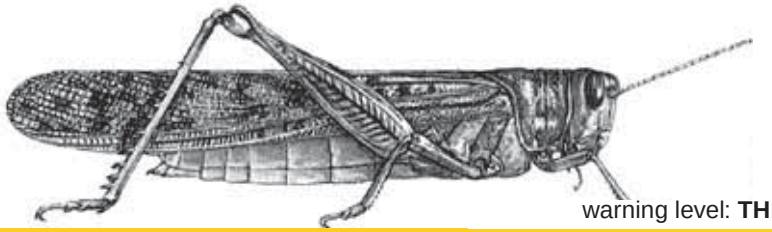


warning level: **THREAT (East Africa)**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations

No. 352

(4 February 2008)

General Situation during January 2008 Forecast until mid-March 2008

The Desert Locust situation remained serious in eastern Africa during January. Despite aerial and ground control operations, immature swarms formed in eastern Ethiopia and moved towards the centre of the country. There is a risk that some of these swarms could move to the coast in southern Eritrea, Yemen, northern Somalia or reinvade eastern Ethiopia, mature and lay eggs with the onset of the rains. Control operations were undertaken against hopper bands that formed in central Oman and on the Red Sea coast in Sudan. Locusts that escape control in Sudan could form a few small groups and swarms that may cross the Red Sea to Saudi Arabia while those in Oman could move to the spring breeding areas along the Iran/Pakistan border where unusually good rains fell in January. All of the above-mentioned countries should remain on high alert. The situation was calm in the Western Region where no significant developments are expected.

Western Region. The situation continued to remain calm during January. Local breeding continued in northwest **Mauritania** but locust numbers remained low and insignificant. Scattered adults were present in the Sahara in **Algeria** and in northeast **Mali**. Low numbers of locusts are expected to persist in these countries and small-scale breeding could occur in areas of recent rainfall. No significant developments are likely during the forecast period.

Central Region. Immature swarms formed in eastern **Ethiopia** in early January and moved west into the Rift Valley and the Harar Highlands where aerial and ground control operations treated more than 3,000 ha. Swarms are expected to eventually mature and lay eggs with the onset of the long rains or move towards the Red Sea and Gulf of Aden coasts. Ecological conditions were less favourable than usual in the winter breeding areas along both sides of the Red Sea. Most of the locusts were concentrated in the Tokar Delta in **Sudan** while only scattered adults were present on the coast in **Eritrea**, **Yemen** and **Saudi Arabia** as well as in northwest **Somalia** and the interior of southeast **Egypt**. In central **Oman**, ground teams treated nearly 6,000 ha of hopper bands and groups of immature adults. No locusts were reported in **Kenya** although there is a low to moderate risk that a few swarms could appear in the northwest in February.

Eastern Region. Scattered adults were present on the coast in southeastern **Iran** during January. Similar populations may be present in western **Pakistan**. There is a low risk that adults and perhaps a small group or swarm could appear on the coast from Oman. As unusually good rains fell in the spring breeding areas in both countries, locust numbers are expected to increase from egg laying and hatching that occurs 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 e-mail, FAO pouch and airmail by the Locusts and Other Migratory Pests Group, AGP Division, FAO, 00153 Rome, Italy. It is also available on the Internet.
Telephone: +39 06 570 52420 (7 days/week, 24 hr)
Facsimile: +39 06 570 55271
E-mail: eclo@fao.org
Internet: www.fao.org
DLIS: www.fao.org/ag/locusts

No. 352

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in January 2008

Unusually heavy rains fell in the Persian Gulf and in the spring breeding areas along the Iran/ Pakistan border in January. Very little rain fell for the third consecutive month along either side of the Red Sea where ecological conditions were favourable for breeding mainly in the Tokar Delta in Sudan.

In the **Western Region**, no significant rains fell in the Sahel in West Africa where dry conditions prevailed during January. Traces of rain fell in parts of eastern Algeria, southern Tunisia and western Libya. Ecological conditions were favourable for limited breeding in some of these areas and were improving in parts of the Western Sahara from earlier rainfall. Although rains did not fall in northwest Mauritania, vegetation remained green in parts of Trarza and southwest Adrar.

In the **Central Region**, vegetation remained mostly dry in the winter breeding areas along both sides of the Red Sea where only light showers fell near Jeddah and Jizan in Saudi Arabia and near Hodeidah in Yemen. Breeding conditions were favourable in the Tokar Delta in Sudan and to a lesser extent on the southern coastal plains near the Eritrean border. Light rains fell in central Ethiopia near Dire Dawa and in the Rift Valley as well as on parts of the northwest coast of Somalia where vegetation was becoming green. Conditions were dry on the Somali plateau and had dried out in most of the Ogaden in eastern Ethiopia, extending to northeast Kenya. Light rains fell along the Mediterranean coast in Egypt and in parts of the Western Desert. The rains turned into snowfall over northern Saudi Arabia while over the Persian Gulf, they were unusually heavy and record-breaking amounts (100+ mm) fell in the UAE and the Musandam Peninsula in northern Oman. However, this is expected to have little impact on Desert Locusts. During the last week of January, heavy rains fell in the Western Desert of Egypt and light to moderate rains fell on the southeastern coast of the Red Sea. In Oman, light rain fell near the central eastern coast, which may be sufficient for limited breeding.

In the **Eastern Region**, unusually heavy rains fell in the spring breeding areas of Baluchistan in southeast Iran and in western Pakistan in mid-January. Most of the rain occurred in coastal areas between Chabahar (32 mm) and Pasni (87 mm), in the interior between Iranshahr (128 mm) and Saravan (82 mm) and south of the Afghanistan border from Zahedan (54 mm), Iran to Nokkundi (28 mm) and Dalbandin (69 mm) in Pakistan. Some of the rains were fives times more than the long-term average for January. Consequently, ecological conditions will improve and become favourable for breeding in these areas. In India, light rains fell near Jaisalmer in Rajasthan but vegetation remained dry.

Area Treated

Ethiopia	869 ha (18-31 December, updated)
	4,346 ha (January)
Kenya	1,254 ha (December)
Oman	5,880 ha (January)
Sudan	790 ha (January)

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During January, small-scale breeding continued between Akjoujt (1945N/1421W) and Chinguetti (2027N/1221W) where scattered second to fifth instar solitarious hoppers were present mixed with isolated fledglings and immature and mature solitarious adults. Some of the adults were seen copulating and laying eggs south of Oujeft (2003N/1301W) during the last decade of the month. Isolated mature adults were seen east of Aguilal Faye (1827N/1444W). No locusts were seen elsewhere during surveys in Trarza and southwest Adrar.

• **FORECAST**

Scattered hoppers will fledge and adults will continue to mature and persist between Akjoujt and Chinguetti. New hatching may occur during the second half of February south of Oujeft, causing locust numbers to increase slightly. Some adults could move north to Tiris-Zemmour during periods of warm southerly winds and breed on a small-scale if rainfall occurs.

Mali

• **Situation**

Although regular surveys could not be undertaken in the north during January, scattered immature solitarious adults were reported on the 6th at four places in the northeastern Tamesna about 100 km southeast of Tin Essako (1826N/0229E).

• **Forecast**

Scattered locusts are likely to be present and will persist in parts of the Adrar des Iforas and Tamesna.

Niger

• **Situation**

No reports were received during January.

• **Forecast**

Low numbers of locusts are likely to be present and will persist in parts of the Air Mountains. Limited breeding could take place if conditions become favourable.

Chad

• **Situation**

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

• **Forecast**

No significant developments are likely.

Senegal

• **Situation**

No reports were received during January.

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

During January, very low densities of scattered immature and mature solitarious adults were present in the Sahara near Adrar (2753N/0017W) and, to a lesser extent, near In Salah (2712N/0229E), Tamanrasset (2250N/0528E) and Djanet (2434N/0930E). No locusts were seen during surveys carried out in the extreme south near the Mali/Niger border and in the west near the Moroccan border northeast of Tindouf (2741N/0811W).

• **Forecast**

Small infestations will persist in parts of the Sahara. Small-scale breeding could occur in areas of recent rainfall in the central and eastern Sahara.

Morocco

• **Situation**

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

• **Forecast**

Scattered adults are likely to appear in Western Sahara and breed on a small-scale in areas of recent rainfall.

Libyan Arab Jamahiriya

• **Situation**

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

• **Forecast**

Scattered adults may be present in the southwest near Ghat and could breed on a limited scale if rains fall.

Tunisia

• **Situation**

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

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During January, numerous small hopper bands were present in the Tokar Delta (1827N/3741E) at densities up to 300 hoppers/m^2. By the end of the month, many of the hoppers had reached the fifth instar stage. Scattered immature and mature solitarious and gregarious adults were also present at densities up to 500 adults/ha. Small hopper bands of all instars were also present on the coast south of Tokar near Adobana (1810N/3816E). Ground control teams treated 790 ha during the month.

In the northeast, first to fourth instar hopper bands at densities of up to 300 hoppers/m^2 were present during the first week on 30 ha in Wadi Diib northwest of Sufiya (2119N/3613E). Scattered immature and mature solitarious and gregarious adults were also present. Adults were seen laying eggs on the 3rd.

• Forecast

Small adult groups and perhaps a few small swarms could form during February in Tokar Delta and on the southern coast. In the northeast, small groups of adults may form in Wadi Diib and limited hatching

could give rise to small groups of hoppers. Unless further rains fall, breeding will end on the coast by March.

Eritrea

• **SITUATION**

During January, scattered mature solitarious adults were present in a few places on the northern coastal plains of the Red Sea near Karora (1745N/3820E).

• **FORECAST**

Scattered adults are likely to be present in some areas along the Red Sea coastal plains between Massawa and Karora. If more rains fall, small-scale breeding could occur during the forecast period. There is a low risk that a few swarms may appear on the southern coast from Ethiopia.

Ethiopia

• **SITUATION**

During the first week of January, late instar hopper bands and fledglings were present in crops along the Shebele River near Gode (0557N/4333E) and formed immature swarms near Gode. Control operations treated 1,400 ha, of which 800 ha were by air. Similar infestations were reported in the Ogaden near Kebri Dehar (0644N/4416E). During the second week, swarms were seen flying west towards the Harar Highlands where a 20 km^2 swarm was reported near Abu Beker (0722N/4013E) on the 12th and other immature swarms continued to be seen in the highlands south of Dire Dawa (0935N/4150E) during the remainder of the month. In the southwest, some ten districts reported immature swarms near Konso (0520N/3726E) and Teltele (0504N/3723E) from 14-24 January. Some of the swarms were extremely dense. Several swarms reached Turmi (0458N/3629E) near the Omo Valley and the Kenyan border. Although control operations were hampered by rough mountainous terrain in the southwest and in the Harar Highlands, they treated 3,141 ha, of which 2,641 ha were by air.

• **FORECAST**

Swarms are likely to remain in the Harar Highlands and the Rift Valley where they could mature and eventually lay eggs there or move toward the Ogaden and breed with the onset of the long rains, north along the railway or northwest towards the Danakil. There is a low to moderate risk that some swarms could move southwest along the highlands and the Rift Valley to northwest Kenya.

Djibouti

• **SITUATION**

No reports were received during January.

• **FORECAST**

There is a low to moderate risk that a few swarms may appear from Ethiopia and continue to the coast.

Somalia

• **SITUATION**

During January, scattered mature solitarious adults were present on the coastal plains near Bulhar (1023N/4425E) and at a few places on the escarpment north of Hargeisa (0931N/4402E).

• **FORECAST**

Small-scale breeding is likely to occur on the northwest coastal plains between Berbera and Djibouti. There is a low to moderate risk that a few swarms may appear on the plateau from Ethiopia and continue down the escarpment to the coast.

Kenya

• **SITUATION**

No locusts were reported during January.

• **FORECAST**

There is a low to moderate risk that a few swarms may appear in the Turkana District from adjacent areas in southwest Ethiopia during February. If so, the adults could mature and lay eggs; otherwise, the situation will become calm and no significant developments are likely.

Uganda

• **SITUATION**

No reports were received during January.

• **FORECAST**

There is a low risk that a few immature swarms may appear in the northeast from Kenya and Ethiopia.

Egypt

• **SITUATION**

During January, scattered immature solitarious adults were present at densities of less than 100 adults/ha at a few places on the western side of Lake Nasser near Tushka (2247N/3126E), in the Red Sea Hills west of Berenice (2359N/3524E) and in Wadi Diib near the Red Sea coast and Abu Ramad (2224N/3624E). No locusts were seen during surveys carried out northeast of Aswan (2405N/3256E).

• **FORECAST**

Scattered adults will persist in parts of the Western Desert, along the Lake Nasser shoreline and on the Red Sea coastal plains south of Marsa Alam. Small-scale breeding could occur in areas of recent rainfall.

Saudi Arabia

• **Situation**

During January, isolated immature solitarious adults were seen at a few places on the northern Red Sea coast near Bader (2346N/3847E). No locusts were reported elsewhere on the coast in Mecca and Asir regions, or in the spring breeding areas near Buraydah (2621N/4358E).

• **Forecast**

Scattered adults may be present along parts of the Red Sea coastal plains. Small-scale breeding could occur in areas of recent rainfall or runoff near Jeddah and Jizan as well as in other areas if more rains fall during the forecast period. As temperatures increase, scattered adults may appear in the spring breeding areas in the interior. There is a low moderate risk that a few adult groups or small swarms may appear on the coast from Sudan.

Yemen

• **Situation**

During the last week of January, isolated immature solitarious adults were seen on the central Red Sea coastal plains near Al Qutai (1454N/4312E) and in the north near Suq Abs (1600N/4312E). On the Gulf of Aden coast, mainly isolated immature solitarious adults mixed with a few mature adults were present on the plains northwest of Aden (1250N/4503E).

• **Forecast**

Small-scale breeding could occur on the Red Sea coast in areas of recent rainfall. Breeding is less likely to occur on the Gulf of Aden coast unless more rains fall during the forecast period. There is a low risk that a few swarms may appear on the coast near Bab El Mandeb from Ethiopia.

Oman

• **Situation**

During January, hoppers formed small patches and groups in several wadis in the central interior north of Marmul (1808N/5516E) from undetected hatching that occurred in December. By mid-month, late instar hopper bands had formed, and medium density groups of fledglings and gregarious adults were present. At the end of the month, there was an unconfirmed report of a swarm near Maqshan (1935N/5453E). In nearby coastal areas, groups of late instar hoppers and immature adults had formed from eggs that were laid and hatched in December near Al Jazer (1835N/5635E). Ground control teams treated 5,880 ha. Elsewhere, no locusts were seen during surveys in the northern interior.

• **Forecast**

Small groups and perhaps few small swarms are likely to form near Marmul and Al Jazer. Although some adults may persist and eventually lay eggs in areas of recent rainfall, most adults are expected to move north towards Jebel Akhdar between Al Dhahera and Al Sharqiya where they may eventually mature and lay eggs if conditions are favourable. There is a low risk that some adults could reach the Batinah coastal plains.

Bahrain, Iraq, Israel, Jordan, Kuwait, Lebanon, Palestine, Qatar, Syria, Tanzania, Turkey and UAE

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

During January, scattered mature solitarious adults were present on the southeastern coastal plains near Chabahar (2517N/6036E) at densities up to about 120 adults/ha. No locusts were seen during surveys carried out on the southern coast near Bander-e Lengheh (2634N/5452E).

• **Forecast**

There is a low risk that adults and perhaps a small group or swarm could appear on the southeast coast from Oman. Small-scale breeding will occur in areas of recent rainfall in Sistan-Baluchistan and to a lesser extent in southern Hormozgan and Kerman. Hatching is likely to start from mid-February onwards with hoppers present during March. Consequently, locust numbers will increase in coastal and interior areas near Chabahar, Jask, Iranshahr, and perhaps near Kahnuj and Saravan. Surveys should be conducted in all areas on a regular basis.

Pakistan

• **Situation**

No reports were received during the second half of December. No locusts were reported during the first half of January.

• **Forecast**

There is a low risk that adults and perhaps a small group or swarm could appear on the Baluchistan coast from Oman. Small-scale breeding will occur in areas of recent rainfall in Baluchistan, causing locust numbers to increase in coastal and interior areas. Hatching will start near the coast and in the Turbat area from mid-February onwards with hoppers present during March. Hatching may also occur in the north

near Dalbandin and Nokkundi once temperatures increase. Surveys should be conducted in all areas on a regular basis.

India

• **SITUATION**

No locusts were seen during surveys carried out in Rajasthan during the first half of January.

• **FORECAST**

No significant developments are likely.

Afghanistan

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Announcements

Locust reporting. During recession periods, countries should report at least once/month and send RAMSES data with a brief interpretation. During caution (yellow) and threat (orange) periods, locust outbreaks, upsurges and plagues, RAMSES output files with a brief interpretation should be sent at least twice/week within 48 hours of the last survey. Affected countries are also encouraged to prepare decadal bulletins summarizing the situation. All information should be sent by e-mail to the FAO/ECLO Desert Locust Information Service (eclo@fao.org). Information received by the end of the month will be included in the FAO Desert Locust Bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Desert Locust warning levels. A colour-coded scheme indicates the seriousness of the current Desert Locust situation: green for *calm*, yellow for *caution*, orange for *threat* and red for *danger*. The scheme is applied to the Locust Watch web page and to the monthly bulletin's header. The levels indicate the perceived risk or threat of current Desert Locust infestations to crops and appropriate actions are suggested for each level.

EMPRES websites. Detailed information on the EMPRES programme and the FAO regional locust commissions is available on the Internet for the Central Region (www.crc-empres.org) and the Western Region (www.clcpro-empres.org).

Google group. FAO DLIS has established a Google group for national locust information officers to exchange opinions and share experiences regarding data management and analysis, GIS, eLocust2 and satellite imagery. Interested information officers should contact DLIS (eclo@fao.org) for details.

MODIS imagery. Columbia University's International Research Institute for Climate and Society (IRI) provides 16-day 250-metre resolution MODIS imagery as well as daily and decadal rainfall imagery for monitoring breeding conditions in the Desert Locust recession area. These products can be downloaded in different formats suitable for GIS at: http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/index.html. Comments and questions can be addressed to Pietro Ceccato (pceccato@iri.columbia.edu).

New information on Locust Watch. The latest additions to the web site are:

- **Locust situation.** Several updates during January (home page and in Archives section)
- **FAO Technical Series No. 35.** Preparedness to prevent Desert Locust plagues in the Central Region: an historical overview by J. Magor et al (Publications section – Documents)

Links to the above information can be found in the *Latest Additions* section on Locust Watch.

2008 events. The following activities are scheduled:

- **Joint Survey.** Iran/Pakistan joint border survey (1-30 April)
- **DLCC**. 39th Session (late November), Rome

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.

WARNING LEVELS

GREEN

- Calm. No threat to crops. Maintain regular surveys and monitoring.

YELLOW

- Caution. Potential threat to crops. Increased vigilance is required; control operations may be needed.

ORANGE

- Threat. Threat to crops. Survey and control operations must be undertaken.

RED

- Danger. Significant threat to crops. Intensive survey and control operations must be undertaken.

REGIONS

WESTERN

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

CENTRAL

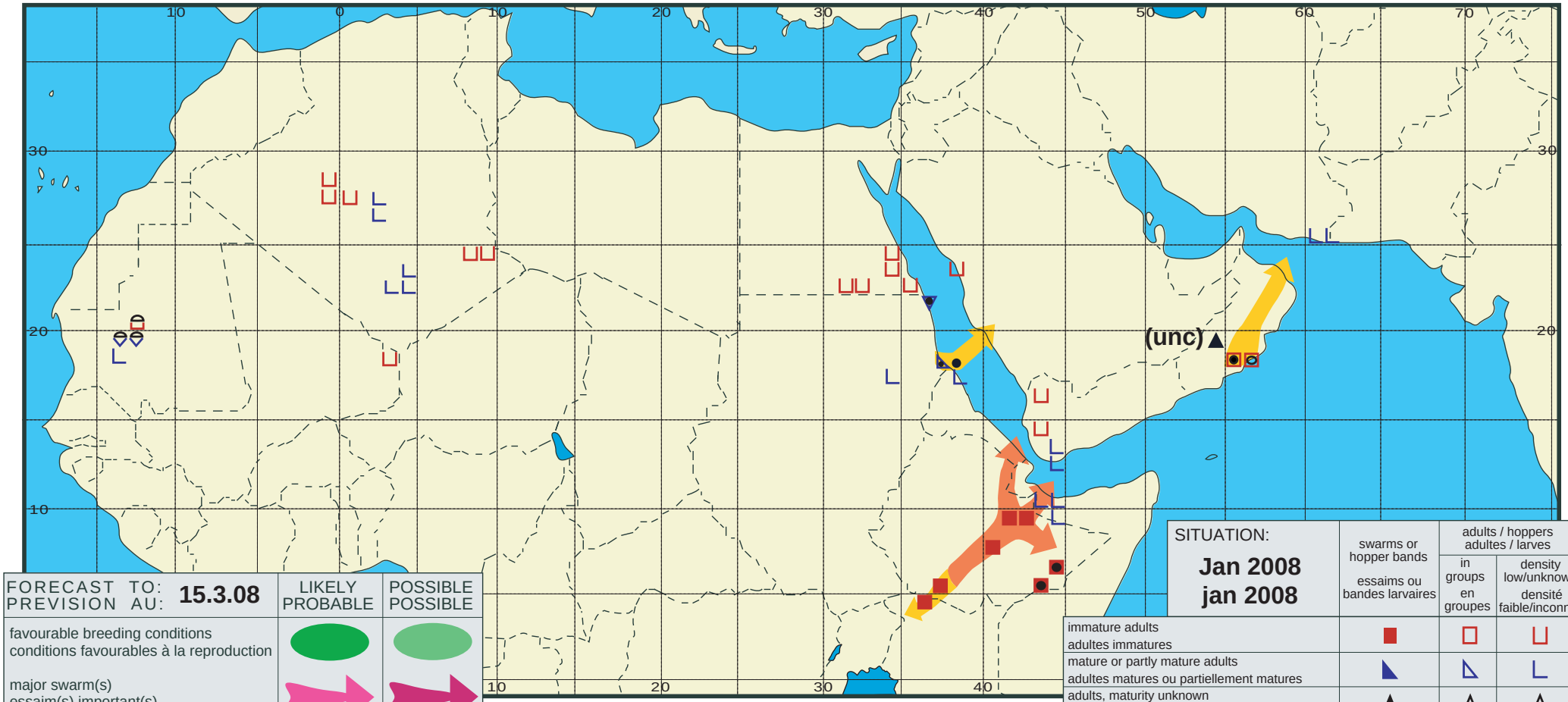
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

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

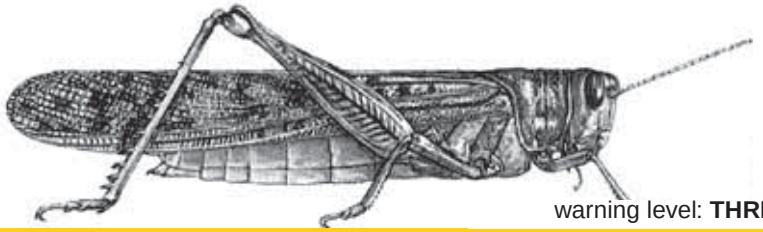
Desert Locust Summary
Criquet pèlerin - Situation résumée

352



FORECAST TO: / PREVISION AU: **15.3.08**	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: **Jan 2008 jan 2008**	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	▲	△	⋀
egg laying or eggs pontes ou œufs	▼	▽	⋁
hoppers larves	●	○	◡
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)	◘	▣	◒



warning level: **THREAT (Ethiopia, Iran)**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations

No. 353

(3 March 2008)

General Situation during February 2008
Forecast until mid-April 2008

The Desert Locust situation continued to be serious in parts of the Central Region during February. Several swarms formed in central Oman and moved through eastern Yemen, Saudi Arabia, UAE to southern Iran. Hatching and hopper band formation are likely to occur in southern Iran. Immature swarms persisted in rugged areas of southern Ethiopia where little control could be carried out. These swarms are expected to move to the Ogaden region and perhaps to northern Somalia and breed. Locusts declined in the winter breeding areas on the Red Sea coast, especially in Sudan, and no significant developments are expected. The situation remained calm in the Western Region.

Western Region. The situation continued to remain calm during February. Small-scale breeding continued for the fourth consecutive month in northwest **Mauritania** but locust numbers remained low and insignificant. Locusts increased slightly in central and southern **Algeria** where scattered adults were present in several areas. Low numbers of adults are likely to be present in parts of northern **Mali** and **Niger** but surveys could not be conducted in these areas due to insecurity. Scattered adults are expected to persist in these countries and small-scale breeding could occur if further rains fall. No significant developments are likely during the forecast period.

Central Region. As vegetation dried out, several small immature swarms formed in central and southern **Oman** by mid February. Most of the swarms moved through **UAE** to southern Iran while a few swarms first moved to eastern **Yemen** and then crossed the Empty Quarter in eastern **Saudi Arabia** to the Persian Gulf. The swarms were highly mobile so only limited control operations could be carried out. Immature swarms persisted in southern **Ethiopia**, but survey and control operations were hampered by the remote mountainous areas. Therefore, the current situation is not very clear. Nevertheless, the swarms are likely to remain in the Harar Highlands and eventually move to the Ogaden region and breed when the long rains begin in March or April. There is a low to moderate risk that a few swarms could move to northern **Somalia**. Locusts declined on the Red Sea coast of **Sudan** where ground control operations were carried out against late instar hopper bands and adults in the Tokar Delta. A few adults were present in southern **Egypt**.

Eastern Region. Small-scale breeding occurred on the southeastern coast of **Iran** during February. On the 20th, a small swarm from the northeastern Arabian Peninsula arrived on the southern coast, dispersed and laid eggs. As only part of the swarm was treated, hatching and small hopper band formation will occur in March. Scattered adults are likely to be present in western **Pakistan**. Locust numbers are expected to increase in the spring breeding areas of Baluchistan in Iran and Pakistan from breeding that occurs 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 e-mail, FAO pouch and airmail by the Locusts and Other Migratory Pests Group, AGP Division, FAO, 00153 Rome, Italy. It is also available on the Internet.
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DLIS: www.fao.org/ag/locusts

No. 353

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in February 2008

Although very little rain fell during February throughout the recession area, vegetation remained green in parts of the northern Sahel and ecological conditions were favourable for breeding in the Tokar Delta in Sudan and on the southern coast of Iran.

In the **Western Region**, very little rain fell in February except for light showers in parts of central and southern Mauritania, Western Sahara, the central Sahara in Algeria and on the southern side of the Atlas Mountains in Morocco near Ouarzazate. Dry and dusty northerly Harmattan winds occurred at times over the Sahel and southern Sahara. In northwest Mauritania, small localized patches of green vegetation were present in the valleys of the Kediet Imert plateau in southwest Adrar. In Western Sahara, vegetation was becoming green in the northeast. In Algeria, green vegetation was present in many of the wadis along a 300 km stretch west of Tamanrasset. Vegetation was also green in irrigated areas near Adrar and In Salah in the central Sahara. In northern Mali, green vegetation was present in the main wadis in the Adrar des Iforas but dry on the Tamesna plains in the Tilemsi Valley.

In the **Central Region**, no significant rains fell during February and consequently, vegetation was drying out in traditional winter breeding areas along both sides of the Red Sea except in the Tokar Delta and in a few places in Wadi Diib in Sudan. Due to poor rains so far this winter, ecological conditions were also dry along the coast of northwest Somalia there were a few small places on the coast east of Djibouti where vegetation was becoming green. In Oman, vegetation dried out in the centre of the country and was already dry in southern and northern regions. Conditions were also dry along the coast and in the interior of eastern Yemen.

In the **Eastern Region**, good rains fell at the beginning of February in spring breeding areas along the coast of Baluchistan near Chabahar, Iran and Pasni, Pakistan. Rain fell again at mid-month and at the end of February in Baluchistan, Iran. Consequently, ecological conditions improved in most areas and were suitable for breeding by the end of the month. Dry conditions prevailed along both sides of the Indo-Pakistan border.

Area Treated

Ethiopia	47 ha (February)
Iran	150 ha (February)
Oman	400 ha (February)
Saudi Arabia	no details (February)
Sudan	2,514 ha (February)

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During February, small-scale breeding continued in southwest Adrar for the fourth consecutive month, and low numbers of solitarious hoppers of all instars mixed with immature and mature solitarious adults were present in the valleys of Kediet Imert south of Oujeft (2003N/1301W). Adults were seen copulating and laying eggs during the second week of the month.

• **FORECAST**

Scattered hoppers will fledge and adults will continue to mature and persist near Oujeft. New hatching may occur in early March and the resulting hoppers will fledge about mid-April. Consequently, locust numbers will increase slightly in southwest Adrar.

Mali

• **SITUATION**

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

• **FORECAST**

Scattered locusts are likely to be present and will persist in parts of the Adrar des Iforas.

Niger

• **SITUATION**

No reports were received during February.

• **FORECAST**

Low numbers of locusts are likely to be present and will persist in parts of the Air Mountains. Limited breeding could take place if conditions become favourable.

Chad

• **Situation**

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

• **Forecast**

No significant developments are likely.

Senegal

• **Situation**

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

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

During February, scattered immature and mature solitarious adults were present in several wadis in the southern Sahara from west of Tamanrasset (2250N/0528E) to In Ziza (2330N/0239E). A few solitarious adults were seen in the central Sahara near Adrar (2753N/0017W) and In Salah (2712N/0229E), west of Illizi (2630N/0825E), southwest of Djanet (2434N/0930E) and near the Niger border northwest of In Guezzam (1937N/0552E).

• **Forecast**

Small infestations will persist in parts of the Sahara. Small-scale breeding could occur near Adrar, In Salah and south and west of Tamanrasset, causing locust numbers to increase slightly.

Morocco

• **Situation**

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

• **Forecast**

Scattered adults may appear in Western Sahara and breed on a small-scale in areas of recent rainfall.

Libyan Arab Jamahiriya

• **Situation**

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

• **Forecast**

Scattered adults may be present in the southwest near Ghat and could breed on a limited scale if rains fall.

Tunisia

• **Situation**

No reports were received during February.

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During February, locusts declined on the Red Sea coast in the Tokar Delta (1827N/3741E) and in Wadi Diib. Two fifth instar hopper bands at densities up to 33 hoppers/m^2 were reported during the first week in Tokar and groups of fledglings were seen at mid-month. Scattered immature and mature solitarious adults were present during most of the month in the delta and at one place on the southern coast near Adobana (1810N/3816E). In the northeast, a very small second to fifth instar hopper band with a density of 5 hoppers/m^2 and scattered mature solitarious adults were present during the first week in Wadi Diib northwest of Sufiya (2119N/3613E). Thereafter, no locusts were seen in the area. Ground teams treated 2,514 ha in Tokar Delta during February.

• Forecast

Locusts will continue to decline in Wadi Diib, Tokar Delta and nearby coastal plains as vegetation dries out. Nevertheless, scattered adults may persist in some areas.

Eritrea

• **Situation**

No locusts were seen during surveys carried out on the Red Sea coastal plains from Tio (1441N/4057E) to the Sudanese border in the first half of February.

• **Forecast**

Isolated adults may be present and could persist in areas of green vegetation between Mehimet and Karora. There is a low risk that a few swarms may appear on the southern coast from Ethiopia.

Ethiopia

• **Situation**

During February, immature swarms persisted in the southern zones of Bale and Borena, mainly between Mega (0403N/3819E) and Konso (0520N/3726E). A few swarms were seen along the eastern side of the Rift Valley and in the Harar Highlands about 250 km southwest of Dire Dawa (0935N/4150E). Only limited

control operations could be carried out because the swarms were highly mobile and often present in areas that were mountainous and inaccessible. Control teams treated 47 ha near Konso during February.

• **Forecast**

Swarms are likely to remain in the Harar Highlands and the Rift Valley where they could mature and lay eggs there or move toward the Ogaden and breed with the onset of the long rains in March or April. This is a low risk that a few swarms could move north along the railway or northwest towards the Danakil.

Djibouti

• **Situation**

No locusts were seen during a survey carried out on the coast between Djibouti and the Somali border on 18 February.

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

No locusts were seen during surveys carried out in February on the northwest coastal plains and on the plateau between Hargeisa (0931N/4402E) and the borders of Ethiopia and Djibouti.

• **Forecast**

Isolated adults may be present in coastal areas between Berbera and Djibouti. No significant developments are likely. There is a low to moderate risk that a few swarms may appear from Ethiopia.

Kenya

• **Situation**

No locusts were reported during February.

• **Forecast**

The risk of swarms appearing from southern Ethiopia will decline during March as the Inter-Tropical Convergence Zone moves further north. Consequently, the situation will become calm and no significant developments are likely.

Egypt

• **Situation**

During February, isolated immature solitarious adults were present near Lake Nasser between Abu Simbel (2219N/3138E) and Tushka (2247N/3126E) as well as in the Allaqi area. No locusts were seen northeast of Aswan or along the Red Sea coast north of Shalatyn.

• **Forecast**

Scattered adults will persist in parts of the Western Desert, along the Lake Nasser shoreline and on the Red Sea coastal plains south of Marsa Alam. Small-scale breeding could occur in areas of recent rainfall.

Saudi Arabia

• **Situation**

On 21 February, at least two immature swarms, one of 1 km^2 in size and the other 9 km^2, with up to 3,000 adults/m^2 were reported at several farms in the Empty Quarter near Yebreen (2313N/4856E) and Al Safy (2347N/4906E). Locusts were also reported nearby and some of the adults were maturing. Ground and aerial control operations were immediately carried out.

• **Forecast**

Any adults that remain in the Empty Quarter could breed in agricultural areas. Scattered adults may be present along parts of the Red Sea coastal plains between Jizan and Yenbo. Unless additional rains fall, small-scale breeding is not expected to occur.

Yemen

• **Situation**

In mid-February, three immature swarms were reported in the interior near the Oman border between Hat (1719N/5205E) and Shehan (1746N/5229E). Some locusts may have reached Remah (1727N/5034E) but most are thought to have dispersed north towards the Empty Quarter. No locusts were seen during surveys along the coast between the Oman border and Mukalla (1431N/4908E) or in the interior of Hadhramaut and Shabwah regions. No surveys were conducted on the Red Sea coastal plains or near Aden in February.

• **Forecast**

Scattered adults may be present and breeding on a limited scale along parts of the Red Sea coastal plains and perhaps along the coast near Aden.

Oman

• **Situation**

During February as vegetation dried out, several immature swarms formed from previous breeding in the central interior. In the south, several small immature swarms and groups of high-density immature gregarious adults were seen in the interior between the Yemen border near Maziuna (1750N/5239E), the Dhofar Hills and north Thumrait (1736N/5401E) on 11-18 February. The adults and swarms were highly mobile and mainly moving in a northerly direction although a few probably moved southwest into eastern Yemen. In the northern interior, immature adult groups and swarms were reported

on the 12th to 15th at a few places along the southern side of Jebel Akhdar between Nizwa (2255N/5731E) and Ibri (2314N/5630E), including Wadi Al Ain. On the 18-20th, some groups and swarms reached the UAE border near Hafit (2355N/5550E). Ground teams treated 400 ha. On the northern Batinah coastal plains, locusts were seen on the 16th in Wadi Bani Ghafir (ca. 2342N/5721E). Groups of gregarious immature adults were seen further north on the Musandam coast near Midha (2517N/5619E) flying northeast towards the sea on the 19th.

• **Forecast**

Remnants from the immature groups and swarms may persist in the northern interior and coastal areas where they are likely to mature and lay eggs if conditions become favourable in Dhahira, Dakhliya, Sharqiya, Batinah and Musandam regions. If so, hatching will occur in March that could lead to the formation of small hopper groups and bands. Regular surveys are recommended in all areas.

UAE

• **Situation**

In mid-February, small groups of adults were reported in southern oases and agricultural areas near the Saudi Arabian border between Madinat Zayed (2339N/5342E) and Huwaylah (2307N/5347E). THe adults moved east where low-density groups of immature gregarious adults were reported in Abu Dhabi (2427N/5421E) on the 19th. Locusts were reported the following day in Dubai (2516N/5518E) and then in the eastern emirates. Locusts were also seen near the Omani border at Al Ain (2413N/5545E). These locusts probably arrived from the Empty Quarter and Oman.

• **Forecast**

Although the swarms passed through the country, there is a low risk that some adults may have remained on the Ras Al Khaymah and Al Fujayrah coasts where they could lay eggs that would hatch and give rise to hoppers during March.

Bahrain, Iraq, Israel, Jordan, Kuwait, Lebanon, Palestine, Qatar, Syria, Tanzania, Turkey and Uganda

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

During February, scattered solitarious mature adults persisted on the southeast coast near Chabahar (2517N/6036E) and bred on a small-scale. At mid-month, isolated third to fifth instar hoppers were seen in a few places. On the 20th, a low-density swarm arrived on the southern coast near Minab (2708N/5705E) and quickly dispersed and laid eggs within a 2 km^2 area. Ground control operations treated 150 ha on the 25th. There was an unconfirmed report of a swarm further west on the coast at Bande-Kong (2635N/5456E) on the 27th. No locusts were seen during surveys carried out in these areas earlier in the month.

• **Forecast**

Hatching and the formation of hopper groups and small bands are expected to occur during the first half of March on the coast near Minab. Consequently, locust numbers will increase and control operations may be required. Scattered locusts will persist on the coast near Chabahar where small-scale breeding is likely to occur in areas of recent rainfall. Regular surveys are recommended in all areas.

Pakistan

• **Situation**

No locusts were reported during February.

• **Forecast**

Scattered locusts are almost certainly present in coastal areas of Baluchistan between Iran and Lasbela, and perhaps in the interior near Turbat, Panjgur, Kharan, Dalbandin and Nushki. Small-scale breeding may already be in progress in coastal areas and will occur in the interior as temperatures rise. Consequently, locust numbers will increase during the forecast period and regular surveys are recommended.

India

• **Situation**

No locusts were seen during surveys carried out in Rajasthan during the second half of January and throughout February.

• **Forecast**

No significant developments are likely.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

No. 353

DESERT LOCUST BULLETIN

Announcements

Locust reporting. During recession periods, countries should report at least once/month and send RAMSES data with a brief interpretation. During caution (yellow) and threat (orange) periods, locust outbreaks, upsurges and plagues, RAMSES output files with a brief interpretation should be sent at least twice/week within 48 hours of the last survey. Affected countries are also encouraged to prepare decadal bulletins summarizing the situation. All information should be sent by e-mail to the FAO/ECLO Desert Locust Information Service (eclo@fao.org). Information received by the end of the month will be included in the FAO Desert Locust Bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Desert Locust warning levels. A colour-coded scheme indicates the seriousness of the current Desert Locust situation: green for *calm*, yellow for *caution*, orange for *threat* and red for *danger*. The scheme is applied to the Locust Watch web page and to the monthly bulletin's header. The levels indicate the perceived risk or threat of current Desert Locust infestations to crops and appropriate actions are suggested for each level.

Climate change. Potential impacts of climate change on Desert Locust are under discussion. More details can be found on Locust Watch in the Activities section (http://www.fao.org/ag/locusts/en/activ/index.html).

Google group. FAO DLIS has established a Google group for national locust information officers to exchange opinions and share experiences regarding data management and analysis, GIS, eLocust2 and satellite imagery. Interested information officers should contact DLIS (eclo@fao.org) for details.

MODIS imagery. Columbia University's International Research Institute for Climate and Society (IRI) provides 16-day 250-metre resolution MODIS imagery as well as daily and decadal rainfall imagery for monitoring breeding conditions in the Desert Locust recession area. These products can be downloaded in different formats suitable for GIS at: http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/index.html. Comments and questions can be addressed to Pietro Ceccato (pceccato@iri.columbia.edu).

New information on Locust Watch. Recent additions to the web site are:

- **Locust situation.** Several updates during February (home page and in Archives section)
- **FAO Technical Series No. 35.** Preparedness to prevent Desert Locust plagues in the Central Region: an historical overview by J. Magor et al (Publications section – Documents)

Links to the above information can be found in the *Latest Additions* section on Locust Watch.

2008 events. The following activities are scheduled:

- **Joint Survey.** Iran/Pakistan joint border survey (1-30 April)
- **CRC/SWAC**. Informal discussions on the use and improvement of RAMSES, eLocust2 and forecasts, Cairo (22-24 April)
- **CRC**. 26th Session and 30th Executive Committee meeting, Muscat (26-30 July, to be confirmed)

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.

WARNING LEVELS

GREEN

- Calm. No threat to crops. Maintain regular surveys and monitoring.

YELLOW

- Caution. Potential threat to crops. Increased vigilance is required; control operations may be needed.

ORANGE

- Threat. Threat to crops. Survey and control operations must be undertaken.

RED

- Danger. Significant threat to crops. Intensive survey and control operations must be undertaken.

REGIONS

WESTERN

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

CENTRAL

- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

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

Desert Locust Summary
Criquet pèlerin - Situation résumée

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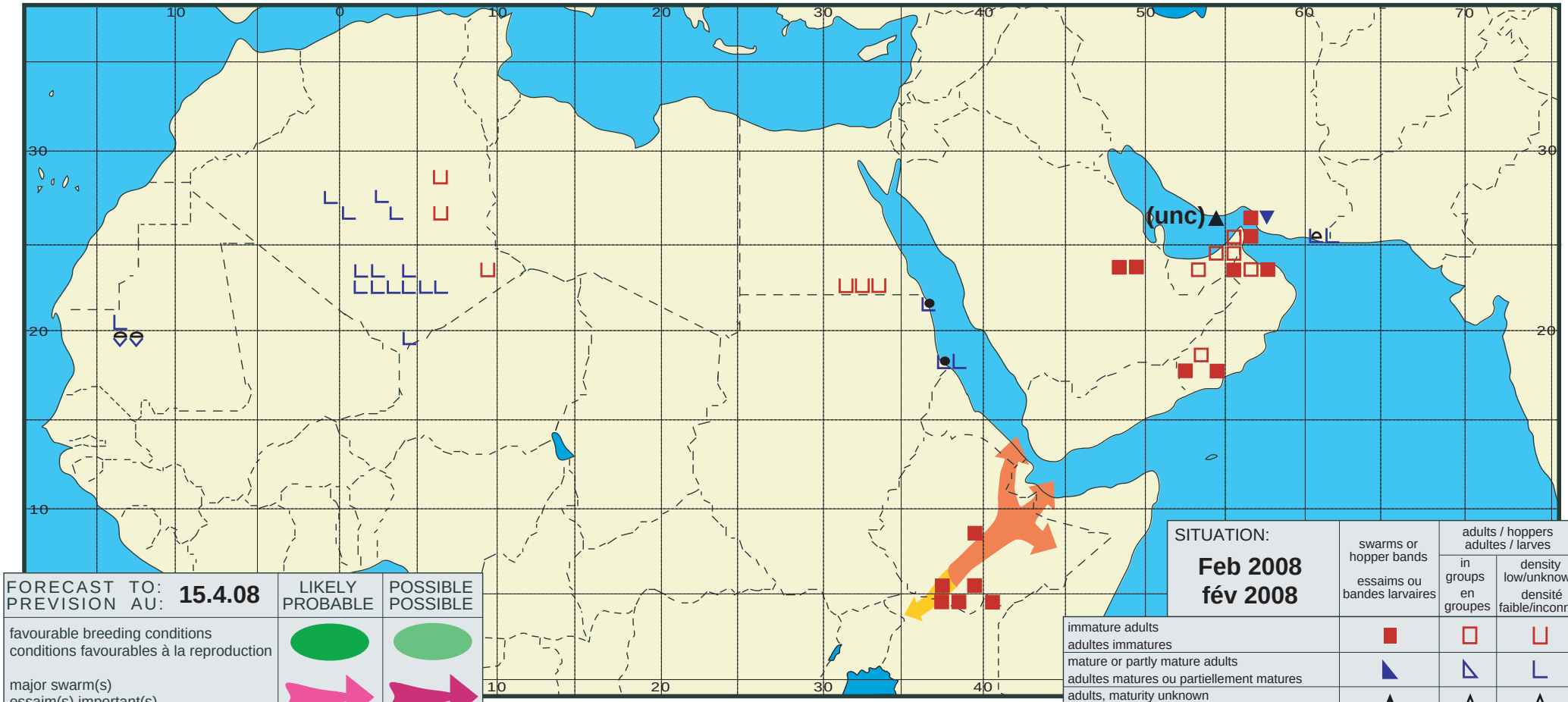
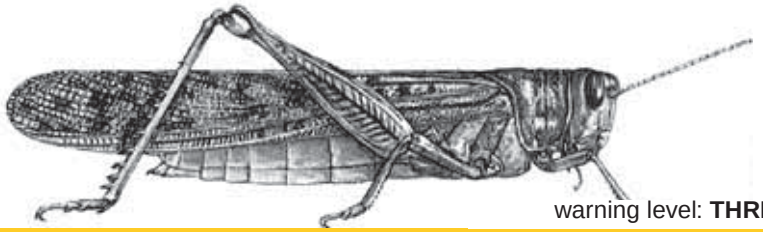


FORECAST TO: / PREVISION AU: **15.4.08**	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **Feb 2008 fév 2008**	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	◣	◺	L
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)	◘	◙	◒



warning level: **THREAT (Ethiopia, Iran)**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations

No. 354

(1 April 2008)

General Situation during March 2008
Forecast until mid-May 2008

The Desert Locust situation continued to be serious during March in Ethiopia where swarms persisted in the south. It is not clear how many swarms are present but they are expected to move to the Ogaden region and perhaps to northern Somalia and breed in April if rains occur. Several swarms attacked farms in eastern Saudi Arabia and some egg laying was reported. Hatching from earlier swarm laying occurred on the southeast coast of Iran and more breeding is likely during April. Control operations were undertaken in Saudi Arabia, Iran and Ethiopia. Small infestations were treated in Mauritania and Algeria. Intensive survey and control efforts should continue in Ethiopia, Saudi Arabia and Iran during the forecast period.

Western Region. The situation remained calm during March. Small-scale breeding continued for the fifth consecutive month in northwest **Mauritania**, and scattered adults were present in parts of the Sahara in **Algeria** and in southeast **Libya**. Limited ground control operations were undertaken in Mauritania and Algeria. Due to continued insecurity, surveys could not be conducted in northern **Mali** and **Niger** where scattered adults are likely to be present, and will probably persist. No significant developments are likely during the forecast period.

Central Region. Some immature swarms persisted in southern **Ethiopia** during March but the situation is not very clear due to the difficult terrain and few surveys. These swarms are likely to move from the south and the Harar Highlands to the Ogaden region and breed when the long rains begin in April. There is a low to moderate risk that a few swarms could move to northern **Somalia**. In eastern **Saudi Arabia**, more than 6,000 ha were treated during the first half of March on irrigated farms along the edge of the Empty Quarter. Hatching may occur in some places and hoppers could form small bands in April. No surveys were carried out and no locusts were reported in **Eritrea**, **Djibouti**, **Yemen** and **Oman** during March. No locusts were seen along the Red Sea in **Sudan** and **Egypt**, and only isolated adults were present on the coast in Saudi Arabia. Breeding this winter was limited due to poor rains and locust numbers did not increase significantly on either side of the Red Sea. Consequently, only low numbers of adults are likely to be present at the beginning of the summer breeding period in the interior of Sudan.

Eastern Region. Hatching started on the Strait of Hormuz coast in **Iran** in mid-March and egg laying continued in some coastal and interior areas in the southeast. More hatching will occur in April, which could cause hopper bands to form. Breeding is less likely to occur in **Pakistan** unless more rains fall. A 30-day joint Iran/Pakistan survey will be carried out in the spring breeding areas of both countries during April. No locusts were present in **India**.

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

No. 354

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in March 2008

No significant rain fell in the recession area during March. Consequently, vegetation was dry and conditions were generally unfavourable for breeding except along the coast and in the interior of southeastern Iran.

In the **Western Region**, very little rain fell in March. Light showers may have occurred in parts of northern Mauritania, the central Sahara in Algeria and on the northeastern edge of the Air Mountains in Niger. In Mauritania, ecological conditions were dry except for a few isolated patches of green vegetation in the southern part of the Adrar region. In Western Sahara, vegetation was green in a few places in the northeast and southeast. In Morocco, vegetation began to dry out on the southern side of the Atlas Mountains. In Algeria, vegetation was dry in the Sahara except for irrigated agricultural areas near Adrar, In Salah and Tamanrasset. In Niger, green vegetation persisted in the central and eastern Air Mountains although some areas were starting to dry out.

In the **Central Region**, no significant rains fell during March. Vegetation was dry or drying out on the coastal plains along both sides of the Red Sea except for crops in the Tokar Delta. Vegetation was also dry in Djibouti and in northwest Somalia. In Oman, no rain fell and vegetation was drying out in central and northern areas. Rains began to fall in mid-March in southern Ethiopia but vegetation remained dry there as well.

In the **Eastern Region**, no significant rains fell during March. Nevertheless, vegetation was green and breeding conditions were favourable along the southeastern coast of Iran from Minab to the Pakistani border. Ecological conditions were improving in the southeastern interior of Iran, primarily in the Jaz Murian Basin, but remained dry in other parts of the spring breeding areas in Baluchistan, Pakistan.

Area Treated

Algeria	25 ha (26 March)
Ethiopia	355 ha (1-25 March)
Iran	730 ha (25-29 February)
	930 ha (March)
Mauritania	3 ha (March)
Saudi Arabia	544 ha (25-29 February)
	6,016 ha (1-11 March)

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During March, scattered immature and mature solitarious adults at densities up to 500 adults/ha persisted in the valleys of Kediet Imert south of Oujeft (2003N/1301W) in the Adrar region. Isolated first to third instar solitarious hoppers were seen at two places. During the third decade of the month, a few adults were copulating and laying eggs, limited hatching was in progress, and solitarious first to fourth instar hoppers were present in a few agricultural areas at densities up to 20 hoppers/m^2. On the 25th, ground teams treated 3 ha where adults were laying eggs and hoppers were forming small groups.

• **FORECAST**

Scattered hoppers will fledge and adults will continue to mature and persist near Oujeft. New hatching may occur in April and the resulting hoppers will fledge by the end of the forecast period. Consequently, locust numbers will continue to increase slightly in southwest Adrar.

Mali

• **SITUATION**

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

• **FORECAST**

Scattered locusts are likely to be present and will persist in parts of the Adrar des Iforas.

Niger

• **SITUATION**

No surveys were carried out due to insecurity and no locusts were reported from January to March.

• **FORECAST**

Low numbers of locusts are likely to be present and will persist in parts of the Air Mountains. Limited breeding could take place if conditions become favourable.

Chad

• **Situation**

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

• **Forecast**

No significant developments are likely.

Senegal

• **Situation**

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

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

During March, locust numbers declined slightly but some scattered mature solitarious adults persisted near irrigated agricultural areas in parts of the Sahara near Adrar (2753N/0017W), In Salah (2712N/0229E) and west of Tamanrasset (2250N/0528E). Some adults were copulating near Adrar and Tamanrasset during the first week of the month. On the 26th, ground teams treated 25 ha of mature solitarious adults at densities of 500-600 adults/ha near Illizi (2630N/0825E).

• **Forecast**

Scattered adults will persist in parts of the Sahara and small-scale breeding could occur near Adrar, In Salah, Djanet, Illizi and south and west of Tamanrasset, causing locust numbers to increase slightly.

Morocco

• **Situation**

No locusts were reported in March.

• **Forecast**

No significant developments are likely.

Libyan Arab Jamahiriya

• **Situation**

In the southeast, scattered solitarious adults were present near Jebel Uweinat (2154N/2458E) and Jebel Arkenu (2215N/2445E), and in irrigated fields at Kufra (2411N/2315E) on 12-16 March.

• **Forecast**

Scattered adults may be present in the southwest near Ghat and could breed on a limited scale if rains fall. Low numbers of adults may persist in the southeast.

Tunisia

• **Situation**

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

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

A late report indicated that gregarious hoppers and solitarious adults were seen at a few places in Wadi Diib northwest of Sufiya (2119N/3613E) by a joint Egyptian/Sudanese survey from 30 January to 7 February.

During March, no locusts were seen in the Tokar Delta on the Red Sea coast.

• Forecast

No significant developments are likely.

Eritrea

• **Situation**

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

• **Forecast**

No significant developments are likely.

Ethiopia

• **Situation**

During March, an unknown number of immature swarms persisted in the southern zones of Borena, South Omo and Gamo Gofa near Konso (0520N/3726E) and in the West Harerghe zone of the Harar Highlands about 250 km southwest of Dire Dawa (0935N/4150E). Survey and control operations continued to be hampered by the rugged terrain and the highly mobile swarms which split into smaller less dense swarmlets moving in different directions. Ground teams treated 85 ha and an aircraft treated 270 ha on 1-25 March.

• **Forecast**

Swarms are likely to remain in the Harar Highlands and the Rift Valley where they could mature and lay eggs there or move toward the Ogaden and breed with the onset of the long rains in April. If breeding occurs in the Ogaden, hopper bands are likely to form in April and May. There is a low risk that a few swarms could move north along the railway or northwest towards the Danakil.

Djibouti

• **Situation**

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

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

No locusts were seen during surveys carried out in March on the northwest coastal plains between Djibouti and Berbera (1028N/4502E). An individual mature adult was seen near the coast east of Berbera on the 27th.

• **Forecast**

There is a low to moderate risk that a few swarms may appear from Ethiopia on the plateau and along the escarpment.

Egypt

• **Situation**

A late report indicated that a few solitarious adults were seen in Wadi Diib near the Sudanese border by a joint Egyptian/Sudanese survey from 30 January to 7 February.

No locusts were seen during surveys carried out in March along the Red Sea coast between Shalatyn (2308N/3535E) and the Sudanese border, along both sides of Lake Nasser, in the Western Desert at Sh. Oweinat (2219N/2845E), on the northwest coast between Salum and Mersa Matruh (3120N/2713E) and in coastal and interior areas of the Sinai Peninsula.

• **Forecast**

No significant developments are likely.

Saudi Arabia

• **Situation**

On 25-28 February, seven swarms were reported to have arrived on irrigated farms on the northwest edge of the Empty Quarter near Yabreen (2313N/4856E). Most of the swarms were immature at densities of up to 200 adults/m^2 and ranged in size from 3 to 10 km^2. They attacked wheat, fodder and palm trees. Some of the adults dispersed into small groups at densities up to 3,000 adults/ha and laid eggs at several places near Yabreen from 28 February to 8 March. A few swarms were reported about 400 km to the southwest on the eastern side of W. Dawasir (2024N/4605E) on 6-10 March. One immature swarm was seen about 300 km north of Yabreen near the Persian Gulf and Jubail (2700N/4939E) on the 6th. A total of 6,560 ha were treated by three aircraft and 61 ground teams from 25 February to 11 March.

On the Red Sea coast, isolated immature solitarious adults were seen at two places north of Jeddah (2130N/3910E) on 2 March. No locusts were seen on the coast near Qunfidah (1909N/4107E).

• **Forecast**

As breeding is likely to have occurred on some farms on the edge of the Empty Quarter, small hopper groups and bands may form and, if not controlled, could lead to small adult groups or swarms by mid May.

Yemen

• **Situation**

No surveys were carried out during March.

• **Forecast**

Scattered adults may be present along parts of the Red Sea and Gulf of Aden coastal plains. Small-scale breeding could occur if rains fall.

Oman

• **Situation**

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

• **Forecast**

Scattered adults and perhaps a few small groups may have remained in parts of Dhahira, Dakhliya, Sharqiya, Batinah and Musandam regions from the immature swarms that passed through these areas in February. Small-scale breeding could occur in areas where conditions are favourable. Regular surveys are recommended in all areas.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, Syria, Tanzania, Turkey, Uganda and UAE

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

During the last week of February and first week of March, several swarms laid eggs on the coast along the Strait of Hormuz between Minab (2708N/5705E) and Jask (2540N/5746E), and solitarious adults, at densities up to about 200 adults/ha, laid eggs further east on the coastal plains near Chabahar (2517N/6036E). The unconfirmed swarm report on the southern coast at Bande-Kong (2635N/5456E) on 27 February was found not to be Desert Locust.

During the second half of March, hatching commenced on the coast near Minab on the 17th, and ground teams treated 240 ha of first instar transiens hoppers on 19-28 March. In the interior, solitarious adults laid eggs near Bampur (2711N/6028E) on the 12th and a swarm laid eggs in the Jaz Murian basin southeast of Kahnuj (2757N/5742E) on the 24th. Breeding also occurred on the coast where mature solitarious adults were present near Chabahar and a swarm laid eggs on the 29th near the Pakistani border. Control operations treated 1,660 ha from 25 February to 30 March.

• **Forecast**

Hatching will occur in April on the coast between Minab and Jask, and to a lesser extent near Chabahar and in the Jaz Murian basin. Small hopper groups and bands are expected to form in these areas and, if not controlled, a few small swarms could form by mid-May. Small-scale breeding by solitarious adults will also occur on the coast and in the interior near Bampur and the Jaz Murian Basin. Consequently, locust numbers will increase in the spring breeding areas.

Pakistan

• **Situation**

During March, isolated mature solitarious adults were present on the Baluchistan coast west of Karachi near Lasbela (2614N/6619E). No locusts were seen during surveys carried out near Turbat (2600N/6303E).

• **Forecast**

Scattered locusts are almost certainly present in coastal areas of Baluchistan between Iran and Lasbela, probably in the interior near Turbat, Panjgur, Kharan, and perhaps near Dalbandin and Nushki. Small-scale breeding is likely to occur if additional rains fall during the forecast period.

India

• **Situation**

No locusts were seen during surveys carried out in Rajasthan during March.

• **Forecast**

No significant developments are likely.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Announcements

Locust reporting. During recession periods, countries should report at least once/month and send RAMSES data with a brief interpretation. During caution (yellow) and threat (orange) periods, locust outbreaks, upsurges and plagues, RAMSES output files with a brief interpretation should be sent at least twice/week within 48 hours of the last survey. Affected countries are also encouraged to prepare decadal bulletins summarizing the situation. All information should be sent by e-mail to the FAO/ECLO Desert Locust Information Service (eclo@fao.org). Information received by the end of the month will be included in the FAO Desert Locust Bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Desert Locust warning levels. A colour-coded scheme indicates the seriousness of the current Desert Locust situation: green for *calm*, yellow for *caution*, orange for *threat* and red for *danger*. The scheme is applied to the Locust Watch web page and to the monthly bulletin's header. The levels indicate the perceived risk or threat of current Desert Locust infestations to crops and appropriate actions are suggested for each level.

Climate change. Potential impacts of climate change on Desert Locust are under discussion. More details can be found on Locust Watch in the Activities section (http://www.fao.org/ag/locusts/en/activ/index.html).

Google group. FAO DLIS has established a Google group for national locust information officers to exchange opinions and share experiences regarding data management and analysis, GIS, eLocust2 and satellite imagery. Interested information officers should contact DLIS (eclo@fao.org) for details.

MODIS imagery. Columbia University's International Research Institute for Climate and Society (IRI) provides 16-day 250-metre resolution MODIS imagery as well as daily and decadal rainfall imagery for monitoring breeding conditions in the Desert Locust recession area. These products can

be downloaded in different formats suitable for GIS at: http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/index.html. Comments and questions can be addressed to Pietro Ceccato (pceccato@iri.columbia.edu).

New information on Locust Watch. Recent additions to the web site are:

- **Locust situation.** Several updates during March (home page and in Archives section)
- **Locust recipes.** A few new ways to eat locusts (Locust FAQs section)
- **Internet sites.** Updated links to locust information on the Internet (Links section)

Links to the above information can be found in the *Latest Additions* section on Locust Watch.

2008 events. The following activities are scheduled:

- **Joint Survey.** Iran/Pakistan joint border survey (1-30 April)
- **EMPRES/WR.** Mid-term review of the World Bank AELP project, Bamako (7-11 April)
- **CRC/SWAC**. Informal discussions on the use and improvement of RAMSES, eLocust2 and forecasts, Cairo (22-24 April)
- **EMPRES/WR.** Regional contingency planning workshop, Bamako (28 April – 2 May)
- **CRC**. Sub-regional training course, UAE (24 May – 3 June)
- **CRC**. 26th Session and 30th Executive Committee meeting, Muscat (26-30 July)
- **CLCPRO.** 5th Executive Committee meeting, Ouagadougou (20-22 October, to be confirmed)
- **EMPRES/WR.** 7th Liaison Officers meeting, Niamey (24-28 November, to be confirmed)
- **EMPRES/WR.** 4th Steering Committee meeting, Niamey (1-3 December, to be confirmed)
- **SWAC.** 26th Session, Kabul (15-17 December, to be confirmed)

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.

WARNING LEVELS

GREEN

- Calm. No threat to crops. Maintain regular surveys and monitoring.

YELLOW

- Caution. Potential threat to crops. Increased vigilance is required; control operations may be needed.

ORANGE

- Threat. Threat to crops. Survey and control operations must be undertaken.

RED

- Danger. Significant threat to crops. Intensive survey and control operations must be undertaken.

REGIONS

WESTERN

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

CENTRAL

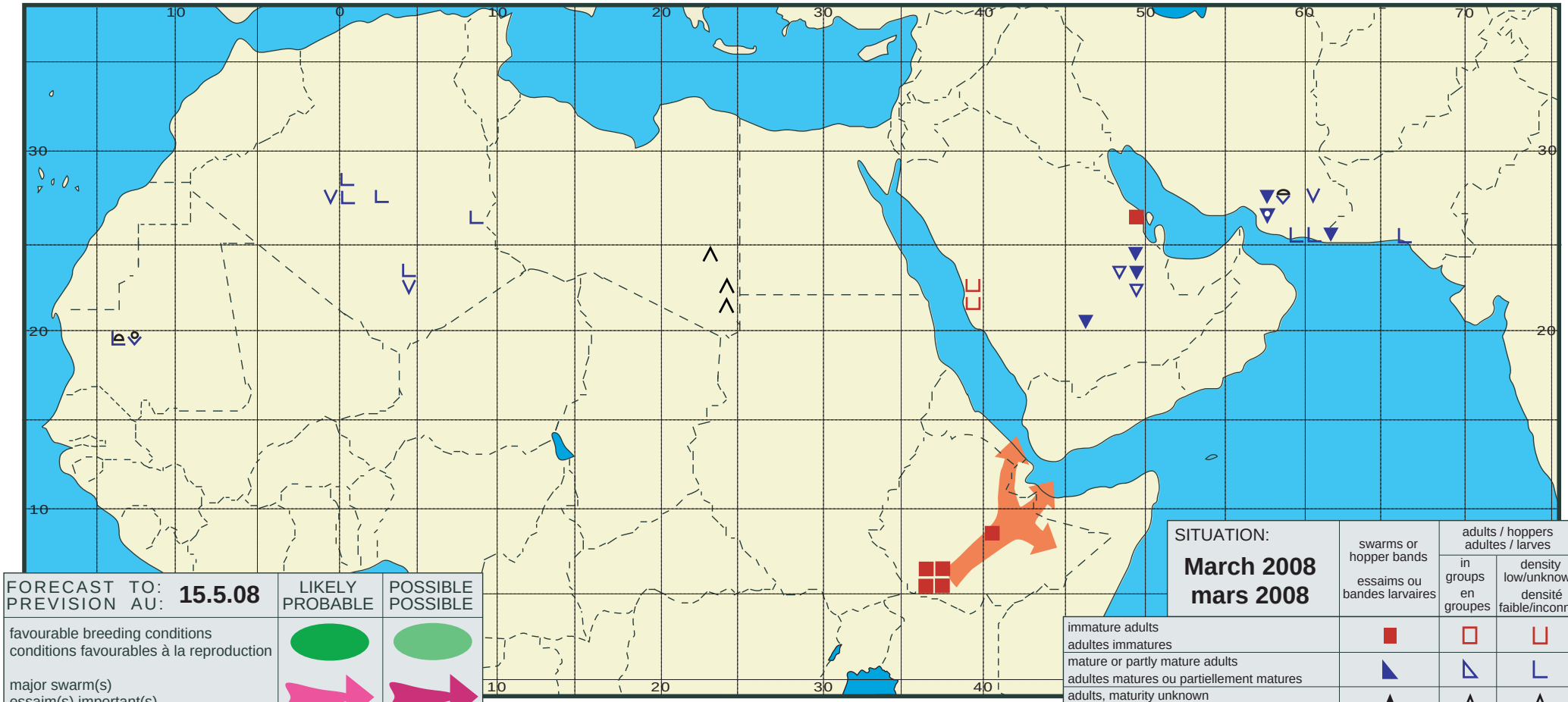
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

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

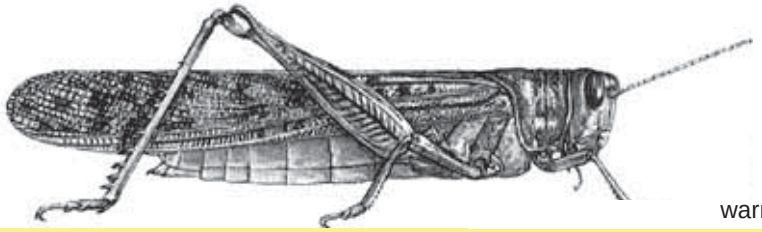
Desert Locust Summary
Criquet pèlerin - Situation résumée

354



FORECAST TO: / PREVISION AU: **15.5.08**	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: **March 2008 / mars 2008**	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	▲	△	∧
egg laying or eggs pontes ou œufs	▼	▽	V
hoppers larves	●	○	◡
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)	◘	◙	◒



warning level: **CAUTION**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations

No. 355

(5 May 2008)

General Situation during April 2008 Forecast until mid-June 2008

The Desert Locust situation was generally calm during April except for Ethiopia, Saudi Arabia and Iran. In Ethiopia, swarms persisted in the south and seasonal rains began in the Ogaden region in the east where the swarms are likely to move and lay eggs. Small hopper groups and bands formed in the interior of Saudi Arabia and in southeast Iran from egg laying in March. Control operations were carried out in both countries but there is a moderate risk that a few small group or swarms could form in May. Intensive survey and control efforts should continue in Ethiopia, Saudi Arabia and Iran during the forecast period. Elsewhere, limited control operations were undertaken in Sudan, Algeria and Mauritania where local breeding occurred.

Western Region. The situation remained calm during April. Small-scale breeding caused locust numbers to increase in southern **Algeria** and ground teams treated 1,150 ha of hoppers and adults that were forming small groups. Local breeding continued in northwest **Mauritania** and small groups of hoppers were treated with a bio-pesticide. During the forecast period, low numbers of adults are expected to move towards the summer breeding areas in southern Mauritania, northern **Mali** and northern **Niger** where they will mature and lay eggs once the summer rains begin. There is a moderate risk that breeding could start this summer as soon as late May or early June if rains fall in western and central Mauritania.

Central Region. Immature swarms continued to persist in southern **Ethiopia**. Although it is not clear how many swarms are present, some of the adults have matured and may be ready to lay eggs. Most of the swarms are expected to move to the Ogaden and lay eggs as seasonal rains started in mid-April and ecological conditions are improving. Consequently, some hopper bands could form in May. In northern **Sudan**, local breeding occurred in crops in the Nile Valley and ground teams treated 44 ha. Scattered adults were also present in southwest **Egypt**. Dry conditions prevailed in the winter breeding areas along both sides of the Red Sea and no locusts were reported. In **Saudi Arabia**, hatching and band formation may occur on other farms on the northern edge of the Empty Quarter that, if not controlled, could lead to the formation of small adult groups or swarms. In northern **Oman**, local breeding occurred in the interior near UAE. No locusts were seen during surveys in **Eritrea**, northern **Somalia** and **Yemen**.

Eastern Region. As conditions are drying out in southeastern **Iran**, breeding will end on the coast and in the interior. Adults could form a few small groups during the forecast period that are likely to move east towards the summer breeding areas on both sides of the Indo-Pakistan border. In western **Pakistan**, very little breeding occurred during the spring because of poor rainfall. No locusts were present in **India**.

The FAO Desert Bulletin is issued monthly, supplemented by Updates during periods of increased Desert Locust activity, and is distributed by e-mail, FAO pouch and airmail by the Locusts and Other Migratory Pests Group, AGP Division, FAO, 00153 Rome, Italy. It is also available on the Internet.
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E-mail: eclo@fao.org
Internet: www.fao.org
DLIS: www.fao.org/ag/locusts

No. 355

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in April 2008

No significant rain fell in the recession area during March. Consequently, vegetation was dry and conditions were generally unfavourable for breeding except along the coast and in the interior of southeastern Iran.

In the **Western Region**, no significant rain fell and dry conditions prevailed during April. Isolated showers may have fallen in parts of northwest Libya during the first decade of April.

In the **Central Region**, seasonal rains commenced in mid-April in eastern Ethiopia where light to moderate showers fell in parts of the Ogaden region but vegetation remained dry. Dry conditions prevailed in adjacent areas in northern Somalia. Vegetation remained dry in the winter breeding areas along both sides of the Red Sea except near Shelshela and Karora in Eritrea where low-density green vegetation was present. In the summer breeding areas in the interior of Sudan, light rain fell in parts of the Eastern Region near Kassala and in southern areas of Kordofan. No significant rainfall was reported in the Arabian Peninsula where dry conditions prevailed. Vegetation was dry or drying out in the spring breeding areas in northern Oman.

In the **Eastern Region**, light to moderate rains fell in the summer breeding areas along both sides of the Indo-Pakistan border during the first decade of April but ecological conditions remained unfavourable for breeding. In Rajasthan (India), Bikaner reported 48 mm, Barmer 29 mm and Jodhpur 17 mm. In the absence of any significant rainfall, vegetation was drying out and breeding conditions were becoming unfavourable in the spring breeding areas in southeastern Iran and western Pakistan.

Area Treated

Algeria	1,150 ha (April)
Iran	1,100 ha (March, updated)
	228 ha (5-15 April)
Mauritania	10 ha (April)
Saudi Arabia	49 ha (April)
Sudan	44 ha (24-27 April)

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During April, scattered solitarious and *transiens* hoppers of all instars mixed with immature and mature solitarious adults persisted in southwest Adrar. Most of the locusts were present in cropping areas in the valleys of Kediet Imert south of Oujeft (2003N/1301W). Although locust numbers gradually declined, hoppers were forming small groups at densities up to 12 hoppers/m^2. Some of the adults were laying eggs. Ground teams treated nearly 4 ha with Green Muscle and mechanical control was undertaken on about 10 ha.

• **FORECAST**

Local breeding will continue in southwest Adrar where hatching will occur during May, and hoppers and adults may form a few small groups. By the end of the forecast period, scattered adults are likely to appear in the summer breeding areas in the south and lay eggs once seasonal rains commence. There is a moderate risk that breeding could commence earlier than normal this year if good rains fall in the west in May or June.

Mali

• **SITUATION**

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

• **FORECAST**

Scattered locusts are likely to be present and will persist in parts of the Adrar des Iforas.

Niger

• **SITUATION**

During April, scattered immature solitarious adults mixed with African Migratory Locusts were present in irrigated areas near Arlit (1843N/0721E).

• **FORECAST**

Low numbers of locusts are likely to be present and will persist in parts of the Air Mountains and near Arlit. Limited breeding could take place if conditions become favourable.

Chad

• **Situation**

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

• **Forecast**

No significant developments are likely.

Senegal

• **Situation**

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

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

During April, small-scale breeding caused locust numbers to increase in the Ahnet area northwest of Tamanrasset (2250N/0528E). Solitarious and *transiens* hoppers and immature solitarious adults were present at several places and, in some cases, forming small groups at densities of up to 5 hoppers/m^2 and 3,000 adults/ha. Ground teams treated 1,150 ha. No locusts were seen elsewhere in the central or southern Sahara except for isolated immature solitarious adults near Djanet (2434N/0930E).

• **Forecast**

Breeding is unlikely to continue in the Sahara unless further rains fall but low to moderate numbers of adults may persist near Tamanrasset and, to a lesser, near Adrar, In Salah, Djanet and Illizi.

Morocco

• **Situation**

During April, isolated immature solitarious adults were present at one location south of the Atlas Mountains in the Ziz Valley near the Algerian border at Taychoutine (3053N/0405W).

• **Forecast**

No significant developments are likely.

Libyan Arab Jamahiriya

• **Situation**

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

• **Forecast**

Scattered adults may be present in the southwest near Ghat and could breed on a limited scale if rains fall. Low numbers of adults may persist in the southeast.

Tunisia

• **Situation**

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

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

No locusts were seen during surveys carried out on the Red Sea coastal plains between the Tokar Delta and the Eritrean border in the first half of April. In the Nile Valley, small-scale breeding occurred in irrigated crops in one area between Dongola (1910N/3027E) and the Egyptian border where moderate numbers of solitarious and *transiens* hoppers of all instars and immature adults formed small groups. Ground teams treated 44 ha during the last week of the month.

• Forecast

Small-scale breeding and low to moderate numbers of locusts are likely to persist in crops in the Nile Valley in the north. Low numbers of adults could appear by the end of the forecast period in the summer breeding areas near Kassala and in North Kordofan and breed on a small scale in areas that receive rainfall.

Eritrea

• **Situation**

No locusts were seen during a survey on the Red Sea coastal plains between Massawa (1537N/3928E) and the Sudanese border on 3-6 April.

• **Forecast**

Low numbers of adults could appear by the end of the forecast period in the western lowlands and breed once seasonal rains commence.

Ethiopia

• **Situation**

During April, a few small immature swarms persisted in the southern Rift Valley near Konso (0520N/3726E). Some of the adults had become mature by mid-month. Surveys continued to be hampered by the rugged terrain and the highly mobile swarms. Further north, isolated solitarious immature adults were seen in the railway area between Dire Dawa (0935N/4150E) and the Djibouti border.

• **Forecast**

Small swarms from the south are likely to appear in the Ogaden and lay eggs in areas of recent rainfall. Hatching is expected to occur in May and give rise to small hopper bands. There is a moderate risk that some adults could remain in the south and lay eggs near Konso that could cause small hopper bands to form in May.

Djibouti

• **Situation**

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

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

No reports were received during April.

• **Forecast**

There is a low to moderate risk that a few swarms may appear from Ethiopia on the plateau and along the escarpment.

Egypt

• **Situation**

A late report indicated that scattered immature and mature solitarious adults were present in the southwest near Jebel Uweinat (2154N/2458E) in Karkur Talh and K. Murr, and on the northern and eastern sides of the Gilf Kebir Plateau in Wadi Hamra (ca. 2350N/2527E) and W. Bakht (ca. 2312N/2625E) in March. The highest concentration of adults was seen in W. Hamra.

During the first half of April, no locusts were seen during surveys carried out on the Red Sea coast near Shalatyn (2308N/3535E) and in the Western Desert near Sh. Oweinat (2219N/2845E).

• **Forecast**

Small-scale breeding could occur in the southwest near Jebel Uweinat and the Gilf Kebir Plateau.

Saudi Arabia

• **Situation**

During April, hatching occurred on a few farms on the northwest edge of the Empty Quarter near Yabreen (2313N/4856E) where swarms laid eggs in March. Consequently, 33 small medium to high-density first instar hopper bands were reported in four farms and 49 ha were treated.

• **Forecast**

Hatching and band formation may occur early in the forecast period on other farms near Yabreen. Intensive surveys should be conducted. Small groups or perhaps a few swarms could form from infestations that are not controlled.

Yemen

• **Situation**

No locusts were seen during surveys carried out on the Red Sea coast and on the Gulf of Aden coastal plains on 10-16 April.

• **Forecast**

No significant developments are likely.

Oman

• **Situation**

During April, small-scale breeding occurred in the northern interior near Buraimi (2415N/5547E) and the UAE border where isolated third to sixth instar solitarious hoppers mixed with immature and mature solitarious adults were present at two places. No locusts were seen on the Batinah coast.

• **Forecast**

Locust numbers will decline and no significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, Syria, Tanzania, Turkey, Uganda and UAE

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

During April, locust numbers increased in the spring breeding areas in the southeastern regions of Hormozgan and Sistan-Baluchistan. By mid-month, third and fourth instar hoppers had formed groups at densities of up to 50 hoppers/m^2 on the southern coast between Minab (2708N/5705E) and Jask (2540N/5746E). Small-scale breeding occurred further east on the coast between Chabahar (2517N/6036E) and the Pakistani border where first and second instar hoppers formed small groups. Ground teams in both areas treated 228 ha on 5-15 April. Scattered mature solitarious adults were also present near Chabahar and some adults were copulating on the 3rd on the Vashnum Plains. In the interior, breeding occurred on the southern edge of the Jaz Murian Basin (ca. 2706N/5853E) and in the valleys near Suran (2717N/6159E) and Zaboli (6140N/2707E) where

medium-density small hopper bands formed mixed with solitarious hoppers and mature adults.

• **Forecast**

Breeding will end on the coast between Minab and Chabahar unless further rains fall. Nevertheless, immature adults could form a few small groups in May on the coast near Minab and Chabahar and in the interior near Jaz Murian and west of Saravan. As vegetation dries out, these adults are likely to move east towards the Indo-Pakistan border.

Pakistan

• **Situation**

During the first half of April, low numbers of immature and mature solitarious adults were present in the spring breeding areas of Baluchistan in the interior near Kharan (2832N/6526E). Small-scale breeding occurred east of Nokkundi (2849N/6244E). No locusts were seen further south in the interior or along the coast except for a few mature solitarious adults that persisted near Uthal (2548N/6637E).

• **Forecast**

Locust numbers will decline in the spring breeding areas in Baluchistan as vegetation dries out. By the end of the forecast period, scattered adults are likely to appear in the summer breeding areas in Tharparkar, Khipro and Cholistan and breed with the onset of the monsoon rains.

India

• **Situation**

No locusts were seen during surveys carried out in Rajasthan during April.

• **Forecast**

Scattered adults are likely to appear in Rajasthan by the end of the forecast period and breed with the onset of the monsoon rains.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Announcements

Locust reporting. During recession periods, countries should report at least once/month and send RAMSES data with a brief interpretation. During caution (yellow) and threat (orange) periods, locust outbreaks, upsurges and plagues, RAMSES output files with a brief interpretation should be sent at least twice/week within 48 hours of the last survey. Affected countries are also encouraged to prepare decadal bulletins summarizing the situation. All information should be sent by e-mail to the FAO/ECLO Desert Locust Information Service (eclo@fao.org). Information received by the end of the month will be included in the FAO Desert Locust Bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Desert Locust warning levels. A colour-coded scheme indicates the seriousness of the current Desert Locust situation: green for *calm*, yellow for *caution*, orange for *threat* and red for *danger*. The scheme is applied to the Locust Watch web page and to the monthly bulletin's header. The levels indicate the perceived risk or threat of current Desert Locust infestations to crops and appropriate actions are suggested for each level.

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Glossary of terms

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

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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.

WARNING LEVELS

GREEN

- Calm. No threat to crops. Maintain regular surveys and monitoring.

YELLOW

- Caution. Potential threat to crops. Increased vigilance is required; control operations may be needed.

ORANGE

- Threat. Threat to crops. Survey and control operations must be undertaken.

RED

- Danger. Significant threat to crops. Intensive survey and control operations must be undertaken.

REGIONS

WESTERN

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

CENTRAL

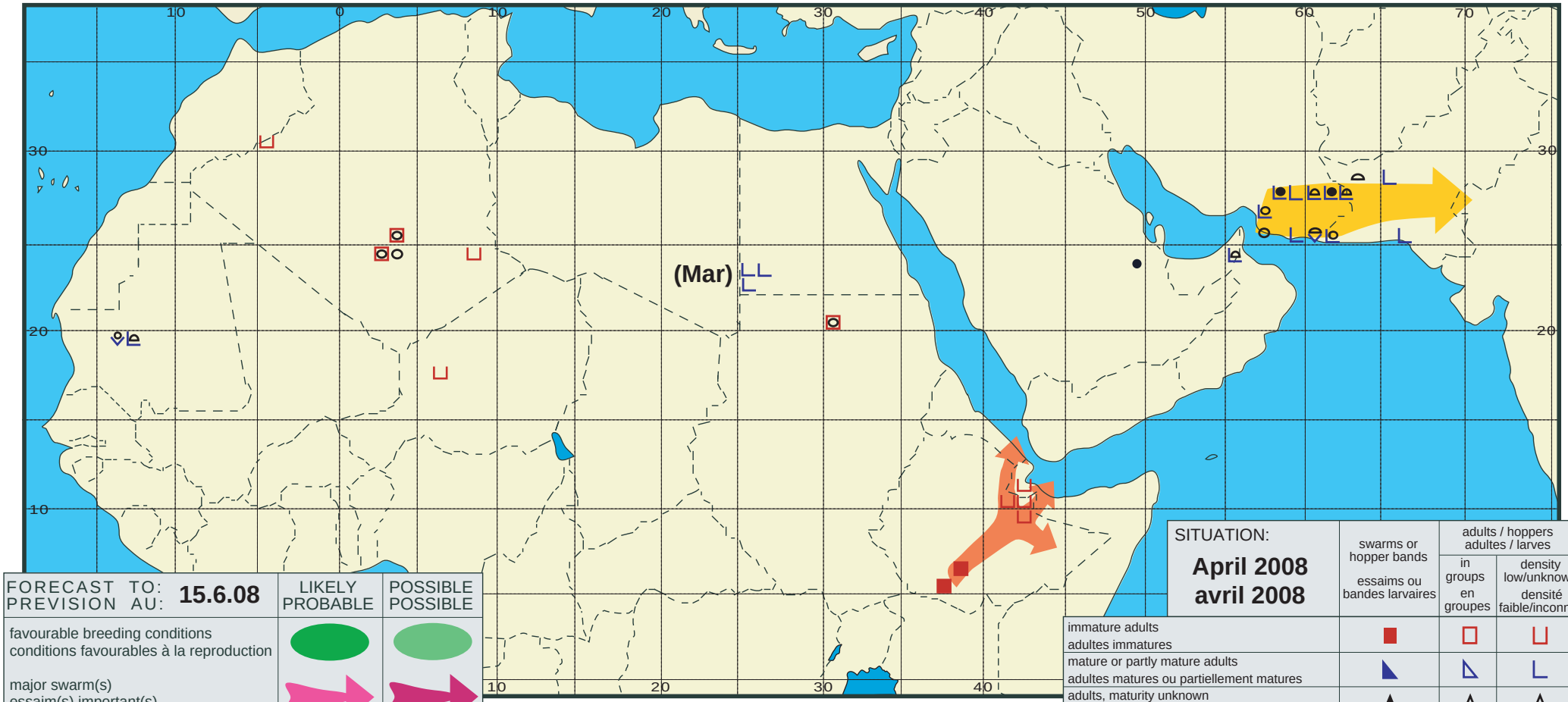
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

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

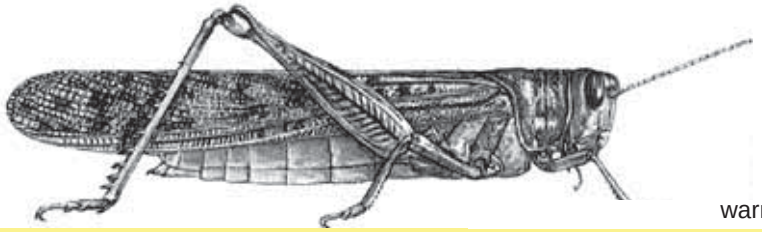
Desert Locust Summary
Criquet pèlerin - Situation résumée

355



FORECAST TO: / PREVISION AU: **15.6.08**	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: **April 2008 avril 2008**	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	◣	◺	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)	◘	◙	⊎



warning level: **CAUTION**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations

No. 356

(2 June 2008)

General Situation during May 2008
Forecast until mid-July 2008

The Desert Locust situation was generally calm during May except for the uncertainty about locust infestations in eastern Ethiopia. There is a high risk that locusts may be present and breeding in the Ogaden, which could give rise to hopper bands and perhaps small swarms. All efforts are required to undertake the necessary survey and control operations. Locust numbers declined in Iran where breeding had occurred in April. Limited control operations were carried out against small infestations in central Algeria and northwest Mauritania. During the forecast period, scattered adults will appear in the summer breeding areas in the northern Sahel between Mauritania and Sudan and along both sides of the Indo-Pakistan border. Small-scale breeding will occur after the seasonal rains commence in these areas. Only limited surveys are likely to be possible this summer in some of the areas in the Sahel.

Western Region. The situation remained calm during May. Small-scale breeding continued in central **Algeria** where ground control operations treated 1,280 ha of hopper groups and adults. Local breeding also continued in northwest **Mauritania** where 9 ha of hoppers and adults were controlled. Low numbers of adults are expected to move during June towards the summer breeding areas in southern Mauritania, northern **Mali**, northern **Niger**, southern Algeria and eastern **Chad** where they will mature and lay eggs once the summer rains begin. Only limited surveys, if any, can be carried out in Mali, Niger and Chad due to insecurity. No locusts were reported elsewhere in the Region during May.

Central Region. Although locusts were not seen during surveys in southern **Ethiopia** in May, there is a high probability that they are present and breeding in the Ogaden in eastern Ethiopia where good rains fell in April and early May. If so, small hopper bands could form in the coming weeks that, if not treated, could become small swarms. Elsewhere in the Region, the situation remained calm. Only low numbers of adults were seen on the Red Sea coast in **Yemen** and similar infestations may be present on the coast in northwest **Somalia**. Locusts are expected to appear in the summer breeding areas in the interior of **Sudan**, western **Eritrea** and **Yemen** where they will breed on a small-scale in areas that receive rainfall. Only limited surveys, if any, can be carried out in western Sudan.

Eastern Region. Locusts declined in the spring breeding areas in western **Pakistan** and southeast **Iran**. Nevertheless, small infestations remained on the southeast coast in Iran. Scattered adults are likely to appear in the summer breeding areas along both sides of the Indo-Pakistan border in June and breed on a small scale once the monsoon rains arrive.

The FAO Desert Bulletin is issued monthly, supplemented by Updates during periods of increased Desert Locust activity, and is distributed by e-mail, FAO pouch and airmail by the Locusts and Other Migratory Pests Group, AGP Division, FAO, 00153 Rome, Italy. It is also available on the Internet.
Telephone: +39 06 570 52420 (7 days/week, 24 hr)
Facsimile: +39 06 570 55271
E-mail: eclo@fao.org
Internet: www.fao.org
DLIS: www.fao.org/ag/locusts

No. 356

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in May 2008

Mainly dry conditions prevailed in the spring and summer breeding areas except for eastern Ethiopia and northern Somalia where good rains fell and breeding conditions improved during May. Conditions are likely to improve in the interior of Yemen.

In the **Western Region**, dry conditions prevailed in the spring and summer breeding areas during May. In Morocco, annual vegetation was dry along the southern side of the Atlas Mountains except for some places in the Draa and Ziz-Ghris valleys. During the last two decades, light rain fell in central Libya and, to a lesser extent, in southeast Algeria. Isolated showers may have fallen locally in parts of southern Mauritania (near Tamchekket and south of Kiffa and Tintane), the Adrar des Iforas in Mali (northeast of Gao and between Tessalit and Kidal), Tamesna and Air Mountains in Niger, and the central and southern Sahara in Algeria. Consequently, vegetation may be sufficiently green in some of these areas to allow low numbers of Desert Locust to survive but not to breed except on a very limited scale. In central Algeria, vegetation was green in the Mouydir and Ahnet areas. In northwest Mauritania, breeding conditions were favourable in irrigated areas near Oujeft.

In the **Central Region**, seasonal rains continued to fall during the first half of May in eastern Ethiopia and ecological conditions became favourable for breeding in the Ogaden and in the southern zones of Bale and Borena. Dry conditions prevailed in the summer breeding areas in the interior of Sudan and western Eritrea. Light rains occurred in western Darfur near Geneina during the first decade and between Ed Dueim and Kassala during the second decade. Heavier rains fell on the western side of the Red Sea Hills near Haiya. Light rains may have also fallen in parts of the highlands and western lowlands in Eritrea. In Yemen, light to moderate rains fell at times during the first decade and again at the end of the month in the summer breeding areas in the interior near Marib, Bayhan and Shabwah where breeding conditions are expected to become favourable in some places. Light rains also fell on the Red Sea coast but vegetation remained dry. In Saudi Arabia, unusually heavy rains fell in the southwestern interior near Najran on 1 May. In Oman, ecological conditions were not favourable for breeding even though light rains fell in some places in the northern regions of Dhahera, Dakhliya and Sharqiya.

In the **Eastern Region**, light to moderate rains fell during May in the eastern portion of the spring breeding area in Baluchistan, Pakistan between Panjgur, Dalbandin, Kharan, Khuzdar and Lasbela. Vegetation was drying out or already dry in most of the breeding areas of western Pakistan and southeastern Iran. In the summer breeding areas along the Indo-Pakistan border, ecological conditions were improving because of light rains that fell in Rajasthan, India between Jodhpur and Bikaner, and in adjacent areas of Cholistan, Pakistan.

Area Treated

Algeria	1,280 ha (May)
Iran	20,000 ha (March-April, no details)
Mauritania	16 ha (April, updated)
	9 ha (May)

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During May, scattered solitarious immature and mature adults were present at densities up to 300 adults/ha in cropping areas in the valleys of Kediet Imert south of Oujeft (2003N/1301W). Isolated late instar hoppers as well as new hatchlings were seen in a few places. Local infestations have persisted in these areas throughout the winter and spring. Ground teams treated 9 ha during May.

• **FORECAST**

Low numbers of adults could persist in irrigated areas in the northwest near Oujeft. Scattered adults are likely to appear in the summer breeding areas in the south and lay eggs once seasonal rains commence. There is a moderate risk that breeding could commence earlier than normal this year if good rains fall in the west in June.

Mali

• **SITUATION**

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

• **Forecast**

Scattered locusts are likely to be present and will persist in parts of the Adrar des Iforas where small-scale breeding will occur in areas that receive rainfall.

Niger

• **Situation**

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

• **Forecast**

Low numbers of locusts are likely to be present and will persist in parts of the central Air Mountains and near Arlit. Small-scale breeding will occur in areas that receive rainfall.

Chad

• **Situation**

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

• **Forecast**

Low numbers of locusts are likely to appear in the east and northeast where they will eventually breed in areas that receive rainfall.

Senegal

• **Situation**

No locusts were seen in the north during surveys carried out in the last decade of May.

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

During May, locust infestations persisted in parts of the central Sahara. Immature and mature solitarious adults, at densities up to 500 adults/ha, and a few solitarious hoppers were present in the Ahnet and Mouydir areas northwest of Tamanrasset (2250N/0528E). Solitarious and *transiens* hoppers of all instars at densities of up to 50 hoppers/m^2 were seen south of Adrar (2753N/0017W) mixed with some adults. Ground teams treated 1,280 ha. Elsewhere, isolated immature adults were present in the northwest near Bechar (3135N/0217W). No locusts were seen between Illizi (2630N/0825E) and Errachidia (3154N/0425W), and southwest of Beni Abbes (3011N/0214W).

• **Forecast**

Limited breeding could continue in parts of the central Sahara near Adrar, Djanet and Tamanrasset. Locust numbers are likely to increase south of Tamanrasset as adults move from the central to the southern Sahara where they could eventually breed on a small scale if rainfall occurs.

Morocco

• **Situation**

No locusts were reported during May.

• **Forecast**

No significant developments are likely.

Libyan Arab Jamahiriya

• **Situation**

During May, scattered solitarious adults were present in the southeast near Kufra (2411N/2315E) and Jebel Arkenu (2215N/2445E).

• **Forecast**

Scattered adults may be present in the southwest between Ghat and Sabha where small-scale breeding could occur in areas of recent rainfall.

Tunisia

• **Situation**

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

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

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

• Forecast

Small-scale breeding and low to moderate numbers of locusts are likely to persist in crops in the Nile Valley in the north. Low numbers of adults are likely to appear in the summer breeding areas near Kassala and in North Kordofan and breed on a small scale in areas that receive rainfall.

Eritrea

• **Situation**

No locusts were seen during a survey on the Red Sea coastal plains near Sheib (1551N/3903E) on 21-22 May.

• **Forecast**

Low numbers of adults could appear in the western lowlands and breed once seasonal rains commence.

Ethiopia

• **Situation**

During May, no locusts were seen during surveys near Harar (0919N/4206E) on the 7th and 8th, in the highlands about 350 km southwest of Harar at mid-month, and in the south near Mega (0403N/3819E) on the 19th and 20th. At the end of the month, there was an unconfirmed report of hoppers near the Kenyan border at Rama (0357N/4111E). No surveys were carried out in the Ogaden in May.

• **Forecast**

Breeding may be in progress in parts of the Ogaden that could cause small hopper groups and bands to form. All efforts are required to monitor the situation carefully and undertake control operations as necessary.

Djibouti

• **Situation**

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

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

A late report indicated that surveys were not carried out during April but there were unconfirmed reports of locusts on the northwestern coast. No surveys were carried out and no locusts were reported during May.

• **Forecast**

Scattered adults may be present on the plateau between Boroma and Burao where small-scale breeding could occur in areas of recent rainfall.

Egypt

• **Situation**

During the first half of May, no locusts were seen during surveys carried out on the Red Sea coast near Abu Ramad (2224N/3624E), along the shores of Lake Nasser and in the Western Desert near Sh. Oweinat (2219N/2845E).

• **Forecast**

No significant developments are likely.

Saudi Arabia

• **Situation**

No locusts were reported during May on the Red Sea coastal plains or in the spring breeding areas in the interior, including the farms on the northern edge of the Empty Quarter where hopper band control took place in April.

• **Forecast**

No significant developments are likely.

Yemen

• **Situation**

During the first week of May, an immature solitarious adults was seen on the northern Red Sea coast between Al Zuhrah (1541N/4300E) and Suq Abs (1600N/4312E), No locusts were during surveys on the central coast southeast of Hodeidah (1450N/4258E).

• **Forecast**

Scattered adults may be present in parts of the summer breeding areas in the interior. Small-scale breeding could occur in areas of recent rainfall, causing locust numbers to increase slightly.

Oman

• **Situation**

No locusts were seen during surveys carried out during May in the northern regions of Batinah, Dhahera and Musandam.

• **Forecast**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, Syria, Tanzania, Turkey, Uganda and UAE

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

A late report indicated that ground control operations treated about 20,000 ha of locust infestations in the western Jaz Murian basin near Kahnuj (2757N/5742E) in March and April.

During May, locusts declined in the spring breeding areas in the southeast. Low numbers of solitarious hoppers of all instars, fledglings and scattered immature and mature solitarious adults were present at a few places on the southeast coast near Chabahar (2517N/6036E) during the first week. No locusts were seen during surveys on the coast near Bander-e Lengheh (2634N/5452E).

• **Forecast**

Locust numbers will continue to decline in the southeast as vegetation dries out and adults move east towards the Indo-Pakistan border.

Pakistan

• **Situation**

No reports have been received since mid-April.

• **Forecast**

Scattered adults are likely to appear in the summer breeding areas in Tharparkar, Khipro and Cholistan and breed with the onset of the monsoon rains.

India

• **Situation**

No locusts were seen during surveys carried out in Rajasthan and Gujarat during May.

• **Forecast**

Scattered adults are likely to appear in Rajasthan and breed with the onset of the monsoon rains.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

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- **2008 Iran/Pakistan joint survey.** Results and photos from the annual 30-day survey (Publications – Reports section)
- **Master Trainers Manual.** The sessions and overheads for eLocust2 were updated (Publications – Documents section)

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- the process of reproduction from copulation to fledging.

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PLAGUE

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

RECESSION

- period without widespread and heavy infestations by swarms.

REMISSION

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

WARNING LEVELS

GREEN

- Calm. No threat to crops. Maintain regular surveys and monitoring.

YELLOW

- Caution. Potential threat to crops. Increased vigilance is required; control operations may be needed.

ORANGE

- Threat. Threat to crops. Survey and control operations must be undertaken.

RED

- Danger. Significant threat to crops. Intensive survey and control operations must be undertaken.

REGIONS

WESTERN

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

CENTRAL

- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues

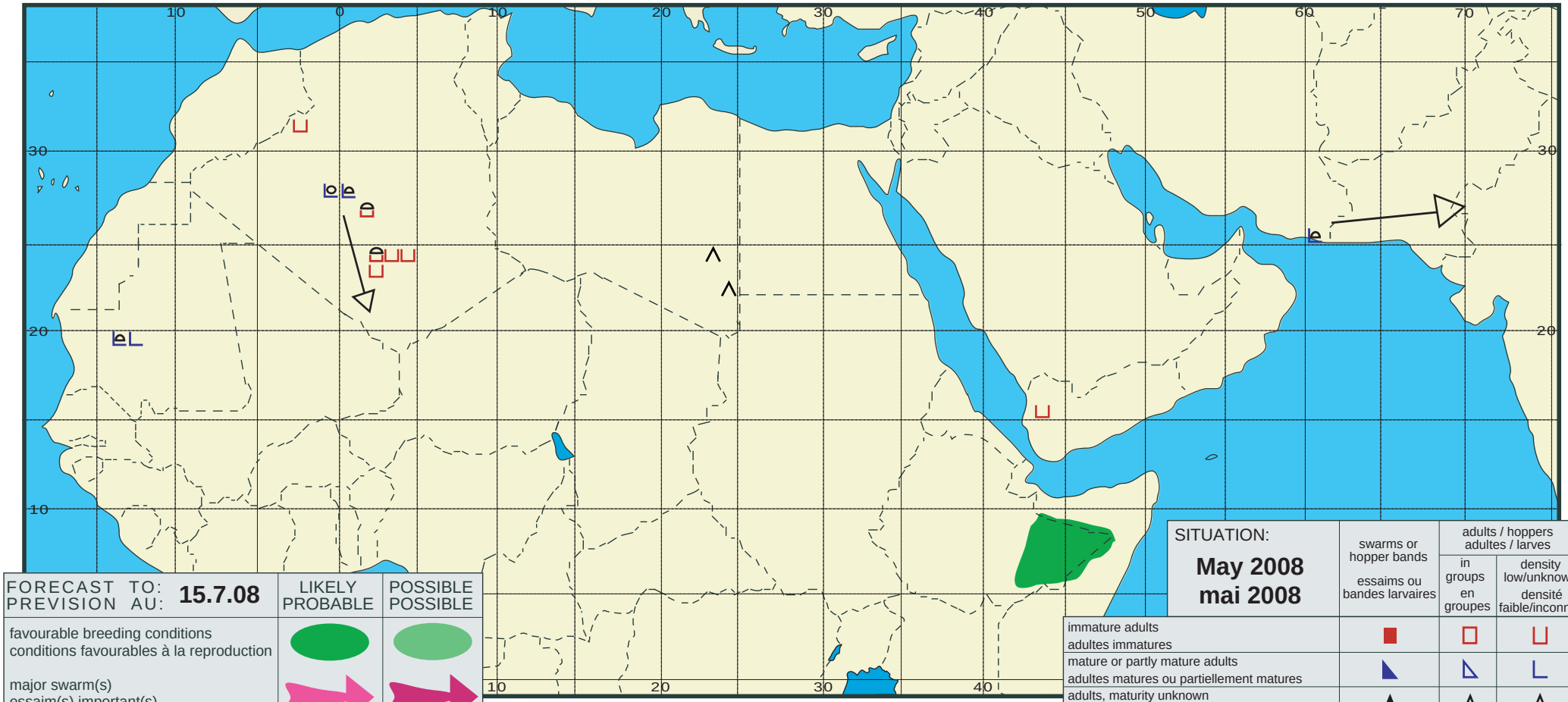
only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

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

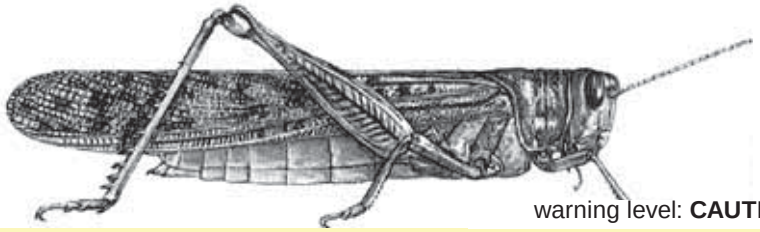
Desert Locust Summary
Criquet pèlerin - Situation résumée

356



FORECAST TO: / PREVISION AU: **15.7.08**	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 2008 / mai 2008**	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	▲	△	∧
egg laying or eggs pontes ou œufs	▼	▽	∨
hoppers larves	●	○	◡
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)	◘	◙	◡



warning level: **CAUTION (Horn of Africa)**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 357**

(2 July 2008)

General Situation during June 2008 Forecast until mid-August 2008

The Desert Locust situation was calm during June but there is a possibility that a few undetected swarms may have persisted in the Ethiopian Highlands, which could move towards northern Somalia. In the spring breeding areas, ground control operations ended against groups of hoppers in southeast Iran while small residual populations persisted in western Pakistan. Limited control was also carried out against groups of adults in the Algerian Sahara. Local breeding occurred in southern Egypt, near the Indian border in Pakistan and perhaps in eastern Ethiopia. So far, only low numbers of adults have been reported in the summer breeding areas of the Sahel in West Africa, the Arabian Peninsula and in southwest Asia. If more rains fall during the forecast period, small-scale breeding will cause locust numbers to increase slightly in the Sahel between Mauritania and Eritrea, along both sides of the Indo-Pakistan border, and to a lesser extent in the interior of Yemen. Regular surveys should be carried out in all of these areas.

Western Region. The situation continued to be calm during June. Low numbers of solitarious adults were present in the central Sahara in **Algeria** that, in the coming weeks, could drift south into the northern Sahel. Isolated adults were seen in **Niger** on the southern Tamesna plains and in the Tenere Desert, which suggests that scattered locusts may be present throughout the area. Although surveys were not carried out in the other Sahelian countries, ecological conditions were dry and the seasonal rains have only reached the very southern portion of the breeding area. Hence, very few locusts are likely to be present but numbers will increase slightly after the rains reach further north in southern **Mauritania**, northern **Mali** and Niger, southern Algeria, and eastern **Chad**. Only limited surveys are likely to be possible this summer in some of these areas due to insecurity.

Central Region. The situation returned to calm in June due to an apparent lack of locust activity in eastern **Ethiopia** where a few swarms may have remained undetected in the Harar highlands and small-scale breeding may have occurred in parts of the Ogaden. Consequently, there is a low to moderate risk that a few small swarms could move towards the Ogaden and northern **Somalia** in early July. Breeding could still occur in the Ogaden if more rains fall. Local breeding occurred in June near Lake Nasser in southern **Egypt** where scattered adults are likely to persist. Scattered adults were also present in the interior of **Yemen**. During the forecast period, small-scale breeding in the interior of **Sudan**, western **Eritrea** and Yemen will cause locust numbers to increase slightly.

Eastern Region. Ground control operations were undertaken in early June against a few groups of hoppers that remained in southeast **Iran**, and small residual populations were present in Baluchistan in western **Pakistan**. In the summer breeding areas along the Indo-Pakistan border, early breeding occurred in Pakistan where low numbers of hoppers and scattered adults were seen. So far, no locusts were reported from adjacent areas in **India**. During the forecast period, small-scale breeding will occur along both sides of the Indo-Pakistan border, causing locust numbers to increase slightly.

The FAO Desert Bulletin is issued monthly, supplemented by Updates during periods of increased Desert Locust activity, and is distributed by e-mail, FAO pouch and airmail by the Locusts and Other Migratory Pests Group, AGP Division, FAO, 00153 Rome, Italy. It is also available on the Internet.
Telephone: +39 06 570 52420 (7 days/week, 24 hr)
Facsimile: +39 06 570 55271
E-mail: eclo@fao.org
Internet: www.fao.org
DLIS: www.fao.org/ag/locusts

No. 357

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in June 2008

Seasonal rains began during June in the summer breeding areas in the Sahel in West Africa and Sudan, in western Eritrea and along the Indo/Pakistan border but more rainfall is needed before ecological conditions become suitable for breeding.

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) continued to move northwards in West Africa, reaching 18-20N. Consequently, seasonal rains commenced during June in parts of the Sahel and some of the rains reached the southern portion of the summer breeding areas in southeastern Mauritania (from Kiffa to Timbedra), in the southern Adrar des Iforas and central Mali (Kidal to Gourma), in the Tamesna and Air Mountains in Niger, and in eastern Chad (from Abeche to Kalait). Ecological conditions improved in these areas but more rains will be needed before breeding can occur. In Northwest Africa, no significant rains fell and only light showers may have fallen during the first decade of June in parts of western Libya and at the end of the month along the border of Mali and Algeria. Therefore, ecological conditions were not favourable for locust survival or breeding except in Algeria in irrigated areas in the central Sahara near Adrar and in some wadis in the Hoggar Mountains.

In the **Central Region**, light rains fell in the summer breeding areas in the interior of Sudan and Eritrea south of 15N. Rainfall was heaviest in West Darfur, North Kordofan (Hamrat Esh Sheikh to Sodiri) and near Khartoum. Consequently, ecological conditions were starting to improve but more rains are probably needed before breeding can occur. In Ethiopia, light rains fell in northwest Ogaden and in the Harar Highlands but no rains fell in the rest of eastern Ethiopia. Nevertheless, green vegetation was present in parts of the Ogaden and ecological conditions were probably suitable for small-scale breeding north of the Shabele River. Light rains fell along parts of the Red Sea coast between Qunfidah, Saudi Arabia and Bab el Mandeb in Yemen as well as on the coastal plains near Aden at times during the first decade of June. Some of these showers also reached parts of the summer breeding area in the interior of Shabwah, Yemen but conditions were generally dry except in a few wadis and farms that contained green vegetation. In northern Somalia, light rains fell near Hargeisa and the surrounding plateau and escarpment during the first week of June but vegetation continued to dry out in all regions.

In the **Eastern Region**, light to moderate rains fell at times during the first week of June in the spring breeding area between Iranshahr, Iran and Khuzdar, Pakistan. As vegetation was already nearly dry, these rains are not expected to have an impact on locusts. Light to moderate rains fell at times during the first half of June in the summer breeding areas along both sides of the Indo-Pakistan border where ecological conditions were improving. Rainfall was heaviest in the central (Jaisalmer, India to Rohri, Pakistan) and northern (Bikaner, India to Bahawalpur, Pakistan) areas. Little rain fell in these areas during the second half of June.

Area Treated

Algeria	50 ha (June)
Iran	1,100 ha (March, updated)
	4,082 ha (April, updated)
	17,999 ha (May, updated)
	310 ha (June)
Pakistan	145 ha (16-31 May)

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

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

• **FORECAST**

Scattered adults are likely to be present in the summer breeding areas in the south. Small-scale breeding during the forecast period will cause locust numbers to increase slightly.

Mali

• **SITUATION**

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

• **FORECAST**

Scattered locusts are likely to be present and will persist in parts of the Adrar des Iforas where small-

scale breeding will occur in areas that receive rainfall.

Niger

• **Situation**

During June, isolated mature solitarious adults were reported to be present in southern Tamesna west and northwest of Agadez (1700N/0756E) at Agharous (1705N/0755E) and Abdelajouad (1757N/0711E). A few adults were also reported in the Tenere Desert near Fachi oasis (1806N/1134E) and Arbre du Ténéré (1745N/1004E).

• **Forecast**

Low numbers of locusts are likely to be present and will persist in southern parts of the Air Mountains and Tamesna as well as in the northern Sahelian zone. Small-scale breeding will occur in areas that receive rainfall, causing locust numbers to increase slightly.

Chad

• **Situation**

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

• **Forecast**

Low numbers of locusts are likely to be present in the east and northeast between Abeche and Fada where they will breed in areas that receive rainfall.

Senegal

• **Situation**

No locusts were reported in June.

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

During June, scattered immature and mature solitarious adults persisted in irrigated areas of the central Sahara near Adrar (2753N/0017W) and in several wadis in the Ahnet and Mouydir regions northwest of Tamanrasset (2250N/0528E). Compared to May, locust densities increased slightly to 800 adults/ha and adult groups were reported at one place northwest of Tamanrasset. Ground teams treated 50 ha. No locusts were seen northwest of Illizi (2630N/0825E) or near Djanet (2434N/0930E).

• **Forecast**

Limited breeding could occur in parts of the central Sahara near Adrar, Djanet and Tamanrasset. Locust numbers are likely to increase south of Tamanrasset as adults move from the central to the southern Sahara where they will breed on a small scale if rainfall occurs.

Morocco

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Libyan Arab Jamahiriya

• **Situation**

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

• **Forecast**

Scattered adults may be present in the southwest between Ghat and Sabha where small-scale breeding could occur in areas of recent rainfall.

Tunisia

• **Situation**

No reports were received during June.

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

In mid-June, low numbers of solitarious mature adults were present along the Nile Valley between Atbara (1742N/3400E) and Abu Hamed (1932N/3320E) at densities of 100-450 adults/ha.

• Forecast

Small-scale breeding and low numbers of locusts are likely to persist in crops in the Nile Valley in the north. Scattered adults are likely to be present in Darfur, Kordofan, White Nile and Kassala states. Small-scale breeding during the forecast period will cause locust numbers to increase slightly in areas that receive rainfall.

Eritrea

• **Situation**

No locusts were seen during a survey in the western lowlands on 20-23 June.

• **Forecast**

Low numbers of adults could appear in the northern part of the western lowlands and breed in areas that receive rainfall.

Ethiopia

• **Situation**

No locusts were seen during surveys carried out in early June in the highlands southwest of Dire Dawa (0935N/4150E). No surveys were carried out in the Ogaden except at one place between Kebri Dehar (0644N/4416E) and K'efalo (0537N/4408E) in late June where locusts were absent.

• **Forecast**

Low numbers of locusts may be present in the Ogaden but breeding will be limited unless further rains fall. There is a low to moderate risk that a few small swarms are present in the Harar Highlands, which could move to the Ogaden and northern Somalia early in the forecast period.

Djibouti

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

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

• **Forecast**

Scattered adults may be present on the plateau between Boroma and Hargeisa where small-scale breeding could occur in areas of recent rainfall. There is a low to moderate risk that a few small swarms could appear from eastern Ethiopia early in the forecast period.

Egypt

• **Situation**

During June, scattered immature and mature solitarious adults were present at a few places along the Lake Nasser shoreline near Abu Simbel (2219N/3138E) and south of Aswan (2405N/3256E). Isolated first to fourth instar solitarious hoppers were also seen near Abu Simbel. No locusts were present in the Western Desert near Sh. Oweinat (2219N/2845E).

• **Forecast**

Low numbers of locusts may persist near Lake Nasser. No significant developments are likely.

Saudi Arabia

• **Situation**

No locusts were seen during surveys carried out on the Red Sea coast and in the interior during June.

• **Forecast**

No significant developments are likely.

Yemen

• **Situation**

During June, scattered mature solitarious adults were seen at three locations in the summer breeding areas in the southern part of the Shabwah interior between Bayhan (1452N/4545E) and Ataq (1435N/4649E). No locusts were seen elsewhere in the interior between Marib (1527N/4519E) and Thamud (1717N/4955E).

• **Forecast**

Small-scale breeding could occur in the interior in areas of recent rainfall, causing locust numbers to increase slightly.

Oman

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, Syria, Tanzania, Turkey, Uganda and UAE

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

A late report indicated that ground teams treated 18,000 ha of hopper groups and bands that were present during May in the Jaz Murian basin east of Kahnuj (2757N/5742E).

During the first week of June, ground control operations were carried out against 310ha of groups of late instar hoppers and mature gregarious adults at four places in the interior of Sistan-Baluchistan near Bampur (2711N/6028E). The adults were seen laying eggs. On the southeastern coast, isolated late instar solitarious hoppers were seen near Chabahar (2517N/6036E) on 1 June and isolated mature solitarious adults were present at a few nearby places during the last week of the month.

• **Forecast**

Although limited hatching could occur near Bampur, locust numbers will decline in the southeast as vegetation dries out.

Pakistan

• **Situation**

Late reports indicated that isolated mature solitarious adults were present near Khuzdar (2749N/6639E) and Uthal (2548N/6637E) during the first half of May. Ground teams treated 35 ha of scattered immature solitarious adults and 110 ha of solitarious hoppers of all instars near Kharan (2832N/6526E) during the second half of May.

During the first half of June, scattered immature and mature solitarious adults persisted near Kharan. In the summer breeding areas, scattered second to fifth instar solitarious hoppers were present in the Cholistan Desert southeast of Bahawalpur (2924N/7147E), and isolated immature and mature solitarious adults were present in several places in Cholistan and Khipro deserts. No locusts were seen in the Tharparkar Desert.

• **Forecast**

Small-scale breeding in Tharparkar, Khipro and Cholistan deserts will cause locust numbers to increase slightly during the summer.

India

• **Situation**

No locusts were seen during surveys carried out in Rajasthan and Gujarat during June.

• **Forecast**

Small-scale breeding in Rajasthan will cause locust numbers to increase slightly during the summer

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Announcements

Locust reporting. During recession periods, countries should report at least once/month and send RAMSES data with a brief interpretation. During caution (yellow) and threat (orange) periods, locust outbreaks, upsurges and plagues, RAMSES output files with a brief interpretation should be sent at least twice/week within 48 hours of the last survey. Affected countries are also encouraged to prepare decadal bulletins summarizing the situation. All information should be sent by e-mail to the FAO/ECLO Desert Locust Information Service (eclo@fao.org). Information received by the end of the month will be included in the FAO Desert Locust Bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Desert Locust warning levels. A colour-coded scheme indicates the seriousness of the current Desert Locust situation: green for *calm*, yellow for *caution*, orange for *threat* and red for *danger*. The scheme is applied to the Locust Watch web page and to the monthly bulletin's header. The levels indicate the perceived risk or threat of current Desert Locust infestations to crops and appropriate actions are suggested for each level.

Climate change. Potential impacts of climate change on Desert Locust are under discussion. More details can be found on Locust Watch in the Activities section (http://www.fao.org/ag/locusts/en/activ/index.html).

Google group. FAO DLIS has established a Google group for national locust information officers to exchange opinions and share experiences regarding data management and analysis, GIS, eLocust2 and satellite imagery. Interested information officers should contact DLIS (eclo@fao.org) for details.

MODIS imagery. Columbia University's International Research Institute for Climate and Society (IRI) provides 16-day 250-metre resolution MODIS imagery as well as daily and decadal rainfall imagery for monitoring breeding conditions in the Desert Locust recession area. These products can be downloaded in different formats suitable for GIS at: http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/index.html. Comments and questions can be addressed to Pietro Ceccato (pceccato@iri.columbia.edu).

New information on Locust Watch. Recent additions to the web site are:

- **Locust risk.** The current risk map was updated (home page)
- **2008 Iran/Pakistan joint survey.** Results and photos from the annual 30-day survey (Publications – Reports section)
- **Master Trainers Manual.** The sessions and overheads for eLocust2 were updated (Publications – Documents section)

Links to the above information can be found in the *Latest Additions* section on Locust Watch.

2008 events. The following activities are scheduled:

- **CRC**. 26th Session and 30th Executive Committee meeting, Muscat (26-30 July)
- **CLCPRO.** 5th Executive Committee meeting, Ouagadougou (20-22 October, to be confirmed)
- **EMPRES/WR.** 7th Liaison Officers meeting, Niamey (24-28 November, to be confirmed)
- **EMPRES/WR.** 4th Steering Committee meeting, Niamey (1-3 December, to be confirmed)
- **SWAC.** 26th Session, Kabul (15-17 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.

WARNING LEVELS

GREEN

- Calm. No threat to crops. Maintain regular surveys and monitoring.

YELLOW

- Caution. Potential threat to crops. Increased vigilance is required; control operations may be needed.

ORANGE

- Threat. Threat to crops. Survey and control operations must be undertaken.

RED

- Danger. Significant threat to crops. Intensive survey and control operations must be undertaken.

REGIONS

WESTERN

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

CENTRAL

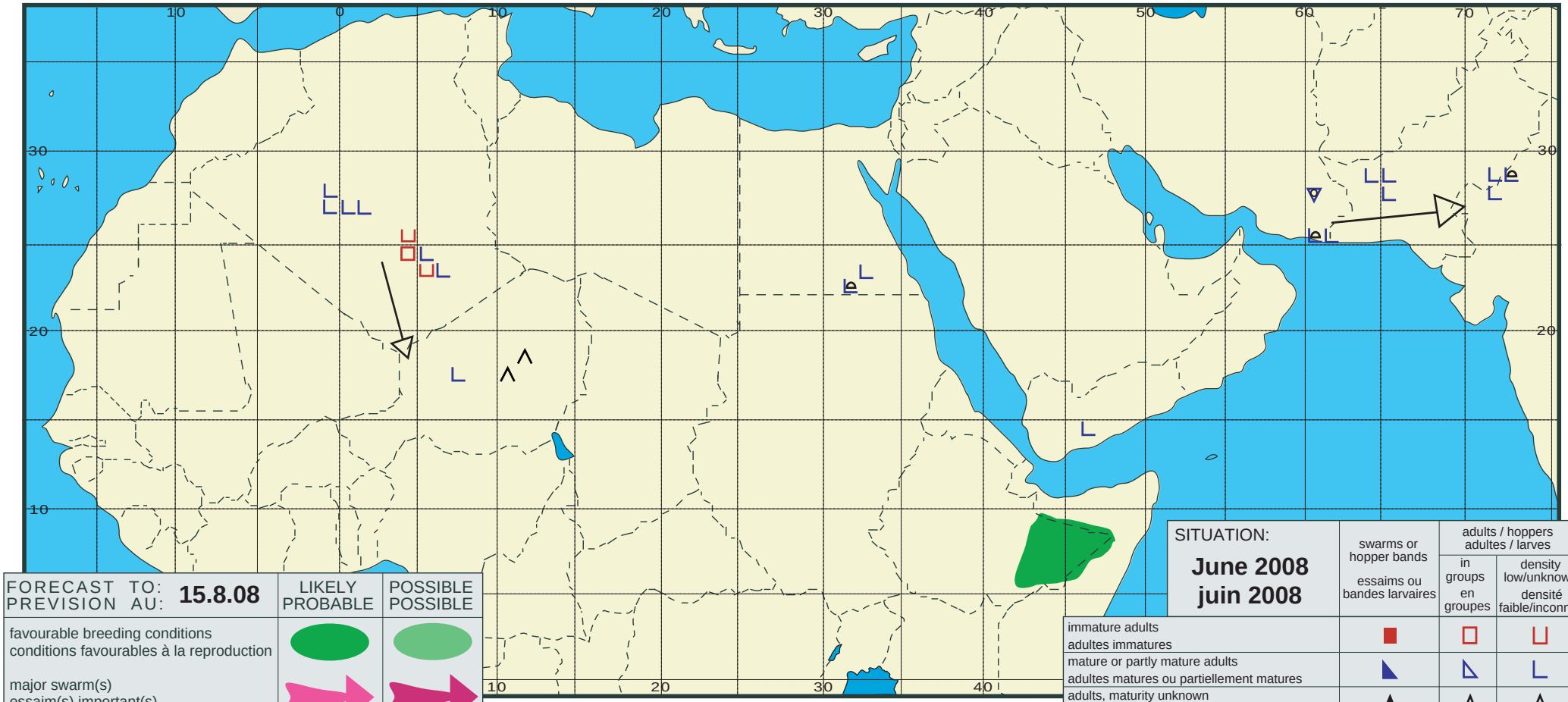
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

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

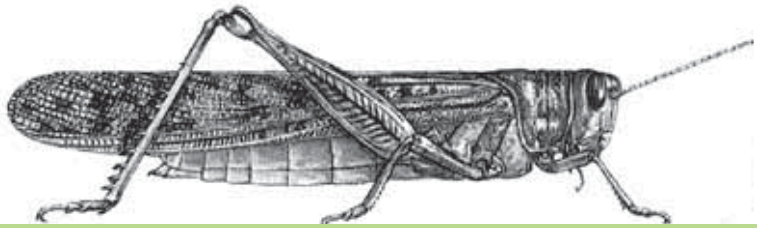
Desert Locust Summary
Criquet pèlerin - Situation résumée

357



FORECAST TO: / PREVISION AU: **15.8.08**	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 2008 juin 2008**	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	◣	◺	L
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. 358**

(1 August 2008)

General Situation during July 2008
Forecast until mid-September 2008

The Desert Locust situation remained calm during July. Low numbers of solitarious adults were reported in southern Mauritania, Niger, northern Somalia, Yemen, Pakistan and India. Scattered adults are also likely to be present in northern Mali and Niger, eastern Chad, western Sudan and in eastern Ethiopia but surveys could not be conducted in these areas due to insecurity. Higher numbers of locusts were present in the central Sahara in Algeria where ground teams treated adults that were forming small groups and laying eggs. Breeding conditions improved in the northern Sahel in West Africa and Sudan, and along both sides of the Indo-Pakistan border. Consequently, small-scale breeding will occur in these areas during August and September and cause locust numbers to increase slightly. No significant developments are expected.

Western Region. The locust situation continued to be calm during July. Seasonal rains fell sporadically in the summer breeding areas where low numbers of adults were reported or are thought to be present in southern **Mauritania**, the Adrar des Iforas in northern **Mali**, the Tamesna Plains in Mali and **Niger**, the southern Air Mountains and Tenere Desert in Niger, and in northeast **Chad**. Solitarious adults persisted along the edges of irrigated areas in the central Sahara in **Algeria** where small-scale breeding may occur and low numbers of locusts could move towards the border of Mali and Niger. Only limited surveys are likely to be possible this summer in some of these areas due to insecurity.

Central Region. The situation remained calm during July. There were no further signs of previously reported locust populations in **Ethiopia** except for one swarm that was seen in northern **Somalia** flying over Hargeisa on 1 July. Nevertheless, there remains a moderate risk that some locusts may be present in the Ogaden but surveys could not be carried out due to insecurity. A few adults were seen on the Red Sea coast in **Yemen**, and low numbers of adults are probably present in the summer breeding areas in the interior of **Sudan** and in western **Eritrea**. As ecological conditions improved in these areas from rains that fell in July, small-scale breeding is expected to occur during August that will cause locust numbers to increase slightly. No locusts were seen during surveys carried out in **Egypt**, **Oman** and **Saudi Arabia**.

Eastern Region. Monsoon rains fell periodically during July in the summer breeding areas along both sides of the Indo-Pakistan border. Nevertheless, ecological conditions were favourable for breeding mainly in Rajasthan, India and in adjacent border areas in the Cholistan Desert in Pakistan. Small-scale breeding was in progress in Pakistan and low numbers of adults were present in India. Breeding is expected to continue during the forecast period, causing a slight increase in locust numbers.

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DLIS: www.fao.org/ag/locusts

No. 358

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in July 2008

Seasonal rains fell sporadically during July in the summer breeding areas in the Sahel in West Africa and Sudan, in western Eritrea and along the Indo/Pakistan border. Nevertheless, enough rain fell for ecological conditions to become favourable for breeding in some areas.

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) oscillated between 15N and 20N during July, with occasional surges northwards to southern Algeria and northwest Mali. Consequently, low to moderate rains fell in parts of the summer breeding areas in the northern Sahel in Mauritania, Mali and Niger while less rain fell in Chad. This caused ecological conditions to improve for breeding, mainly in southeastern Mauritania (the two Hodhs), in central and northern Mali (Araouane, Adrar des Iforas, Tamesna), and in northern Niger (southern Tamesna, southern Air Mountains). Good rains fell at mid-month in northwestern Mali (Kidal to Taoudenni), in northern Chad (Tibesti, Ennedi) and during the last half of July in western Mauritania, reaching nearly Zouerate and the southeastern corner of the Western Sahara, and light rains fell in the southern Tenere Desert in Niger. More rains are probably needed in all of these areas before breeding can occur. In Northwest Africa, ecological conditions remained dry except for parts of the Ziz and Ghris valleys in southeastern Morocco near the Algerian border where small patches of green vegetation were present.

In the **Central Region**, seasonal rains fell sporadically during July in the summer breeding areas of the interior of Sudan and in western Eritrea. At mid-month, light to moderate rains fell as far north as Abu Uruq in North Kordofan but rainfall remained mostly south of 15N. Consequently, ecological conditions are likely to have improved sufficiently in some areas of Darfur and Kordofan and perhaps in the western lowlands of Eritrea to allow breeding. Light to moderate rain fell at times on the Red Sea coast in Eritrea between Shieb and Gheleb-Sagla, near Jizan in Saudi Arabia, and on the Tihama in Yemen. Moderate rains were reported on the southern coast of Yemen near Zinjibar. Ecological conditions were favourable for breeding in eastern Ethiopia between Jijiga and the border of northern Somalia.

In the **Eastern Region**, monsoon rains fell during the first half of July in the summer breeding areas along both sides of the Indo-Pakistan border. Rains were heaviest in central Rajasthan, India between Barmer (75 mm), Jodhpur (63 mm) and Churu (75 mm). Good rains also fell along the border near the Rajasthan Canal and in nearby Cholistan Desert in Pakistan. Consequently, breeding conditions were favourable in these areas. Very little rain fell during the second half of the month although good rains fell at the end of July in the Tharparkar Desert in Pakistan that should allow breeding conditions to improve.

Area Treated

Algeria 54 ha (July)

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During July, a few isolated mature solitarious adults were present in the south and southeast from east of Nema (1636N/0715W) in Hodh El Charghi to Tamchekket (1714N/1040W) in Hodh El Gharbi.

• **FORECAST**

Small-scale breeding will cause locust numbers to increase slightly in the south. Breeding could occur in central areas (Tidjikja) if more rains fall during the forecast period.

Mali

• **SITUATION**

No reports were received during July.

• **FORECAST**

Scattered locusts are likely to be present in parts of the Adrar des Iforas. Small-scale breeding will occur in areas that receive rainfall.

Niger

• **SITUATION**

During July, an isolated mature solitarious adult was seen about 50 km northwest of Agadez (1700N/0756E) on the 21st.

• **FORECAST**

Low numbers of locusts are likely to be present in the southern parts of the Air Mountains, Tenere and

Tamesna as well as in the northern Sahelian zone. Small-scale breeding will occur in areas of recent rainfall, causing locust numbers to increase slightly.

Chad

• **Situation**

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

• **Forecast**

Low numbers of locusts are likely to be present in the east and northeast between Abeche and Fada where they will breed on a small scale in areas of recent rainfall.

Senegal

• **Situation**

No locusts were reported in July.

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

During July, scattered mature solitarious adults at densities of 800-1,500 adults/ha persisted in parts of the central Sahara where they were concentrated along the edges of irrigated areas near Adrar (2753N/0017W). Some of the adults formed groups and were seen laying eggs. Ground teams treated 54 ha during the month.

• **Forecast**

Limited breeding could continue in parts of the central Sahara near Adrar and perhaps near Djanet and Tamanrasset. Locust numbers are likely to increase south of Tamanrasset as adults move from the central to the southern Sahara where they will breed on a small scale if rainfall occurs.

Morocco

• **Situation**

No locusts were seen during July south of the Atlas Mountains near Erfoud (3128N/0410W) and the Algerian border.

• **Forecast**

No significant developments are likely.

Libyan Arab Jamahiriya

• **Situation**

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

• **Forecast**

No significant developments are likely.

Tunisia

• **Situation**

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

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

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

• Forecast

Low numbers of locusts are likely to be present and breeding on a small scale in crops in the Nile Valley in the north. Scattered adults are likely to be present in Darfur, Kordofan, White Nile and Kassala states where small-scale breeding will occur in areas of recent rainfall, causing locust numbers to increase slightly.

Eritrea

• **Situation**

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

• **Forecast**

Low numbers of adults are likely to be present and breeding on a small scale in the northern part of the western lowlands. Small-scale breeding is expected to continue during the forecast period causing locust numbers to increase slightly.

Ethiopia

• **Situation**

No locusts were seen during surveys carried out in July between Jijiga (0922N/4250E) and the border of northern Somalia, and from Dire Dawa (0935N/4150E) to Djibouti. No locusts were reported from the southeastern part of the Somali region.

• **Forecast**

Low numbers of locusts may be present in the Ogaden but breeding will be limited unless further rains fall.

Djibouti

• **Situation**

A late report indicated that no locusts were reported during June. No surveys were carried out and no locusts were reported during July.

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

On 1 July, a swarm was reportedly seen at Hargeisa (0931N/4402E) coming from Ethiopia and flying from the southwest to the northeast. There were no further details or subsequent reports. A few solitarious immature adults were seen in the Ruqi Valley (0958N/4325E) during surveys carried out on 5-11 July.

• **Forecast**

Scattered adults are likely to persist on the plateau between Boroma and Hargeisa and breed on a small-scale if rainfall occurs.

Egypt

• **Situation**

During July, no locusts were seen during surveys carried out near Aswan (2405N/3256E) and south of Abu Simbel (2219N/3138E) near the Sudanese border.

• **Forecast**

No significant developments are likely.

Saudi Arabia

• **Situation**

No locusts were seen during surveys carried out on the Red Sea coast and in the interior during July.

• **Forecast**

No significant developments are likely.

Yemen

• **Situation**

During the first week of July, isolated immature and mature solitarious adults were seen on the central Tihama between Zabid (1410N/4318E) and Bajil (1458N/4314E). No locusts were seen elsewhere on the Red Sea coast or along the coastal plains of Aden up to 5 July.

• **Forecast**

Small-scale breeding could occur in areas of recent rainfall on the central Red Sea coast, causing locust numbers to increase slightly.

Oman

• **Situation**

No locusts were seen during surveys carried out in the north during June and July.

• **Forecast**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, Syria, Tanzania, Turkey, Uganda and UAE

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

During the second half of June, small-scale breeding continued in Cholistan southeast of Bahawalpur (2924N/7147E) where scattered third to sixth solitarious instar hoppers were present near the Indian border. Isolated mature solitarious adults were also reported. No locusts were seen during surveys in the Tharparkar Desert or in Baluchistan near Khuzdar (2749N/6639E).

No locust reports were received during July.

• **Forecast**

Small-scale breeding will continue in the Cholistan Desert near the Indian border and is likely to commence in areas of recent rainfall in the Tharparkar Desert, causing locust numbers to increase slightly.

India

• **Situation**

During July, isolated immature solitarious adults at densities less than 60 adults/ha were present in Rajasthan between Jodhpur (2618N/7308E), Jaisalmer (2652N/7055E) and Bikaner (2801N/7322E). No locusts were seen elsewhere in Rajasthan or Gujarat.

• **Forecast**

Small-scale breeding in Rajasthan will cause locust numbers to increase slightly during the forecast period.

Afghanistan

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Announcements

Locust reporting. During recession periods, countries should report at least once/month and send RAMSES data with a brief interpretation. During caution (yellow) and threat (orange) periods, locust outbreaks, upsurges and plagues, RAMSES output files with a brief interpretation should be sent at least twice/week within 48 hours of the last survey. Affected countries are also encouraged to prepare decadal bulletins summarizing the situation. All information should be sent by e-mail to the FAO/ECLO Desert Locust Information Service (eclo@fao.org). Information received by the end of the month will be included in the FAO Desert Locust Bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Desert Locust warning levels. A colour-coded scheme indicates the seriousness of the current Desert Locust situation: green for *calm*, yellow for *caution*, orange for *threat* and red for *danger*. The scheme is applied to the Locust Watch web page and to the monthly bulletin's header. The levels indicate the perceived risk or threat of current Desert Locust infestations to crops and appropriate actions are suggested for each level.

Climate change. Potential impacts of climate change on Desert Locust are under discussion. More details can be found on Locust Watch in the Activities section (http://www.fao.org/ag/locusts/en/activ/index.html).

Google group. FAO DLIS has established a Google group for national locust information officers to exchange opinions and share experiences regarding data management and analysis, GIS, eLocust2 and satellite imagery. Interested information officers should contact DLIS (eclo@fao.org) for details.

MODIS imagery. Columbia University's International Research Institute for Climate and Society (IRI) provides 16-day 250-metre resolution MODIS imagery as well as daily and decadal rainfall imagery for monitoring breeding conditions in the Desert Locust recession area. These products can be downloaded in different formats suitable for GIS at: http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/index.html. Comments and questions can be addressed to Pietro Ceccato (pceccato@iri.columbia.edu).

New information on Locust Watch. Recent additions to the web site are:

- **Locust risk.** The current risk map was updated (home page)
- **Master Trainers Manual.** The sessions and overheads for eLocust2 were updated (Publications – Documents section)

Links to the above information can be found in the *Latest Additions* section on Locust Watch.

2008 events. The following activities are scheduled:

- **CLCPRO.** 5th Executive Committee meeting, Ouagadougou (20-22 October, to be confirmed)
- **EMPRES/WR.** 7th Liaison Officers meeting, Niamey (24-28 November, to be confirmed)
- **EMPRES/WR.** 4th Steering Committee meeting, Niamey (1-3 December, to be confirmed)
- **SWAC.** 26th Session, Kabul (15-17 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.

WARNING LEVELS

GREEN

- Calm. No threat to crops. Maintain regular surveys and monitoring.

YELLOW

- Caution. Potential threat to crops. Increased vigilance is required; control operations may be needed.

RED

- Danger. Significant threat to crops. Intensive survey and control operations must be undertaken.

REGIONS

WESTERN

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

CENTRAL

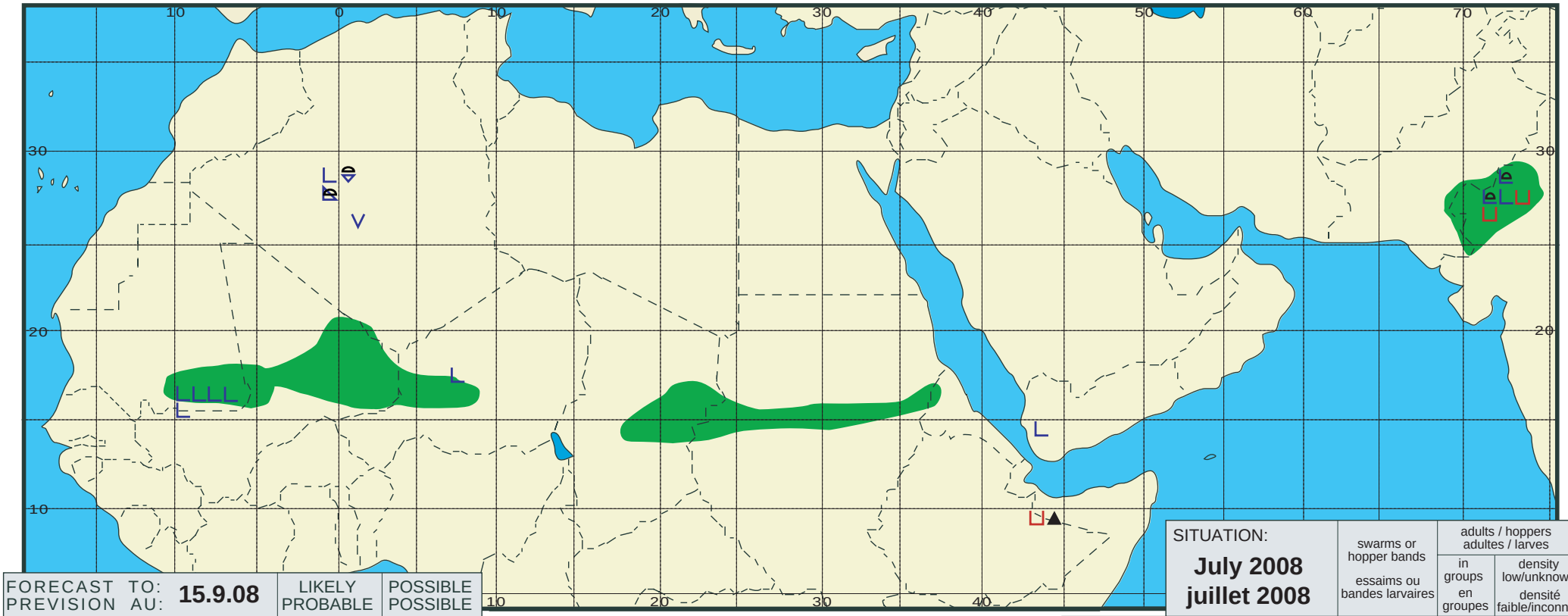
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

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

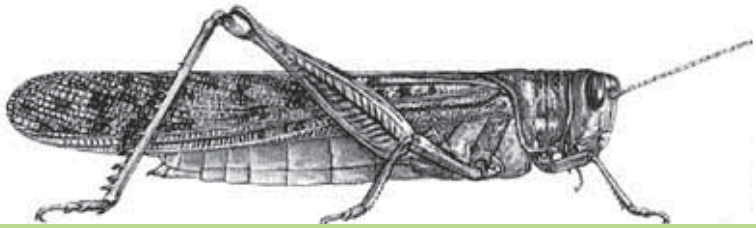
Desert Locust Summary
Criquet pèlerin - Situation résumée

358



FORECAST TO: / PREVISION AU: **15.9.08**	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 2008 / juillet 2008**	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. 359**

(2 September 2008)

General Situation during August 2008 Forecast until mid-October 2008

The Desert Locust situation remained calm during August. Small-scale breeding commenced in the summer breeding areas in Mauritania and is likely to be in progress in Mali, Niger, Chad, Sudan and Eritrea where good rains fell during the month. Surveys could not be carried out in Mali and Niger due to security concerns. Small-scale breeding also occurred along the Indo-Pakistan border. Although locust numbers increased slightly, they remained generally low and control operations were not required except in a few places in Algeria and Libya against hopper infestations that developed from local breeding. During the forecast period, breeding is expected to continue in the northern Sahel and along the Indo-Pakistan border but no significant developments are likely.

Western Region. This year's summer breeding in the Sahel commenced in early July when seasonal rains started and eggs were laid. Hatching occurred from mid-July onwards and, by August, low numbers of solitarious hoppers were seen in southern **Mauritania**. A similar situation is likely in northern **Mali** and **Niger** but surveys could not be carried out in either country. Although ecological conditions were favourable for breeding in **Chad**, no locusts were seen during surveys in the northeast. During the forecast period, small-scale breeding will continue in the northern Sahel, causing locust numbers to increase slightly. In Northwest Africa, ground teams treated 4,000 ha of solitarious hoppers in central **Libya** that developed from local breeding after rainfall in May. Any escapees could fledge and move as adults to the northern Sahel. In **Algeria**, 15 ha of hopper groups were treated in the central Sahara. In both countries, vegetation dried out and conditions are no longer favourable for breeding.

Central Region. Low numbers of solitarious adults were present in the interior of **Sudan** during August. Although hoppers were not found, small-scale breeding is likely to be in progress as good rains have fallen in most areas. A similar situation is likely in western **Eritrea**. Locust numbers are expected to increase in both countries as small-scale breeding continues during the forecast period. Although locusts were not reported in other countries in the Region, small populations may be present on the Red Sea coast in **Yemen** and in the interior where small-scale breeding could occur in September.

Eastern Region. Monsoon rains continued to fall along both sides of the Indo-Pakistan border during August where ecological conditions remained favourable. Small-scale breeding was reported for the second consecutive month along the border in **Pakistan** and low numbers of solitarious hoppers and adults were present in the Cholistan Desert. No locusts were seen during intensive surveys in adjacent areas of **India**. Small-scale breeding is expected to occur in both countries and cause locust numbers to increase slightly.

The FAO Desert Bulletin is issued monthly, supplemented by Updates during periods of increased Desert Locust activity, and is distributed by e-mail, FAO pouch and airmail by the Locusts and Other Migratory Pests Group, AGP Division, FAO, 00100 Rome, Italy. It is also available on the Internet.
Telephone: +39 06 570 52420 (7 days/week, 24 hr)
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E-mail: eclo@fao.org
Internet: www.fao.org
DLIS: www.fao.org/ag/locusts

No. 359

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in August 2008

Seasonal rains during August maintained favourable ecological conditions for breeding in the northern Sahel in West Africa and Sudan, in western Eritrea, on the Red Sea coast in Yemen, and along the Indo/Pakistan border.

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) oscillated between 16N and 20N during August, with occasional surges northwards to 25N over northern Mauritania, northwest Mali, and southern Algeria. Light to moderate rains fell in parts of the summer breeding areas in the northern Sahel in Mauritania (as far north as Tidjikja), Mali (north and west of Tombouctou; the Adrar des Iforas and Tamesna), Niger (Tamesna and Air Mountains), Chad (to 18N) and in southern Algeria (south of Tamanrasset). Consequently, ecological conditions continued to remain favourable or became favourable for breeding in all of these areas. During the last decade of August, light to moderate rains also fell in northwest Mauritania. In Northwest Africa, light rain fell in parts of the Western Sahara. Vegetation dried out in central Libya and in the central Sahara in Algeria.

In the **Central Region**, seasonal rains continued to fall in the summer breeding areas in the interior of Sudan. Much of the rains west of the Nile were concentrated south of 15N although moderate rains fell north of Abu Uruq in the Baiyuda Desert (16-17N). Good rains also fell in eastern Sudan near Kassala, on the western side of the Red Sea Hills and in adjacent areas of the western lowlands in Eritrea. Consequently, ecological conditions remained favourable for breeding in all of these areas except in the Nile Valley of Sudan north of Shendi and on the western side of the Red Sea Hills where they were improving. In Yemen, light rains fell in parts of the interior during the first decade, mainly along the Saudi Arabia / Yemen border north of Hazar, in Wadi Hadhramaut and in southern Shabwah which may be sufficient for limited breeding. Good rains fell at the beginning and end of the month on the northern Tihama coastal plains of the Red Sea where ecological conditions are likely to be favourable for breeding. Moderate rains may have fallen on the 9th in the eastern Empty Quarter near the border of Saudi Arabia and Oman. Ecological conditions may be favourable for breeding on the plateau in northwest Somalia and in adjacent areas of eastern Ethiopia near Jijiga and Dire Dawa where light (Karan) rains fell at times.

In the **Eastern Region**, monsoon rains continued during August in the summer breeding areas along both sides of the Indo-Pakistan border. Rainfall was heaviest during the first decade in central and northern Rajasthan in India, extending to Cholistan in Pakistan. Light to moderate rains fell in the interior of Baluchistan in western Pakistan and in southeast Iran near Iranshahr. During the second decade, rainfall was concentrated mainly in southwest Rajasthan and northeast Gujarat, and in the Tharparkar Desert in Pakistan. Very little rain fell during the last decade and was limited to central Rajasthan. Consequently, ecological conditions remained favourable for breeding in Cholistan and Rajasthan, improved slightly in Tharparkar but were dry and unfavourable in southeast Iran.

Area Treated

Algeria	15 ha (August)
Libya	4,000 ha (26 July – 13 August)

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

Small-scale breeding in Hodh Ech Chargui south of 18N and to a lesser extent northwest of Kiffa (1638N/1124W) in Assaba caused locust numbers to increase slightly in August. Egg laying commenced in early July, followed by hatching from mid-July onwards. Consequently, low numbers of solitarious hoppers of all instars were present in both regions during August while solitarious adults continued to lay eggs. Immature and mature solitarious adults were seen in Hodh El Gharbi north of Aioun El Atrous (1639N/0936W), west of Tidjikja (1833N/1126W) in western Tagant, and north of Magta Lahjar (1730N/1305W) in northwest Brakna and Trarza.

• **FORECAST**

Small-scale breeding will continue in the south and commence in central areas, causing locust numbers

to increase. Breeding could occur in the west (Trarza) if more rains fall during the forecast period.

Mali

• **Situation**

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

• **Forecast**

Scattered locusts are likely to be present and breeding in parts of the Adrar des Iforas, Tamesna and north and west of Tombouctou. Small-scale breeding will continue during the forecast period, causing locust numbers to increase slightly.

Niger

• **Situation**

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

• **Forecast**

Low numbers of locusts are likely to be present and breeding in parts of the Air Mountains, Tenere and Tamesna as well as in the northern Sahelian zone. Small-scale breeding will continue during the forecast period, causing locust numbers to increase slightly. There is a low risk that some adults may appear from the north.

Chad

• **Situation**

No locusts were seen during surveys carried out in August in Wadi Fira, Salal, Kalait and Fada regions.

• **Forecast**

Low numbers of locusts are likely to be present and breeding in the east and northeast between Abeche and Fada. Small-scale breeding will continue during the forecast period, causing locust numbers to increase slightly. There is a low risk that some adults may appear from the north.

Senegal

• **Situation**

During August, no locusts were seen during surveys in the north.

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

During August, low numbers of immature and mature solitarious adults persisted near irrigated areas and oases in the central Sahara northeast of Adrar (2753N/0017W). Ground teams treated 15 ha of low-density groups of fourth and fifth instar solitarious hoppers on the 2nd. No locusts were seen during surveys near Tamanrasset (2250N/0528E), and between Djanet (2434N/0930E) and Illizi (2630N/0825E).

• **Forecast**

Limited breeding could occur in areas of recent rainfall south of Tamanrasset, causing locust numbers to increase slightly.

Morocco

• **Situation**

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

• **Forecast**

No significant developments are likely.

Libyan Arab Jamahiriya

• **Situation**

Good rains in central Libya during the second half of May allowed breeding to occur in drainage areas in the Al Haruj Al Aswad plateau (ca. 2730N/1730E) where eggs laid in the second half of June hatched by early July. Consequently, low densities of fourth and fifth instar solitarious hoppers mixed with fledglings at densities of up to 500 locusts/ha were present from late July onwards. Ground teams treated 4,000 ha between 26 July and 13 August.

• **Forecast**

Further breeding is unlikely; however, any escapees from earlier breeding that may have occurred between Ghat and Al Haruj Al Aswad will fledge and are likely to move as adults south to the Sahel.

Tunisia

• **Situation**

No reports were received during August.

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During August, isolated immature solitarious adults at densities up to 150 adults/ha were seen in North Kordofan between Sodiri (1423N/2906E) and Umm Saiyala (1426N/3112E) from the first week of the

month onwards. Isolated mature solitarious adults were seen at mid-month in the Baiyuda Desert northwest of Shendi (1641N/3322E). No locusts were seen during surveys carried out in White Nile and Red Sea States.

• Forecast

Small-scale breeding is likely to be in progress and continue during the forecast period in West and North Darfur, West and North Kordofan, White Nile, Khartoum, Nile and Kassala states, causing locust numbers to increase slightly.

Eritrea

• **Situation**

No reports were received during August.

• **Forecast**

Low numbers of adults are likely to be present and breeding on a small scale in parts of the western lowlands. Small-scale breeding is expected to continue during the forecast period, causing locust numbers to increase slightly.

Ethiopia

• **Situation**

No locusts were seen during surveys carried out in the second week of August between Harar (0919N/4206E) and Jijiga (0922N/4250E) as well as in the highlands to the southwest.

• **Forecast**

Low numbers of locusts may be present in the Ogaden but breeding is unlikely unless further rains fall.

Djibouti

• **Situation**

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

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

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

• **Forecast**

Scattered adults may be present on the plateau between Boroma and Hargeisa and breed on a small-scale if more rainfall occurs.

Egypt

• **Situation**

No locusts were seen during surveys carried out in the second week of August in the Western Desert near Sh. Oweinat (2219N/2845E).

• **Forecast**

No significant developments are likely.

Saudi Arabia

• **Situation**

No locusts were seen during surveys carried out in August on the Red Sea coast between Rabigh (2247N/3901E) and Khamis Mushait (1819N/4245E) and in the northern interior region of Al Jawf.

• **Forecast**

There is a low risk that low numbers of adults could appear in areas of recent rainfall in the eastern Empty Quarter south of Shawalah. No significant developments are likely.

Yemen

• **Situation**

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

• **Forecast**

Scattered adults may be present and breeding in areas of recent rainfall on the Red Sea coast and, to a lesser extent, in the interior. Small-scale breeding could continue during the forecast period, mainly on the Red Sea coast and cause locust numbers to increase slightly.

Oman

• **Situation**

No locusts were seen during surveys carried out in the northern interior near Buraimi (2415N/5547E) and on the Batinah coast near Jamma (2333N/5733E) in August.

• **Forecast**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, Syria, Tanzania, Turkey, Uganda and UAE

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

A late report indicated that isolated immature and mature solitarious adults were present on the southeast coast near Chabahar (2517N/6036E) on 12 July. No locusts were seen in the same area during August.

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

A late report indicated that isolated immature and mature solitarious adults were seen during the last half of July in 19 places in the Cholistan Desert southeast of Bahawalpur (2924N/7147E).

During the first half of August, locust infestations increased slightly in Cholistan where immature and mature solitarious adults were reported from 38 places at densities up to 250 adults/ha. Small-scale breeding was underway, adults were copulating and isolated solitarious hoppers of all instars were seen at a few places along the Indian border. No locusts were seen during surveys in the Tharparkar Desert.

• **Forecast**

Small-scale breeding will continue in the Cholistan Desert near the Indian border and is likely to occur in the Tharparkar Desert, causing locust numbers to increase slightly.

India

• **Situation**

During August, no locusts were seen during surveys carried out in central and western Rajasthan and in northern Gujarat.

• **Forecast**

Small-scale breeding is likely to occur in Rajasthan and cause locust numbers to increase slightly.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Announcements

Locust reporting. During recession periods, countries should report at least once/month and send RAMSES data with a brief interpretation. During caution (yellow) and threat (orange) periods, locust outbreaks, upsurges and plagues, RAMSES output files with a brief interpretation should be sent at least twice/week within 48 hours of the latest survey. Affected countries are also encouraged to prepare decadal bulletins summarizing the situation. All information should be sent by e-mail to the FAO/ECLO Desert Locust Information Service (eclo@fao.org). Information received by the end of the month will be included in the FAO Desert Locust Bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Desert Locust warning levels. A colour-coded scheme indicates the seriousness of the current Desert Locust situation: green for *calm*, yellow for *caution*, orange for *threat* and red for *danger*. The scheme is applied to the Locust Watch web page and to the monthly bulletin's header. The levels indicate the perceived risk or threat of current Desert Locust infestations to crops and appropriate actions are suggested for each level.

Climate change. Potential impacts of climate change on Desert Locust are under discussion. More details can be found on Locust Watch in the Activities section (http://www.fao.org/ag/locusts/en/activ/index.html).

Google group. FAO DLIS has established a Google group for national locust information officers to exchange opinions and share experiences regarding data management and analysis, GIS, eLocust2 and satellite imagery. Interested information officers should contact DLIS (eclo@fao.org) for details.

MODIS imagery. Columbia University's International Research Institute for Climate and Society (IRI) provides 16-day 250-metre resolution MODIS imagery as well as daily and decadal rainfall imagery for monitoring breeding conditions in the Desert Locust recession area. These products can be downloaded in different formats suitable for GIS at: http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/index.html. Comments and questions can be addressed to Pietro Ceccato (pceccato@iri.columbia.edu).

New information on Locust Watch. Recent additions to the web site are:

- **Locust risk.** The current risk map was updated (home page)
- **Master Trainers Manual.** The sessions and overheads for eLocust2 were updated (Publications – Documents section)

Links to the above information can be found in the *Latest Additions* section on Locust Watch.

2008 events. The following activities are scheduled:

- **CLCPRO.** 5th Executive Committee meeting, Ouagadougou (20-22 October, to be confirmed)
- **EMPRES/WR.** 7th Liaison Officers meeting, Niamey (24-28 November, to be confirmed)
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- **SWAC.** 26th Session, Kabul (15-17 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.

WARNING LEVELS

GREEN

- Calm. No threat to crops. Maintain regular surveys and monitoring.

YELLOW

- Caution. Potential threat to crops. Increased vigilance is required; control operations may be needed.

RED

- Danger. Significant threat to crops. Intensive survey and control operations must be undertaken.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania,

Morocco, Niger, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guinea and Guinea-Bissau.

CENTRAL

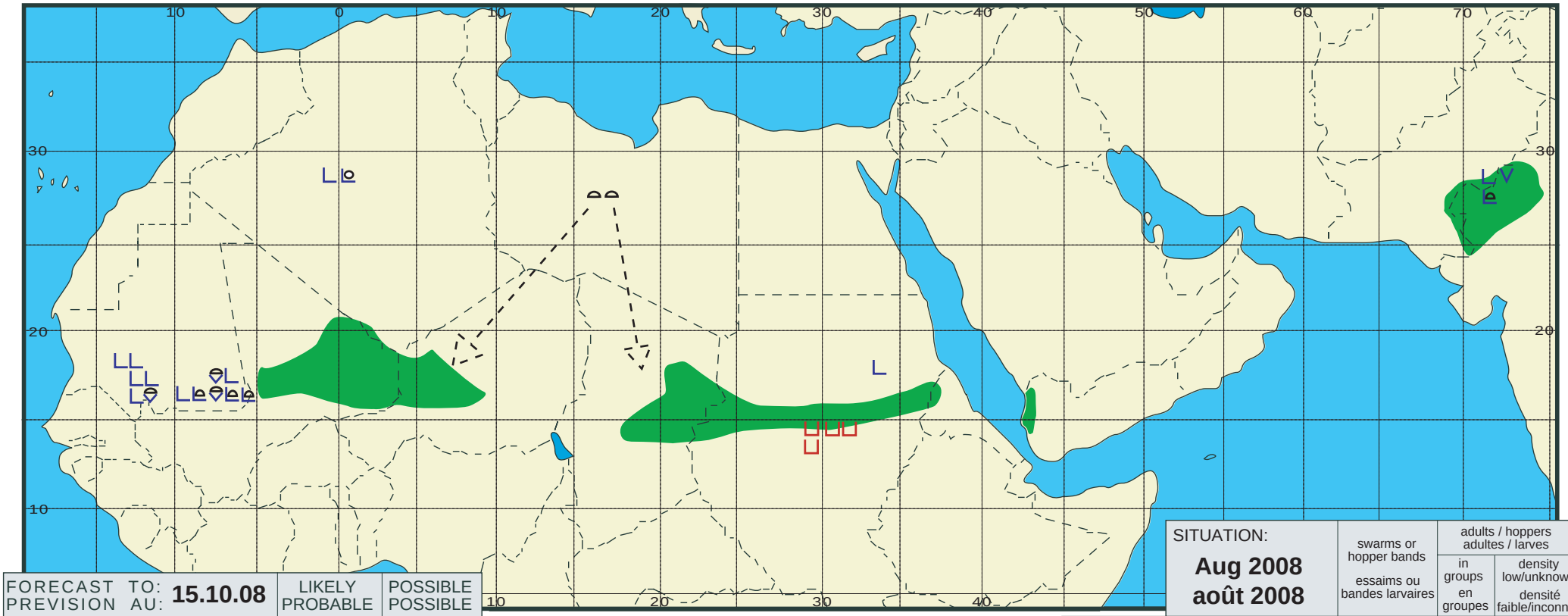
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

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

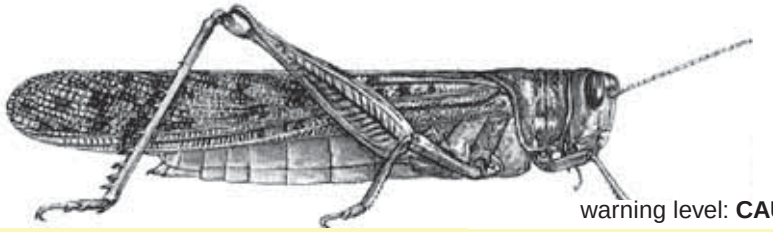
Desert Locust Summary
Criquet pèlerin - Situation résumée

359



FORECAST TO: / PREVISION AU: **15.10.08**	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: **Aug 2008 août 2008**	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)			



warning level: **CAUTION (NW Africa)**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations

No. 360

(2 October 2008)

General Situation during September 2008 Forecast until mid-November 2008

The Desert Locust situation remained calm during September. Small-scale breeding continued in southern Mauritania but locust numbers remained low. A similar situation is likely in northern Mali and Niger but this could not be confirmed by surveys because of insecurity. Locust numbers will increase in northwest Mauritania as adults arrive from the summer breeding areas in the south and lay eggs in areas of recent rainfall. Unusually heavy rains in Western Sahara and in adjacent areas of northern Mauritania could allow breeding for several months; hence, a warning level of CAUTION, and these areas should be monitored carefully. Scattered adults in the summer breeding areas in the interior of Sudan will move to the Red Sea coastal plains and eventually lay eggs but this movement and subsequent breeding will be limited. Small-scale breeding is likely on the Red Sea coast in Yemen and to a lesser extent in Eritrea and Saudi Arabia during the forecast period. No locusts were reported along the Indo-Pakistan border where the monsoon rains have nearly ended and vegetation is drying out.

Western Region. Locust numbers continued to remain low in the northern Sahel even though breeding occurred during September in **Mauritania**. A similar situation is likely in northern **Mali** and **Niger** where surveys were not possible due to continued insecurity. Isolated adults were seen in northeast **Chad** but breeding was not detected. As summer rains end and vegetation dries out, adults are likely to concentrate in the few areas that remain green in the northern Sahel in Mali, Niger and Chad. In Mauritania, scattered adults started moving from the summer breeding areas in the south towards the west and northwest of the country where another generation of breeding is likely to commence during the forecast period. Breeding is expected to extend into parts of northern Mauritania and adjacent areas of **Western Sahara** where good rains fell in September. No locusts were seen during surveys in southern **Algeria** or reported elsewhere in Northwest Africa.

Central Region. Scattered solitarious adults persisted during September in the interior of **Sudan** west of the Nile where ecological conditions were favourable but breeding was not detected by ground surveys. A few isolated adults were seen on a farm in the interior of **Saudi Arabia**. Although good rains fell on the Red Sea coast of **Yemen** for the third consecutive month, surveys were not carried out in areas where locusts are likely to be present and breeding. No locusts were seen during surveys in **Egypt**, **Eritrea**, northern **Somalia**, and **Oman**. During the forecast period, adults will start to move from the interior of Sudan towards the Red Sea coast where they will lay eggs. This movement is expected to be very limited this year. Small-scale breeding is likely to occur on the Red Sea coast in Yemen and, to a lesser extent, in Saudi Arabia and Eritrea.

Eastern Region. Although locusts were not seen in the summer breeding areas in Rajasthan, **India**, low numbers of hoppers and adults were probably present in adjacent areas of **Pakistan**. Ecological conditions were not very favourable for breeding because the monsoon rains were patchy and generally poor. No significant developments are likely 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 e-mail, FAO pouch and airmail by the Locusts and Other Migratory Pests Group, AGP Division, FAO, 00153 Rome, Italy. It is also available on the Internet.
Telephone: +39 06 570 52420 (7 days/week, 24 hr)
Facsimile: +39 06 570 55271
E-mail: eclo@fao.org
Internet: www.fao.org
DLIS: www.fao.org/ag/locusts

No. 360

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in September 2008

Ecological conditions remained favourable for breeding in the northern Sahel in West Africa and Sudan but vegetation started to dry out in some places by the end of September as rainfall decreased. Good rains fell in the Western Sahara and along parts of the Red Sea coastal plains. Breeding conditions were less favourable along the Indo/Pakistan border as the monsoon rains weakened and vegetation started to dry out.

In the **Western Region**, ecological conditions continued to be favourable for breeding in the northern Sahel between Mauritania and Chad during September. The Inter-Tropical Convergence Zone (ITCZ) oscillated between 15N and 20N, with occasional surges northwards to 21N over northwest Mali. Light to moderate rains fell in parts of the summer breeding areas in Mauritania, Mali (west of Tombouctou; the Adrar des Iforas), Niger (Tamesna and Air Mountains), northeast Chad, and in southern Algeria (between Tamanrasset and Mali). By the end of the month, rains declined in the summer breeding areas and vegetation started to dry, mainly in southern Mauritania and in eastern Mali, but small patches of green vegetation remained in the Adrar des Iforas in northern Mali and on the Tamesna plains and the western side of the Air Mountains in Niger. Unusually good rains fell at times during the second half of the month in northern Mauritania (Zouerate to Bir Moghrein to El Hank) and adjacent areas of Western Sahara, which will cause breeding conditions to become favourable.

In the **Central Region**, ecological conditions remained favourable for breeding in the interior of Sudan during September. Good rains fell in parts of these areas (North Darfur, North Kordofan, Nile, Northern and Kassala states) as well as on the western side of the Red Sea Hills during the first decade but declined thereafter and vegetation started to dry out. Light to moderate rains fell on the Red Sea coastal plains in Eritrea (Shieb 40 mm and Mehimet 34 mm) and to a lesser extent in Sudan in early September, which should cause vegetation to become green. Good rains also fell on the eastern side of the Red Sea along a large portion of the coast and adjacent hills between Bader, Saudi Arabia and Mocha, Yemen. Ecological conditions are expected to be favourable for small-scale breeding on the Yemeni coast and will improve in Saudi Arabia. In northern Somalia, light rains fell on the northwest plateau, extending into adjacent areas of Ethiopia. Vegetation was green on the plateau but dry along the northwest coast.

In the **Eastern Region**, monsoon rains declined during September along both sides of the Indo-Pakistan border. Only light rains fell in parts of Tharparkar Desert in southeast Pakistan. Consequently, vegetation was starting to dry out and ecological conditions were becoming less favourable for breeding.

Area Treated

No control operations were reported in September.

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During the first half of September, small-scale breeding continued in the southeast (Hodh Ech Chargui) east of Nema (1636N/0715W) and in centre of the country (Tagant) near Tidjikja (1833N/1126W). Breeding also occurred in the Aoukar region northwest of Magta Lahjar (1730N/1305W) where hatching commenced during the second week. After mid-month, locusts declined in the southeast as vegetation dried out and adults moved west to Trarza, northern Brakna and western Tagant. There was one report of locusts reaching Akjoujt (1945N/1421W). By the end of the month, scattered immature and mature solitarious adults were concentrated mainly in the Aoukar north of Boutilimit (1732N/1441W) where low-density solitarious hoppers had reached fourth instar. Adults were also present near Tidjikja and between Aioun El Atrous (1639N/0936W) and Timbedra (1614N/0809W).

• **FORECAST**

As vegetation dries out in the south, some adults will concentrate in areas that remain green in Trarza, Brakna and Tagant while others will move west and northwest towards Adrar and Inchiri and breed on a

small scale. Low numbers of adults could also move north to areas of recent rainfall in Tiris Zemmour and lay eggs. Regular surveys should be undertaken to monitor the situation.

Mali

• **Situation**

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

• **Forecast**

Scattered locusts are likely to be present and breeding on a small scale in parts of the Adrar des Iforas and, to a lesser extent, in Tamesna and west of Tombouctou. As vegetation dries out, locusts will concentrate in areas that remain green in the Adrar des Iforas where small-scale breeding could continue, causing locust numbers to increase slightly.

Niger

• **Situation**

Although surveys could not be carried out in September because of continued insecurity, an individual mature adult was seen between Agadez and Tahoua near Agabar Gabar (1600N/0700E) on the 21st.

• **Forecast**

Unless further rains fall, low numbers of locusts are likely to concentrate in areas that remain green in Tamesna and the western Air Mountains and breed on a small scale if conditions are favourable.

Chad

• **Situation**

During the second decade of September, two individual mature solitarious adults were seen near Kalait (1550N/2054E) during surveys carried out in the east between Arada (1501N/2040E) and Fada (1714N/2132E). No locusts were seen in the west near Mao (1406N/1511E) in southern Kanem region.

• **Forecast**

Low numbers of locusts are likely to be present and breeding in the east and northeast between Abeche and Fada. Unless further rains fall, breeding will end and scattered adults are likely to concentrate in areas that remain green.

Senegal

• **Situation**

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

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

No locusts were seen during surveys carried out in September in the southern Sahara west of Tamanrasset (2250N/0528E) and along the Malian border between Bir Bou Mokhtar (2120N/0056E) and Tin Zaouatene (1958N/0258E).

• **Forecast**

Limited breeding could occur in areas of recent rainfall south of Tamanrasset and along the Malian border, causing locust numbers to increase slightly.

Morocco

• **Situation**

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

• **Forecast**

Scattered adults may appear in areas of recent rainfall in Western Sahara and breed on a small scale. Surveys should be undertaken to monitor the situation carefully.

Libyan Arab Jamahiriya

• **Situation**

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

• **Forecast**

No significant developments are likely.

Tunisia

• **Situation**

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

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During September, scattered immature solitarious adults persisted at densities up to 100 adults/ha in North Kordofan near Sodiri (1423N/2906E) and Umm Saiyala (1426N/3112E). No locusts were seen during

surveys elsewhere in North Kordofan, Northern, and River Nile States.

• Forecast

Small-scale breeding is likely to be in progress and continue in early October in North Darfur, North Kordofan, Nile and Kassala states, causing locust numbers to increase slightly. Thereafter, vegetation is expected to dry out and adults will move towards the Red Sea coast, appearing along the western side of the Red Sea Hills and on the coastal plains where they will eventually lay eggs.

Eritrea

• **Situation**

No locusts were seen during surveys carried out in the southern part of the western lowlands on 29-31 August and on the Red Sea coast between Massawa (1537N/3928E) and Karora (1745N/3820E) during the first week of September.

• **Forecast**

Scattered adults may appear on the Red Sea coastal plains between Massawa and Karora where they are likely to breed on a small-scale in areas that received rainfall or runoff in early September.

Ethiopia

• **Situation**

No reports were received in September.

• **Forecast**

Scattered adults may be present between Harar and northern Somalia where they could breed on a small-scale in areas of recent rainfall.

Djibouti

• **Situation**

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

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

No locusts were seen during surveys undertaken on the plateau between Hargeisa (0931N/4402E) and Boroma (0956N/4313E) and on the northwest coast between Silil (1058N/4326E) and Berbera (1028N/4502E) on 15-20 September.

• **Forecast**

Scattered adults may be present on the plateau between Boroma and Hargeisa. Small-scale breeding may occur in areas of recent rainfall on the plateau and the nearby escarpment.

Egypt

• **Situation**

No locusts were seen during surveys carried out in the second week of September in areas of recent rainfall in the central Red Sea Hills east of Sohag (2633N/3142E).

• **Forecast**

No significant developments are likely.

Saudi Arabia

• **Situation**

During September, isolated immature solitarious adults were reported on an irrigated farm southwest of Riyadh near Ash Shukrah (2315N/4640E). No locusts were seen during surveys carried out on the Red Sea coast between Lith (2008N/4016E) and Yenbo (2405N/3802E), in the interior near Buraydah (2621N/4358E), and in the extreme north near the Jordanian border.

• **Forecast**

Small-scale breeding could occur in areas of recent rainfall on the Red Sea coast between Jeddah and Jizan, causing locust numbers to increase slightly.

Yemen

• **Situation**

No surveys were carried out for the third consecutive month in September.

• **Forecast**

Scattered adults may be present and breeding in areas of recent rainfall on the Red Sea coast. Small-scale breeding is expected to continue during the forecast period, which will cause locust numbers to increase. All efforts should be made to conduct surveys on a regular basis on the Tihama.

Oman

• **Situation**

No locusts were seen during surveys carried out in the northern regions of Midha, Dhahera and Musandam in September.

• **Forecast**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, Syria, Tanzania, Turkey, Uganda and UAE

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **SITUATION**

During September, scattered mature solitarious adults were seen at three places along the southeastern coast between Chabahar (2517N/6036E) and the Pakistani border.

• **FORECAST**

No significant developments are likely.

Pakistan

• **SITUATION**

No reports were received during the second half of August and in September.

• **FORECAST**

Breeding will end in Cholistan and Tharparkar deserts as vegetation dries out. Only low numbers of solitarious adults are likely to persist in areas that remain green.

India

• **SITUATION**

No locusts were seen during extensive surveys in Rajasthan and Gujarat during September.

• **FORECAST**

No significant developments are likely.

Afghanistan

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Announcements

Locust reporting. During recession periods, countries should report at least once/month and send RAMSES data with a brief interpretation. During caution (yellow) and threat (orange) periods, locust outbreaks, upsurges and plagues, RAMSES output files with a brief interpretation should be sent at least twice/week within 48 hours of the latest survey. Affected countries are also encouraged to prepare decadal bulletins summarizing the situation. All information should be sent by e-mail to the FAO/ECLO Desert Locust Information Service (eclo@fao.org). Information received by the end of the month will be included in the FAO Desert Locust Bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

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New information on Locust Watch. Recent additions to the web site are:

- **Desert Locust Bulletins.** Previous FAO bulletins dating from 1979 to the present (Archives section)
- **National Locust Information Officer training.** An overview of the 11-month programme in DLIS (Activities – DLIS section)
- **26th CRC session.** Final report in English and Arabic (Publications – Reports section)

Links to the above information can be found in the *Latest Additions* section on Locust Watch.

2008-2009 events. The following activities are scheduled:

- **Western Region.** Experts meeting (21-22 October) and 1st meeting of Agriculture Ministers in CLCPRO countries (23 October), Bamako
- **EMPRES/WR.** 7th Liaison Officers meeting, Niamey (24-28 November, to be confirmed)
- **EMPRES/WR.** 4th Steering Committee meeting, Niamey (1-3 December, to be confirmed)
- **SWAC.** 26th Session, Kabul (15-17 December)
- **DLCC.** 39th Session, Rome (10-13 March)

No. 360

DESERT LOCUST BULLETIN

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LIGHT

- 1 - 20 mm of rainfall.

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- a period following a recession marked initially by a very large increase in locust numbers and contemporaneous outbreaks followed by the production of two or more successive seasons of transient-to- gregarious breeding in complimentary seasonal breeding areas in the same or neighbouring Desert Locust regions.

PLAGUE

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

RECESSION

- period without widespread and heavy infestations by swarms.

REMISSION

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

WARNING LEVELS

GREEN

- Calm. No threat to crops. Maintain regular surveys and monitoring.

YELLOW

- Caution. Potential threat to crops. Increased vigilance is required; control operations may be needed.

ORANGE

- Threat. Threat to crops. Survey and control operations must be undertaken.

RED

- Danger. Significant threat to crops. Intensive survey and control operations must be undertaken.

REGIONS

WESTERN

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

CENTRAL

- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues

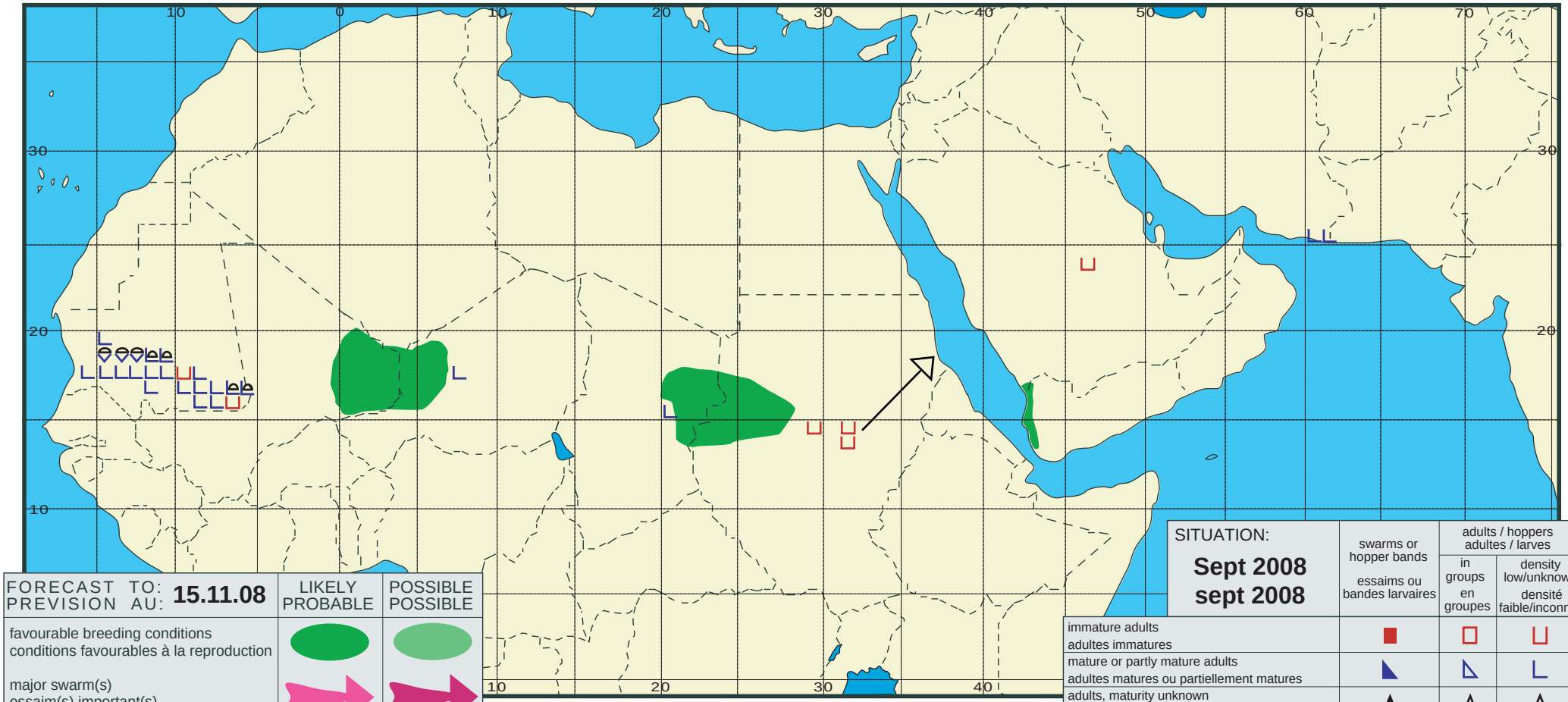
only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

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

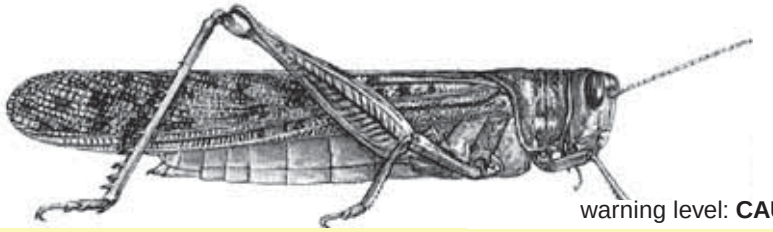
Desert Locust Summary
Criquet pèlerin - Situation résumée

360



FORECAST TO: / PREVISION AU: **15.11.08**	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 2008 sept 2008**	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)	◘	◙	◒



warning level: **CAUTION (NW Africa)**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations

No. 361

(3 November 2008)

General Situation during October 2008 Forecast until mid-December 2008

The Desert Locust situation remained calm during October. As the seasonal rains ended and vegetation dried out, locusts declined in the summer breeding areas of the Sahel in West Africa and Sudan, and along the Indo-Pakistan border. Small-scale breeding occurred in western Mauritania and in southern Yemen. During the forecast period, breeding will continue in these places, causing locust numbers to increase slightly. Small-scale is expected to start in northern Mauritania where scattered adults are present and in adjacent areas of Western Sahara where unusually heavy rains fell in September. Breeding is also likely to take place on the Red Sea coastal plains and perhaps in eastern Yemen where torrential rains and flooding occurred in October. Elsewhere, low numbers of adults will persist in northern Mali, Niger and southern Algeria. The two areas of unusual rainfall in northwest Africa and Yemen need to be surveyed regularly to monitor breeding activities in the coming months.

Western Region. Locust numbers increased in western **Mauritania** from local breeding during October and as adults arrived from summer breeding areas where vegetation had dried out. Solitarious adults were seen in northern areas that received heavy rains in September. Small-scale breeding will continue during the forecast period in western **Mauritania** where small groups could form, and is expected to commence in the northwest and north. Breeding is also expected to take place in **Western Sahara** where ecological conditions had improved. Isolated solitarious adults persisted in central and northeastern **Chad**. Surveys were still not possible in northeast **Mali** and northern **Niger** where scattered adults are probably present and are likely to concentrate in areas that remain green during the forecast period. No locusts were seen in southern **Algeria** or reported from other countries in the Region.

Central Region. Locust numbers declined in the summer breeding areas in the interior of **Sudan** during October and only scattered solitarious adults remained in a few places between the Nile and the Red Sea Hills. No locusts were reported in winter breeding areas on the Red Sea coast of **Egypt**, Sudan and **Eritrea**. Low numbers of locusts were present on the Red Sea and Gulf of Aden coast in **Yemen**, and small-scale breeding occurred near Aden. Unusually heavy rains fell for two days in eastern Yemen, causing severe flooding and loss of property and life. The rains extended into central **Oman**. Once the waters recede, ecological conditions are expected to remain favourable for breeding for several months. During the forecast period, locusts will increase along both sides of the Red Sea and small-scale breeding is likely to commence as conditions become suitable. Most of the breeding may be concentrated on the coastal plains in Yemen that have received rains for the past few months.

Eastern Region. The locust situation remained calm in the Region. Low numbers of solitarious adults persisted in the Cholistan Desert in **Pakistan** along the Indian border. No locusts were seen in Rajasthan, **India**. As the monsoon rains ended and vegetation is drying out, locust numbers will continue to decline. Isolated adults persisted on the coast in southeast **Iran**. During the forecast period, isolated adults are likely to persist in southeast Iran and appear in western Pakistan. No significant developments are likely.

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Telephone: +39 06 570 52420 (7 days/week, 24 hr)
Facsimile: +39 06 570 55271
E-mail: eclo@fao.org
Internet: www.fao.org
DLIS: www.fao.org/ag/locusts

No. 361

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in October 2008

Vegetation dried out in the summer breeding areas in the Sahel of West Africa and Sudan as well as along the Indo-Pakistan border. Green vegetation appeared in Western Sahara and adjacent areas from unusually heavy rains that fell in September. Similar rains fell in eastern Yemen and southern Oman in late October that will cause ecological conditions to improve.

In the **Western Region**, vegetation dried out during October in the summer breeding areas of the northern Sahel between Mauritania and Chad. Very little rain fell in these areas except for a few light showers during the second week of the month in southern Mauritania, and in Mali west of Tombouctou and in the northern Adrar des Iforas. Consequently, ecological conditions were not favourable for breeding. Light to moderate rains fell further north in Mauritania (Atar to Bir Moghrein and El Hank) and in Western Sahara (Tichla to Guelta Zemmur) during the first week of October and again at mid-month. Ecological conditions in these areas already started to improve from the unusually heavy rains that fell in September. High-density green vegetation was reported in the northern part of Western Sahara. With the additional rains, breeding conditions are expected to remain favourable for several months of a large portion of northern Mauritania and Western Sahara. Although little rain fell in southern Algeria, vegetation was green or becoming green in many areas between Tamanrasset and the Malian border. Light rains fell in northwest Libya in early October that could cause ecological conditions to improve for breeding in the Al Hamada Al Hamra.

In the **Central Region**, vegetation continued to dry out in the summer breeding areas in the interior of Sudan and in western Eritrea during October. However, small areas remained green along the Nile in Sudan and southern Egypt. Vegetation remained dry in the winter breeding areas along the Red Sea coast in southeast Egypt and in Eritrea. Light rains fell at times on the eastern side of the Red Sea along parts of the coast between Qunfidah, Saudi Arabia and Mocha, Yemen. In Yemen, vegetation was green or becoming green on the central Red Sea coast and in some places on the Gulf of Aden coast west of Aden. On 21-22 October, unusually heavy rains associated with a tropical depression that formed in the Indian Ocean fell in eastern Yemen, mainly in Wadi Hadhramaut and along the coast from Mukalla to the central coast of Oman. The rains caused severe flooding and loss of property and life. Once the waters recede, ecological conditions could remain favourable for breeding for several months. In northern Somalia, light rains fell on the plateau and escarpment between Boroma and Berbera. Heavier rains from the tropical depression fell in northeast Somalia and Puntland on the 21st that could cause ecological conditions to improve for breeding. Light rains fell on the coast of Djibouti near the capital at the end of the month but vegetation remained dry.

In the **Eastern Region**, no significant rains fell during October in the summer breeding areas along both sides of the Indo-Pakistan border, and vegetation had nearly dried out. Vegetation was green enough in a few small areas on the southeastern coast of Iran to allow low numbers of Desert Locust to survive.

Area Treated

No control operations were reported in October.

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During October, solitarious hoppers and adults increased in the west as breeding continued in the Aouker north of Boutilimit (1732N/1441W) and adults arrived from the summer breeding areas in the south and southeast. Hopper densities increased to 2 hopper/m^2 and up to several hundred adults were seen per site. Most of the infestations were located between Tidjikja (1833N/1126W) and Nouakchott (1809N/1558W). Egg laying was reported at one place on the 14th. From mid-month onwards, an increasing number of mature solitarious adults were seen as surveys commenced in the northwest between Tijirat (1929N/1557W) and Atar (2032N/1308W), and in the north between Zouerate (2244N/1221W) and Bir Moghrein (2510N/1135W).

• **Forecast**

Locusts will continue to increase slightly in the Aouker as further hatching and fledging are likely in areas that remain favourable. This could lead to the formation of small groups. Locust numbers will also increase in the northwest and north where small-scale breeding is expected to occur in areas of recent rainfall.

Mali

• **Situation**

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

• **Forecast**

Scattered locusts are likely to be present and breeding on a small scale in parts of the Adrar des Iforas and, to a lesser extent, in Tamesna and west of Tombouctou. As vegetation dries out, locusts will concentrate in areas that remain green in the Adrar des Iforas where small-scale breeding could continue, causing locust numbers to increase slightly.

Niger

• **Situation**

No reports were received in October.

• **Forecast**

Low numbers of locusts are likely to concentrate in areas that remain green in Tamesna and the western Air Mountains and breed on a small scale if conditions remain favourable.

Chad

• **Situation**

During October, isolated mature solitarious adults were present at several places in Kanem between Salal (1448N/1712E) and Beurkia (1523N/1800E), and in the northeast between Abeche (1349N/2049E) and Fada (1714N/2132E).

• **Forecast**

Low numbers of adults are likely to concentrate and persist in areas that remain green.

Senegal

• **Situation**

No reports were received in October.

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

No locusts were seen during surveys carried out in October in the southern Sahara from Tamanrasset (2250N/0528E) to the Malian border between Bir Bou Mokhtar (2120N/0056E) and Tin Zaouatene (1958N/0258E).

• **Forecast**

Limited breeding could occur in areas of previous rainfall south of Tamanrasset and along the Malian border, causing locust numbers to increase slightly.

Morocco

• **Situation**

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

• **Forecast**

Scattered adults are likely to be present and breeding in areas of recent rainfall in Western Sahara. Surveys should be undertaken to monitor the situation on a regular basis.

Libyan Arab Jamahiriya

• **Situation**

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

• **Forecast**

No significant developments are likely.

Tunisia

• **Situation**

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

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During October, mature solitarious adults at densities up to 250 adults/ha were seen at a few places in the northeast between Atbara (1742N/3400E) and Derudeb (1731N/3607E) during surveys carried out between the Nile and the Red Sea Hills. No locusts were seen on the Red Sea coast in the Tokar Delta at the end of the month.

• Forecast

Low numbers of locusts are expected to appear on the Red Sea coast from summer breeding areas.

Small-scale breeding is expected to commence once rains fall.

Eritrea

• **Situation**

No locusts were seen during surveys carried out on the Red Sea coast between Massawa (1537N/3928E) and Karora (1745N/3820E) on 21-23 October.

• **Forecast**

Scattered adults are likely to appear on the Red Sea coastal plains between Massawa and Karora. Small-scale breeding will occur in areas of rainfall or runoff.

Ethiopia

• **Situation**

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

During the last decade of October, no locusts were seen during surveys between Dire Dawa (0935N/4150E) and Jijiga (0922N/4250E), and along the railway to Djibouti.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

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

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

No reports were received in October.

• **Forecast**

Scattered adults may be present on the plateau between Boroma and Hargeisa. Small-scale breeding may occur in areas of recent rainfall on the plateau and the nearby escarpment.

Egypt

• **Situation**

During October, scattered immature and mature solitarious adults were seen at two places near Lake Nasser and the Sudanese border between Abu Simbel (2219N/3138E) and Tushka (2247N/3126E) on the 22nd. No locusts were seen during surveys in the Western Desert near Sh. Oweinat (2219N/2845E), near Aswan (2405N/3256E), in the Red Sea Hills or on the Red Sea coast south of Abu Ramad (2224N/3624E).

• **Forecast**

Isolated adults are likely to persist near Lake Nasser. Low numbers of adults could appear on the southern coast of the Red Sea near Abu Ramad and breed if rainfall occurs.

Saudi Arabia

• **Situation**

No locusts were seen during surveys carried out on the Red Sea coastal plains and in the interior in October.

• **Forecast**

Small-scale breeding could occur in areas of recent rainfall on the Red Sea coast between Qunfidah and Jizan, causing locust numbers to increase slightly.

Yemen

• **Situation**

During October, scattered solitarious adults were present on the Gulf of Aden coastal plains between Aden (1250N/4503E) and Am Rija (1302N/4434E) and, to a lesser extent, on the Red Sea coastal plains between Hodeidah (1450N/4258E) and Midi (1619N/4248E). Small-scale breeding occurred near Aden where second and third instar solitarious hoppers at densities up to 60 hoppers/site were seen at five places.

• **Forecast**

Small-scale breeding is likely to occur on the Red Sea coastal plains and continue along the Gulf of Aden coast near Aden. There is a low risk that adults may appear in recently flooded areas in Hadhramaut and Mahara and perhaps breed on a small-scale. All efforts should be made to conduct surveys on a regular basis in all of these areas.

Oman

• **Situation**

No locusts were seen during surveys carried out in the north in October.

• **Forecast**

There is a low risk that adults may appear in areas of recent rainfall in the centre and south, and perhaps breed on a small-scale. All efforts should be made to conduct surveys on a regular basis in these areas.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, Syria, Tanzania, Turkey, Uganda and UAE

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **SITUATION**

During October, scattered mature solitarious adults persisted seen at two places along the southeastern coast between Chabahar (2517N/6036E) and the Pakistani border. No locusts were seen near Jask (2540N/5746E).

• **FORECAST**

No significant developments are likely.

Pakistan

• **SITUATION**

Late reports indicated that small-scale breeding continued during September in Cholistan along the Indian border southeast of Bahawalpur (2924N/7147E) where first to fourth instar solitarious hoppers mixed with immature and mature adults were present.

During the first decade of October, a few isolated immature and mature solitarious adults persisted in the above areas.

• **FORECAST**

Locust numbers will continue to decline in Cholistan as vegetation dries out. No significant developments are likely.

India

• **SITUATION**

No locusts were seen during extensive surveys in Rajasthan and Gujarat in the first half of October.

• **FORECAST**

No significant developments are likely.

Afghanistan

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Announcements

Locust reporting. During recession periods, countries should report at least once/month and send RAMSES data with a brief interpretation. During caution (yellow) and threat (orange) periods, locust outbreaks, upsurges and plagues, RAMSES output files with a brief interpretation should be sent at least twice/week within 48 hours of the latest survey. Affected countries are also encouraged to prepare decadal bulletins summarizing the situation. All information should be sent by e-mail to the FAO/ECLO Desert Locust Information Service (eclo@fao.org). Information received by the end of the month will be included in the FAO Desert Locust Bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Desert Locust warning levels. A colour-coded scheme indicates the seriousness of the current Desert Locust situation: green for *calm*, yellow for *caution*, orange for *threat* and red for *danger*. The scheme is applied to the Locust Watch web page and to the monthly bulletin's header. The levels indicate the perceived risk or threat of current Desert Locust infestations to crops and appropriate actions are suggested for each level.

Google group. FAO DLIS has established a Google group for national locust information officers to exchange opinions and share experiences regarding data management and analysis, GIS, eLocust2 and satellite imagery. Interested information officers should contact DLIS (eclo@fao.org) for details.

MODIS imagery. Columbia University's International Research Institute for Climate and Society (IRI) provides 16-day 250-metre resolution MODIS imagery as well as daily and decadal rainfall imagery for monitoring breeding conditions in the Desert Locust recession area. These products can be downloaded in different formats suitable for GIS at: http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/index.html. Comments and questions can be addressed to Pietro Ceccato (pceccato@iri.columbia.edu).

New information on Locust Watch. Recent additions to the web site are:

- **Desert Locust Bulletins.** Previous FAO bulletins dating from 1979 to the present (Archives section)
- **National Locust Information Officer training.** An overview of the 11-month programme in DLIS (Activities – DLIS section)
- **26th CRC session.** Final report in English and Arabic (Publications – Reports section)

Links to the above information can be found in the *Latest Additions* section on Locust Watch.

No. 361

DESERT LOCUST BULLETIN

2008-2009 events. The following activities are scheduled:

- **SWAC.** 26th Session, Kabul (15-17 December)
- **EMPRES/WR.** 7th Liaison Officers meeting, Niamey (15-19 December)
- **EMPRES/WR.** 4th Steering Committee meeting, Niamey (22-23 December)
- **DLCC.** 39th Session, Rome (10-13 March)

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.

WARNING LEVELS

GREEN

- Calm. No threat to crops. Maintain regular surveys and monitoring.

YELLOW

- Caution. Potential threat to crops. Increased vigilance is required; control operations may be needed.

ORANGE

- Threat. Threat to crops. Survey and control operations must be undertaken.

RED

- Danger. Significant threat to crops. Intensive survey and control operations must be undertaken.

REGIONS

WESTERN

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

CENTRAL

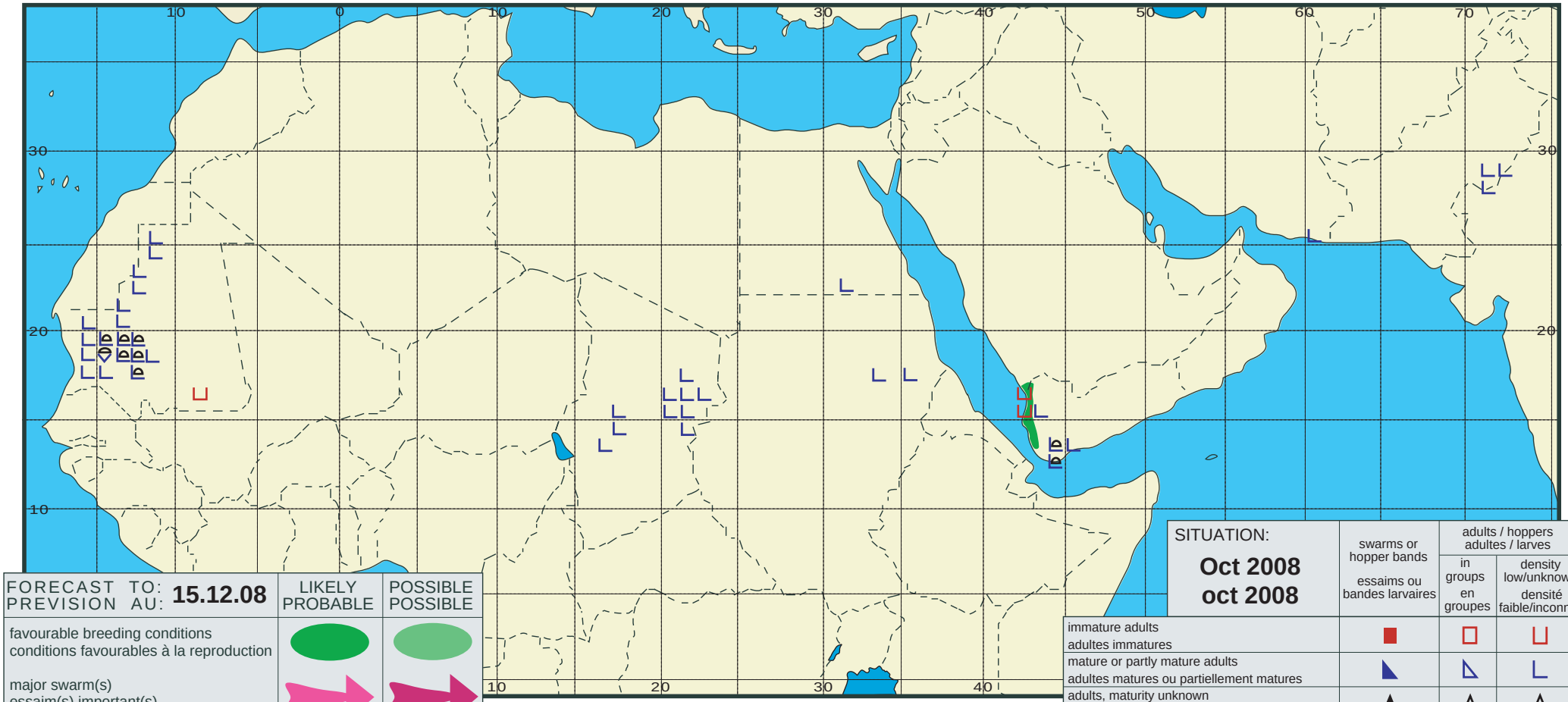
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

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

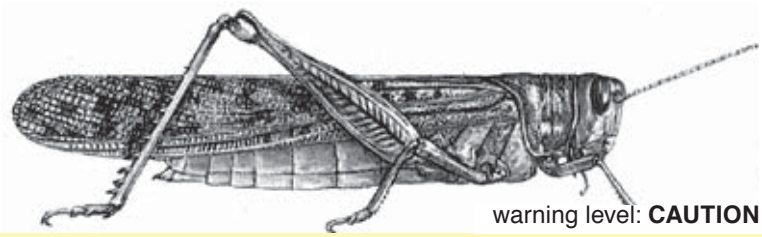
Desert Locust Summary
Criquet pèlerin - Situation résumée

361



FORECAST TO: / PREVISION AU: **15.12.08**	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: **Oct 2008 oct 2008**	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)	◘	◙	◒



warning level: **CAUTION (NW Africa, Yemen)**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations

No. 362

(1 December 2008)

General Situation during November 2008 Forecast until mid-January 2009

The Desert Locust situation continued to remain calm in November. In the Western Region, small-scale breeding caused locust numbers to increase slightly in northwest Mauritania and in southern Algeria while scattered adults persisted in northeast Chad. In the Central Region, scattered adults were present in the winter breeding areas along both sides of the Red Sea and egg-laying occurred in Eritrea. In the Eastern Region, hoppers and adults persisted in the summer breeding areas in Pakistan near the Indian border. During the forecast period, small-scale breeding will occur along both sides of the Red Sea and continue in northwest Mauritania, causing locust numbers to increase slightly in both areas but not threaten crops. Nevertheless, caution is required because breeding could also take place in areas of previous rainfall and flooding in Western Sahara, western Algeria and eastern Yemen. Locusts may appear on the coast in northwest Somalia, southeast Iran and western Pakistan and eventually breed. Regular surveys should be carried out in all of these areas.

Western Region. Small-scale breeding continued in northwest **Mauritania** during November and limited control operations were undertaken against small groups of hoppers. Solitarious adults and local breeding occurred in areas that received heavy rains in September in **Western Sahara** and a few adults were seen in **Morocco**. Small-scale breeding occurred in southern **Algeria** near Mali and scattered adults persisted in northeast **Chad**. Surveys were still not possible in northeast **Mali** and northern **Niger** where scattered adults were probably present and breeding. During the forecast period, breeding will continue in northwest Mauritania and could occur in the north as well as in adjacent areas of Western Sahara and western Algeria if temperatures remain warm. The scale of the breeding will be much smaller than in 2003 because fewer adults are present this year. Low numbers of adults are likely to persist in northeast Mali and northern Niger.

Central Region. Low numbers of solitarious adults persisted during November in the winter breeding areas along the Red Sea and Gulf of Aden in **Yemen**. Adults were also seen on the Red Sea coast in **Saudi Arabia** and were laying eggs in **Eritrea** but locusts were not detected in **Sudan** or **Egypt**. Elsewhere, small groups of solitarious immature adults were present near Lake Nasser in Egypt. During the forecast period, small-scale breeding will occur along both sides of the Red Sea, on the Gulf of Aden coast in southwest Yemen and perhaps in previously flooded areas in eastern Yemen. Consequently, locust numbers will increase slightly but remain below threatening levels. In northern **Somalia**, scattered adults may appear on the northwest coast and eventually breed.

Eastern Region. The locust situation remained calm in the Region during November. Scattered solitarious hoppers and adults persisted in the Cholistan Desert in **Pakistan** along the Indian border. No locusts were reported elsewhere in the region. A few adults could appear by the end of the forecast period in coastal areas of Baluchistan in southeast **Iran** and western **Pakistan**. Early breeding may occur if rains fall and temperatures remain warm.

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DLIS: www.fao.org/ag/locusts

Weather & Ecological Conditions in November 2008

Very little rain fell in the recession area during November except during the first week in the winter breeding areas along the Red Sea coast in Eritrea, Saudi Arabia and Yemen and at the end of the month in northwest Mauritania. Consequently, ecological conditions were favourable for breeding in these places as well as in Western Sahara while other areas remained dry.

In the **Western Region**, very little rain fell during November except for light to moderate showers towards the end of the month in northwest Mauritania. Nevertheless, ecological conditions remained favourable for breeding in northwest and northern Mauritania and in adjacent areas in Western Sahara from heavy rains that fell in late September and October. There was probably sufficient green vegetation in the wadis in the Adrar des Iforas in northern Mali and in the Air Mountains in Niger to allow low numbers of locusts to survive and breed. In northeast Chad, vegetation was drying out or already dry. In Algeria, vegetation was green in the southern Sahara near Tamanrasset and along the Malian border where breeding conditions were favourable, while vegetation was becoming green in the west near Tindouf.

In the **Central Region**, light to moderate showers fell during the first decade of November in the winter breeding areas along the Red Sea coast in Eritrea, Sudan (Karora to Port Sudan) and between Hodeidah, Yemen and Jeddah, Saudi Arabia. Rains also fell in the interior of Saudi Arabia, mainly between Hail, Riyadh and the Kuwaiti border. On the Eritrean coast, Sheib reported 96 mm and Mehimet 65 mm during the first week. As a result of these showers and rainfall in October, ecological conditions improved in the above-mentioned areas and were suitable for breeding. In the interior of eastern Yemen, vegetation became green in parts of Hadhramaut and Mahara that were affected by heavy rains and floods in October. Vegetation was becoming green on the northern coast of Sudan and in adjacent subcoastal areas in Wadi Diib but dry conditions persisted on the southeast coast of Egypt near Abu Ramad. In northern Somalia, vegetation remained green on the plateau near Burao and along the escarpment but was drying out between Boroma and Jijiga, Ethiopia. In Oman, green vegetation was present in the central interior near Marmul from October rainfall but was dry along the Yemeni border.

In the **Eastern Region**, no significant rains fell during November but green vegetation persisted in the summer breeding areas south of Bahawalpur, Pakistan near the Indian border. Ecological conditions were dry and unfavourable for breeding along the southeastern coast in Iran.

Area Treated

Mauritania 185 ha (1-20 November)

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **Situation**

During November, most of the infestations remained in the Aouker north of Boutilimit (1732N/1441W) where small-scale breeding continued and solitarious hoppers and adults were present. By mid-month, some of the late instar hoppers formed small groups at densities of 1-3 hoppers/m^2 and adult densities reached 800 adults/ha in a few places. Ground control teams treated 185 ha. Immature and mature solitarious adults appeared in Adrar near Guelb er Richat (2107N/1124W) and in Inchiri, and limited breeding occurred in both regions. Low numbers of solitarious adults were present south of Zouerate (2244N/1221W) but no adults were seen further north to Bir Moghrein (2510N/1135W) and only a few adults were reported in central areas near Tidjikja (1833N/1126W) and N'Beika (1758N/1215W).

• **Forecast**

Small-scale breeding will continue in the Aouker, Inchiri and Adrar, causing locust numbers to increase slightly and form a few small groups. Small-scale breeding is likely to occur in Tiris Zemmour where rains fell in September and October. If low temperatures occur, hopper and adult maturity will be delayed. Regular surveys are recommended in the north.

Mali

• **Situation**

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

• **Forecast**

Scattered locusts are likely to be present and are expected to persist in the main wadis of the Adrar des Iforas. Breeding is unlikely to occur unless there is rainfall during the forecast period.

Niger

• **Situation**

No reports were received in November.

• **Forecast**

Scattered locusts are likely to be present and are expected to persist in parts of the Air Mountains and breed on a small-scale if rains fall during the forecast period.

Chad

• **Situation**

During November, scattered mature solitarious adults were present in the northeast between Arada (1501N/2040E) and Fada (1714N/2132E). No locusts were seen northeast of N'Djamena (1206N/1504E).

• **Forecast**

Low numbers of adults are likely to concentrate and persist in areas that remain green.

Senegal

• **Situation**

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

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

During November, small-scale breeding occurred along the Malian border near Bir Bou Mokhtar (2120N/0056E) where solitarious hoppers were present. Isolated immature solitarious adults were seen in the southern Sahara northwest of In Guezzam (1937N/0552E). No locusts were seen during surveys carried out near Tamanrasset (2250N/0528E) and Tindouf (2741N/0811W).

• **Forecast**

Low numbers of solitarious adults are expected to persist in the extreme south along the Malian border between Bir Bou Mokhtar and Tin Zaouatene. Small-scale breeding could occur near Tindouf.

Morocco

• **Situation**

Isolated immature and mature solitarious adults were seen in Western Sahara from 29 October to 10 November near Ma'Tallah (2223N/1502W), Guelta Zemmur (2508N/1222W), and east of Smara (2644N/1140W) as well as in the Draa Valley southeast of Foum El Hassan (2901N/0853W) near the Algerian border. Local breeding occurred near Smara where a fifth instar hopper was seen on 8 October.

• **Forecast**

Locust numbers will increase slightly in Western Sahara as small-scale breeding continues in areas where rains fell in September and October. Isolated adults will persist in the Draa Valley. Surveys should be maintained to monitor the situation on a regular basis.

Libyan Arab Jamahiriya

• **Situation**

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

• **Forecast**

No significant developments are likely.

Tunisia

• **Situation**

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

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During the first half of November, no locusts were seen during surveys carried out in the winter breeding areas along the Red Sea coast and in Wadi Diib between Tomala (2002N/3551E) and the Egyptian border.

• Forecast

Low numbers of locusts are likely to be present on the Red Sea coast and breed on a small scale, primarily between Aqiq and Karora and in Wadi Diib north of Sufiya. Breeding may also occur in the Tokar

Delta and other areas that receive rainfall during the forecast period.

Eritrea

• **Situation**

Isolated mature solitarious adults laid eggs in mid-November on the Red Sea coast near Sheib (1551N/3903E) and Mehimet (1723N/3833E). No locusts were seen elsewhere on the coast during surveys carried out between Tio (1441N/4057E) and the Sudanese border.

• **Forecast**

Hatching will occur near Sheib and Mehimet at the beginning of December and the hoppers are expected to fledge by the end of the forecast period. Small-scale breeding is also likely to occur in other areas along the Red Sea coast between Massawa and Karora, which will cause locust numbers to increase slightly.

Ethiopia

• **Situation**

No locusts were seen during surveys carried out on 2 November between Jijiga (0922N/4250E) and the Somali border.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

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

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

A late report indicated that no surveys were carried out and no locusts were reported in October. No locusts were seen during surveys on the plateau and escarpment between Boroma (0956N/4313E) and Burao (0931N/4533E) on 10-14 November.

• **Forecast**

Scattered adults may be present on the plateau between Boroma and Burao and breed on a small scale. A few adults could appear on the northwest coast by the end of the forecast period.

Egypt

• **Situation**

During November, two ha were infested with small groups of immature solitarious adults between Abu Simbel (2219N/3138E) and Tushka (2247N/3126E) on the 22nd. No locusts were seen during surveys in the Allaqi area east of Lake Nasser and on the Red Sea coast south of Shalatyn (2308N/3535E).

• **Forecast**

Isolated adults are likely to persist near Lake Nasser. Low numbers of adults could appear on the southern coast of the Red Sea near Abu Ramad and breed if rainfall occurs.

Saudi Arabia

• **Situation**

During November, isolated immature solitarious adults were present on the Red Sea coast north of Jeddah (2130N/3910E). No locusts were seen elsewhere on the coast between Jizan (1656N/4233E) and Yenbo (2405N/3802E) or in the interior between Medinah (2430N/3935E) and Buraydah (2621N/4358E).

• **Forecast**

Small-scale breeding is likely to occur in areas of recent rainfall on the Red Sea coast, causing locust numbers to increase slightly.

Yemen

• **Situation**

Scattered immature and mature solitarious adults were seen during surveys carried out in November along the Red Sea coastal plains between Hodeidah (1450N/4258E) and the Saudi Arabian border. Similar populations were present, but on a lesser scale, on the Gulf of Aden coast northwest of Aden (1250N/4503E).

• **Forecast**

Small-scale breeding is likely to occur on the Red Sea coastal plains and Gulf of Aden coast near Aden. There is a low risk that adults may appear and breed in areas of Hadhramaut and Mahara that were flooded in October. All efforts should be made to conduct surveys on a regular basis in all of these areas.

Oman

• **Situation**

No locusts were seen during surveys carried out in central and southern regions during November.

• **Forecast**

There is a low risk that adults may appear in areas of recent rainfall in the centre and south, and perhaps breed on a small-scale. Efforts should continue to conduct surveys on a regular basis in these areas.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, Syria, Tanzania, Turkey, Uganda and UAE

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

No locusts were seen during surveys carried out on the southeast coast from 23 October to 26 November.

• **Forecast**

Low numbers of adults could appear on the southeast coast between Jask and the Pakistani border and breed on a small-scale if rainfall occurs and temperatures remain warm.

Pakistan

• **Situation**

During the first half of November, immature and mature solitarious adults at densities up to 200 adults/ha were seen at 35 places in the summer breeding areas in the Cholistan Desert south of Bahawalpur (2924N/7147E) near the Indian border. Low numbers of solitarious hoppers of all instars were seen at a few places.

• **Forecast**

Locust numbers will decline in Cholistan as vegetation dries out. No significant developments are likely. Low numbers of adults could appear on the Baluchistan coast and breed on a small-scale if rainfall occurs and temperatures remain warm.

India

• **Situation**

No locusts were seen during extensive surveys in Rajasthan and Gujarat in the second half of October and first half of November.

• **Forecast**

No significant developments are likely.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Announcements

Locust reporting. During recession periods, countries should report at least once/month and send RAMSES data with a brief interpretation. During caution (yellow) and threat (orange) periods, locust outbreaks, upsurges and plagues, RAMSES output files with a brief interpretation should be sent at least twice/week within 48 hours of the latest survey. Affected countries are also encouraged to prepare decadal bulletins summarizing the situation. All information should be sent by e-mail to the FAO/ECLO Desert Locust Information Service (eclo@fao.org). Information received by the end of the month will be included in the FAO Desert Locust Bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Desert Locust warning levels. A colour-coded scheme indicates the seriousness of the current Desert Locust situation: green for *calm*, yellow for *caution*, orange for *threat* and red for *danger*. The scheme is applied to the Locust Watch web page and to the monthly bulletin's header. The levels indicate the perceived risk or threat of current Desert Locust infestations to crops and appropriate actions are suggested for each level.

Google group. FAO DLIS has established a Google group for national locust information officers to exchange opinions and share experiences regarding data management and analysis, GIS, eLocust2 and satellite imagery. Interested information officers should contact DLIS (eclo@fao.org) for details.

MODIS imagery. Columbia University's International Research Institute for Climate and Society (IRI) provides 16-day 250-metre resolution MODIS imagery as well as daily and decadal rainfall imagery for monitoring breeding conditions in the Desert Locust recession area. These products can be downloaded in different formats suitable for GIS at: http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/index.html. The site is available in English and French. Comments and questions can be addressed to Pietro Ceccato (pceccato@iri.columbia.edu).

New information on Locust Watch. Recent additions to the web site are:

- **Desert Locust Bulletins.** Previous FAO bulletins dating from 1979 to the present (Archives section)

- **National Locust Information Officer training.** An overview of the 11-month programme in DLIS (Activities – DLIS section)

Links to the above information can be found in the *Latest Additions* section on Locust Watch.

2008-2009 events. The following activities are scheduled:

- **SWAC.** 26th Session, Kabul (15-17 December)
- **EMPRES/WR.** 7th Liaison Officers meeting, Niamey (15-19 December)
- **EMPRES/WR.** 4th Steering Committee meeting, Niamey (22-23 December)
- **DLCC.** 39th Session, Rome (10-13 March)

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.

WARNING LEVELS

GREEN

- Calm. No threat to crops. Maintain regular surveys and monitoring.

YELLOW

- Caution. Potential threat to crops. Increased vigilance is required; control operations may be needed.

ORANGE

- Threat. Threat to crops. Survey and control operations must be undertaken.

RED

- Danger. Significant threat to crops. Intensive survey and control operations must be undertaken.

REGIONS

WESTERN

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

CENTRAL

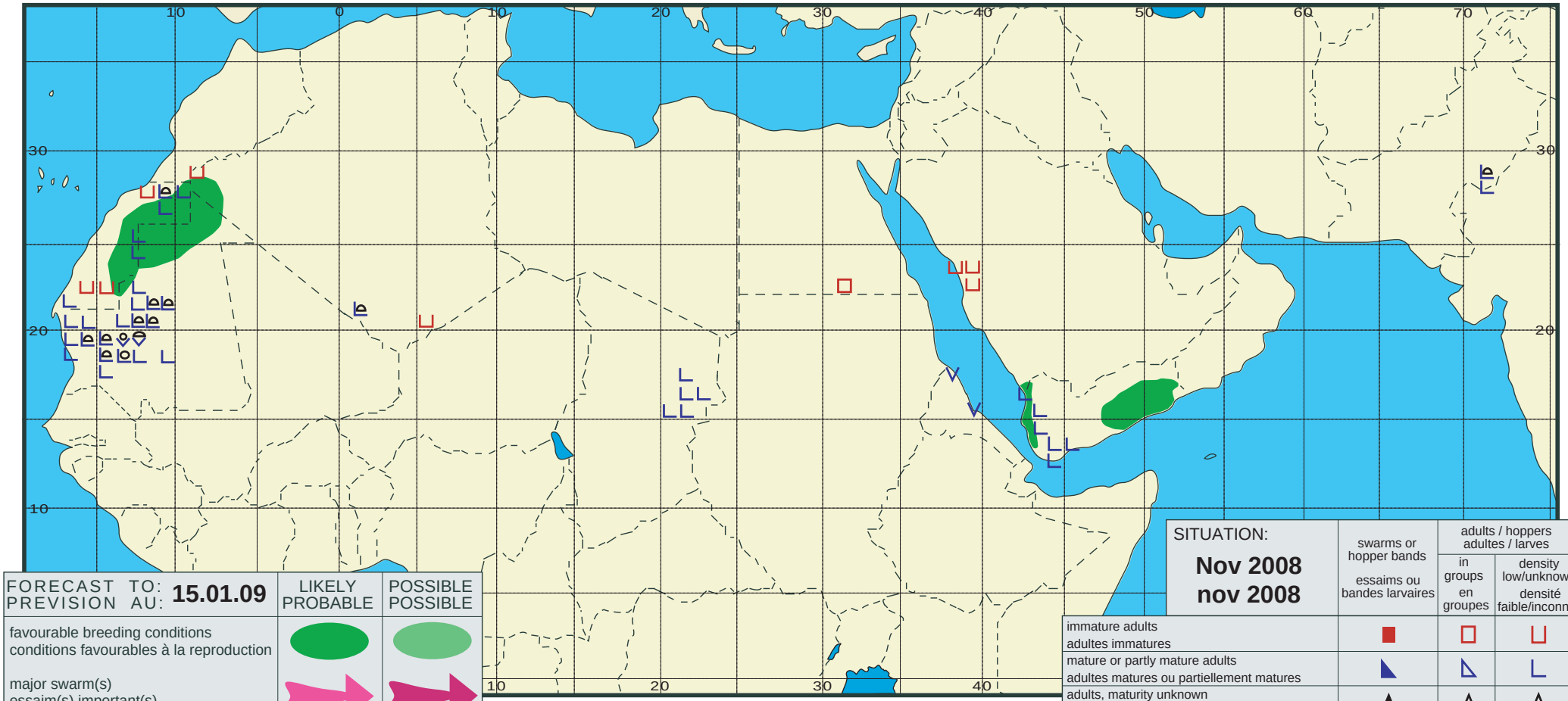
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

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

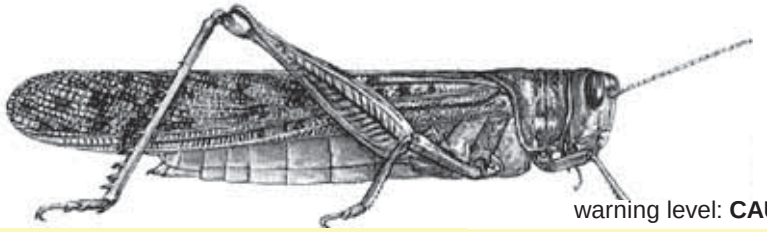
Desert Locust Summary
Criquet pèlerin - Situation résumée

362



FORECAST TO: / PREVISION AU: **15.01.09**	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 2008 nov 2008**	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)	◘	◙	◒



warning level: **CAUTION (Mauritania)**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations

No. 363

(31 December 2008)

General Situation during December 2008 Forecast until mid-February 2009

In early December, there was a sharp increase in locust activity in northwest Mauritania where hoppers and adults formed small groups in a limited but remote area of sand dunes. National teams were immediately mobilized and treated more than 14,000 ha which brought the situation under control by the end of the month. Nevertheless, there is a moderate risk that low numbers of residual adults will move to northern Mauritania and adjacent areas of Western Sahara, Morocco and western Algeria. Therefore, surveys in these areas should be intensified. Elsewhere, the Desert Locust situation remained calm as little rain fell in the recession area for the second consecutive month. Consequently, only a few locusts were present in the winter breeding areas along both sides of the Red Sea, and breeding was reported in Eritrea and Saudi Arabia. During the forecast period, small-scale breeding is expected to occur on both sides of the Red Sea and on the northwest coast of Somalia. Although locust numbers may increase slightly, no significant developments are expected.

Western Region. As vegetation began to dry out in northwest **Mauritania** in early December, solitarious hoppers concentrated and increased in density, fledged and formed small groups of adults. The infestations, which originated from local breeding during the autumn, were confined to a relatively small area east of Nouakchott. In order to prevent further grouping and the possibility of swarm formation, ground teams treated most of the infestations. As a precaution, surveys were increased in **Western Sahara** and **Morocco**, especially in those areas that received unusually heavy rains in September, but no locusts were found. Nevertheless, regular surveys should be maintained in order to detect any adult movement and breeding that could occur during the forecast period. No surveys were carried out and no locusts were reported elsewhere in the Region although low numbers of adults may be present and could persist in northern **Mali**, **Niger** and southern **Algeria**.

Central Region. Low numbers of solitarious adults were present and breeding during December in the winter breeding areas along the Red Sea coast in **Saudi Arabia** and **Eritrea**. A similar situation is likely in **Yemen**. Scattered adults were present on the coast in **Sudan**. Ecological conditions were more favourable along the northern Eritrean coast than in the other countries. At the end of the month, there were unconfirmed reports of locusts near the Sudanese border. Unless additional rains fall, only limited breeding is expected to occur during the forecast period along the Red Sea coast. Small-scale breeding is also likely to take place on the northwest coast in northern **Somalia** where ecological conditions improved during December. Consequently, the situation is expected to remain calm in the Region.

Eastern Region. The locust situation remained calm in the Region during December as generally dry conditions prevailed and no locusts were reported. A few adults could appear by the end of the forecast period in coastal areas of Baluchistan in southeast **Iran** and western **Pakistan**. Early breeding may occur if rains fall and temperatures remain warm.

The FAO Desert Bulletin is issued monthly, supplemented by Updates during periods of increased Desert Locust activity, and is distributed by e-mail, FAO pouch and airmail by the Locusts and Other Migratory Pests Group, AGP Division, FAO, 00153 Rome, Italy. It is also available on the Internet.
Telephone: +39 06 570 52420 (7 days/week, 24 hr)
Facsimile: +39 06 570 55271
E-mail: eclo@fao.org
Internet: www.fao.org
DLIS: www.fao.org/ag/locusts

No. 363

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in December 2008

Very little rain fell in the recession area during December for the second consecutive month. As a result, ecological conditions were favourable for breeding in only a few places along both sides of the Red Sea, in northwest Somalia and in northwest Africa.

In the **Western Region**, very little rain fell during December except for light showers in northwest Libya and northern parts of Western Sahara. Consequently, vegetation remained green in the northeast of Western Sahara east of Smara but was starting to dry out in some places further south between Tichla and Bir Anzarane. In northwest Mauritania, vegetation was green in Inchiri, northeast Trarza, southeast Adrar and in western Tiris Zemmour but by mid-month, it was drying out in the Zgueimir and Aouker areas south of Akjoujt. In the spring breeding areas, vegetation was green south of the Atlas Mountains in Morocco along the Algerian border south of Tata, and was becoming green in the northeast between Erfoud and Figuig. Elsewhere, green vegetation persisted in a few wadis in the Adrar des Iforas in northern Mali and in the Air Mountains in Niger.

In the **Central Region**, very little rain fell in December except for light showers on the Red Sea coast in Saudi Arabia between Jizan and Qunfidah, and on the eastern coast of central Oman between Marmul and Duqm. Nevertheless, ecological conditions improved in parts of the winter breeding areas along both sides of the Red Sea from November rains, mainly between Massawa (Eritrea) and Aqiq (Sudan), in the Tokar Delta, from Bayt Al Faqih to Al Zurah in Yemen, and between Jizan and Qunfidah in Saudi Arabia. Vegetation become green in northeast Sudan in Wadi Diib west of Sufiya but was dry further north in Egypt except on the coast between Abu Ramad and Halaib. Green vegetation developed along the Gulf of Aden coast in northwest Somalia between Lughaye and Djibouti, and in the interior of Yemen in Wadi Hadhramaut and the smaller wadis to the west up to Shabwah and north towards Minwakh. In Oman, vegetation was drying out in the Musandam and Dhofar regions.

In the **Eastern Region**, generally dry conditions prevailed throughout December. Light rain fell during the first half of the month in Rajasthan, India near Barmer and Jaisalmer but this is likely to have little impact on ecological conditions. Vegetation was drying out on the southeast coast of Iran near Jask.

Area Treated

Mauritania	925 ha (21-30 November)
	14,027 ha (1-27 December)

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

Nomads reported increased locust activity at the end of the first week of December when late instar hoppers formed numerous small patches and groups as vegetation dried out in the Zgueimir area east of Nouakchott between Aguilal Faye (1827N/1444W) and Akjoujt (1945N/1421W). The infestations were located between sand dunes within an area of about 50 km by 40 km. By the 10th, most of the hoppers had fledged and 90% of the population consisted of immature solitarious adults in small groups at densities up to 8,000 adults/ha and, in a few cases, 20 adults/m^2. Scattered solitarious hoppers and immature and mature adults were also present south of Aguilal Faye and Oujeft (2003N/1301W), and near Guelb er Richat (2107N/1124W), and scattered mature solitarious adults were seen in parts of Inchiri and near Zouerate (2244N/1221W). From the second decade onwards, an increasing number of isolated immature adults were seen west of Akjoujt, near Zouerate and close to Bir Moghrein (2510N/1135W), Ground teams treated 14,027 ha on 1-27 December, and the situation had calmed down by the end of the month.

• **FORECAST**

Some of the residual populations in the Zgueimir area are likely to persist while others will move north to Inchiri and Tiris Zemmour. In both cases, the immature adults will slowly mature due to low temperatures. Those adults that are already mature could lay eggs in areas where conditions are favourable, but subsequent hatching is expected to be limited. Surveys should be maintained in all areas to monitor the situation on a regular basis.

Mali

• **Situation**

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

• **Forecast**

Scattered locusts are likely to be present and are expected to persist in the main wadis of the Adrar des Iforas. Breeding is unlikely to occur unless there is rainfall during the forecast period.

Niger

• **Situation**

No reports were received in December.

• **Forecast**

Scattered locusts are likely to be present and are expected to persist in parts of the Air Mountains and breed on a small-scale if rains fall during the forecast period.

Chad

• **Situation**

No reports were received in December.

• **Forecast**

Low numbers of adults are likely to concentrate and persist in areas that remain green.

Senegal

• **Situation**

No reports were received in December.

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

No reports received.

• **Forecast**

Low numbers of solitarious adults are likely to be present and will persist in the extreme south along the Malian border between Bir Bou Mokhtar and Tin Zaouatene. Locust numbers could appear near Tindouf from adjacent areas in Mauritania.

Morocco

• **Situation**

No locusts were seen during surveys carried out in December along the Algerian border in the northeast between Bouanane (3202N/0303W) and Figuig (3207N/0113W) and south of Tata (2944N/0758W) as well as in the southern portion of the Western Sahara between Tichla (2137N/1453W) and Bir Anzarane (2353N/1431W).

• **Forecast**

Locust numbers will increase slightly in Western Sahara as low numbers of adults are likely to arrive from adjacent areas in northwest Mauritania. Surveys should be maintained to monitor the situation on a regular basis.

Libyan Arab Jamahiriya

• **Situation**

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

• **Forecast**

No significant developments are likely.

Tunisia

• **Situation**

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

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During December, scattered mature solitarious adults were present at densities up to 100 adults/ha on the Red Sea coast near Suakin (1906N/3719E) and Aqiq (1813N3811E) and in subcoastal areas in Wadi Diib near Tomala (2002N/3551E). No locusts were seen in the Tokar Delta or Khor Baraka.

• Forecast

Small-scale breeding will occur on the Red Sea coastal plains between Suakin and Karora and in Wadi Diib near Tomala and Sufiya. Breeding may also take place in the Tokar Delta and other areas that receive any rainfall or runoff. Consequently, locust numbers will increase slightly during the forecast period.

Eritrea

• **Situation**

As a result of small-scale breeding in November on the Red Sea coast, isolated second to fourth instar hoppers and mature solitarious adults were seen at two places on the edge of the Akbanazouf Plain northeast of Shelshela (1553N/3906E) on 18-21 December. At the end of the month, there were

unconfirmed reports from travelers and nomads of hopper bands on the coast near the Sudanese border.

• **Forecast**

Local breeding will continue on the Red Sea coast near Shelshela where fledging will occur in January. Small-scale breeding is likely to be in progress in other areas between Sheib and Karora and will continue during the forecast period, causing locust numbers to increase slightly.

Ethiopia

• **Situation**

No surveys were carried out and no locusts were reported from 3 November to mid December.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No reports were received in December.

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

No locusts were seen during a survey carried out on 14-20 December along the northwest coast between Djibouti and Berbera (1028N/4502E) as well as on the plateau between Hargeisa (0931N/4402E) and Boroma (0956N/4313E).

• **Forecast**

Solitarious adults are expected to appear on the northwest coast west of Lughaye and breed on a small scale in areas of green vegetation.

Egypt

• **Situation**

During December, three ha were infested with mature solitarious adults near Abu Simbel (2219N/3138E). No locusts were seen during surveys in the Allaqi area east of Lake Nasser and on the Red Sea coast and nearby interior areas south of Abu Ramad (2224N/3624E).

• **Forecast**

Isolated adults are likely to persist near Lake Nasser. Low numbers of adults could appear on the southern coast of the Red Sea near Abu Ramad and breed if rainfall occurs.

Saudi Arabia

• **Situation**

During December, isolated immature and mature solitarious adults persisted in a few farms on the Red Sea coast north of Jeddah (2130N/3910E). Isolated adults were seen on the coast south of Jeddah near Lith (2008N/4016E) and Qunfidah (1909N/4107E), and a few adults were copulating during the second week near Lith. No locusts were seen elsewhere on the coast or in the interior.

• **Forecast**

Limited hatching will occur on the Red Sea coast near Lith early in the forecast period. Small-scale breeding is also likely to take place in areas of recent rainfall, mainly between Jizan and Qunfidah, causing locust numbers to increase slightly.

Yemen

• **Situation**

No reports received.

• **Forecast**

Low numbers of adults are likely to be present along the Red Sea coastal plains and on the Gulf of Aden coast near Aden. Small-scale breeding is probably in progress in both areas and is expected to continue during the forecast period, causing locust numbers to increase slightly. There is a low risk that scattered adults could be present in Wadi Hadhramaut and some of the smaller wadis to the west up to Shabwah and north towards Minwakh.

Oman

• **Situation**

No locusts were seen during surveys carried out in the Musandam and Dhofar regions during December.

• **Forecast**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, Syria, Tanzania, Turkey, Uganda and UAE

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

No locusts were seen during surveys carried out on the southeast coast near Jask (2540N/5746E) from 27 November to 8 December.

• **Forecast**

Low numbers of adults could appear on the southeast coast between Jask and the Pakistani border and breed on a small-scale if rainfall occurs and temperatures remain warm.

Pakistan

• **SITUATION**

During the second half of November, locust numbers declined in the Cholistan Desert along the Indian border south of Bahawalpur (2924N/7147E). Immature and mature solitarious adults at densities up to 100 adults/ha were seen at 15 places.

No locust activity was reported in the summer breeding areas during the first half of December.

• **FORECAST**

Low numbers of adults could appear on the Baluchistan coast between Pasni and the Iranian border and breed on a small-scale if rainfall occurs and temperatures remain warm.

India

• **SITUATION**

No locusts were seen during extensive surveys in Rajasthan and Gujarat in the second half of November and in December.

• **FORECAST**

No significant developments are likely.

Afghanistan

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Announcements

Desert Locust warning levels. A colour-coded scheme indicates the seriousness of the current Desert Locust situation: green for *calm*, yellow for *caution*, orange for *threat* and red for *danger*. The scheme is applied to the Locust Watch web page and to the monthly bulletin's header. The levels indicate the perceived risk or threat of current Desert Locust infestations to crops and appropriate actions are suggested for each level.

Locust reporting. During calm (green) periods, countries should report at least once/month and send RAMSES data with a brief interpretation. During caution (yellow), threat (orange) and danger (red) periods, often associated with locust outbreaks, upsurges and plagues, RAMSES output files with a brief interpretation should be sent at least twice/week within 48 hours of the latest survey. Affected countries are also encouraged to prepare decadal bulletins summarizing the situation. All information should be sent by e-mail to the FAO/ECLO Desert Locust Information Service (eclo@fao.org). Information received by the end of the month will be included in the FAO Desert Locust Bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Google group. FAO DLIS has established a Google group for national locust information officers to exchange opinions and share experiences regarding data management and analysis, GIS, eLocust2 and satellite imagery. Interested information officers should contact DLIS (eclo@fao.org) for details.

MODIS imagery. Columbia University's International Research Institute for Climate and Society (IRI) provides 16-day 250-metre resolution MODIS imagery as well as daily and decadal rainfall imagery for monitoring breeding conditions in the Desert Locust recession area. These products can be downloaded in different formats suitable for GIS at: http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/index.html. The site is available in English and French. Address comments and questions to Pietro Ceccato (pceccato@iri.columbia.edu).

New information on Locust Watch. Recent additions to the web site are:

- **Desert Locust Bulletins.** Previous FAO bulletins dating from 1979 to the present (Archives section)

Links to the above information can be found in the *Latest Additions* section on Locust Watch.

2009 events. The following activities are scheduled:

- **DLCC.** 39th Session, Rome (10-13 March)

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.

WARNING LEVELS

GREEN

- Calm. No threat to crops. Maintain regular surveys and monitoring.

YELLOW

- Caution. Potential threat to crops. Increased vigilance is required; control operations may be needed.

ORANGE

- Threat. Threat to crops. Survey and control operations must be undertaken.

RED

- Danger. Significant threat to crops. Intensive survey and control operations must be undertaken.

REGIONS

WESTERN

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

CENTRAL

- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

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

Desert Locust Summary
Criquet pèlerin - Situation résumée

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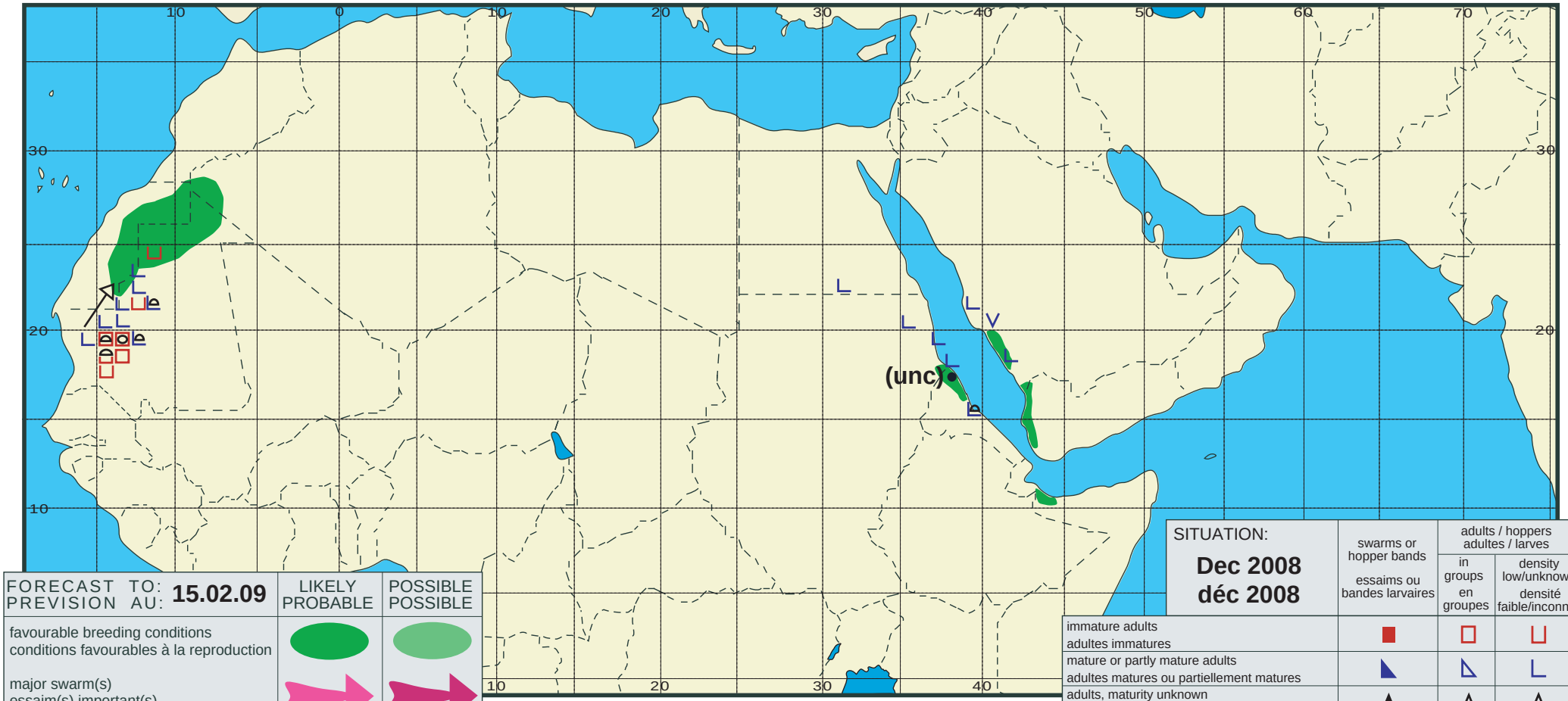

FORECAST TO: / PREVISION AU: **15.02.09**	LIKELY / PROBABLE	POSSIBLE / POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **Dec 2008 déc 2008**	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	▲	△	⋀
egg laying or eggs pontes ou œufs	▼	▽	⋁
hoppers larves	●	○	◡
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)	◘	◙	◒