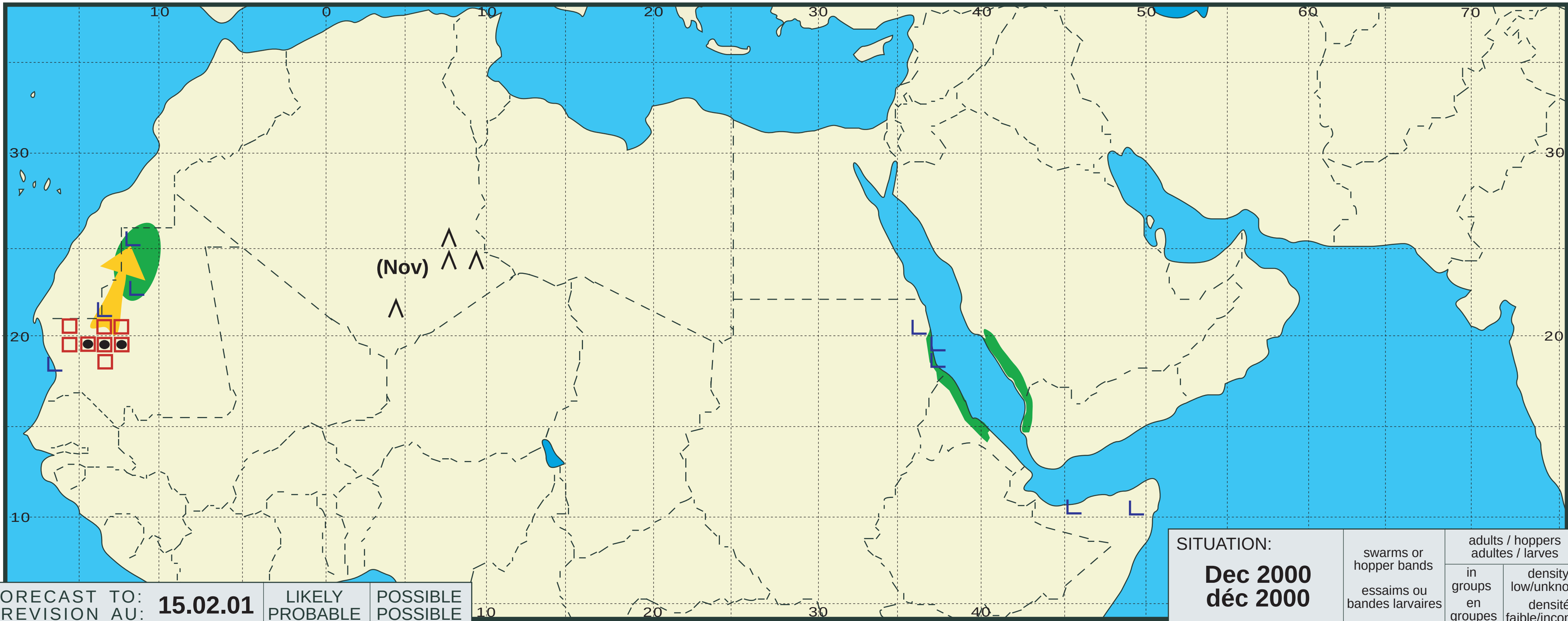
- period without widespread and heavy infestations by swarms.

REMISSION

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

Desert Locust Summary
Criquet pèlerin - Situation résumée

267



FORECAST TO: / PREVISION AU: 15.02.01	LIKELY / PROBABLE	POSSIBLE / POSSIBLE
favourable breeding conditions conditions favourables 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 2000 / déc 2000**	swarms or hopper bands / essaims ou bandes larvaires	adults / hoppers – adultes / larves: in groups / en groupes	adults / hoppers – adultes / larves: density low/unknown / densité faible/inconnue
immature adults adultes immatures	■	□	⊔
mature or partly mature adults adultes matures ou partiellement matures	◣	◺	L
adults, maturity unknown adultes, maturité inconnue	▲	△	Λ
egg laying or eggs pontes ou œufs	▼	▽	V
hoppers larves	●	○	◠
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)			