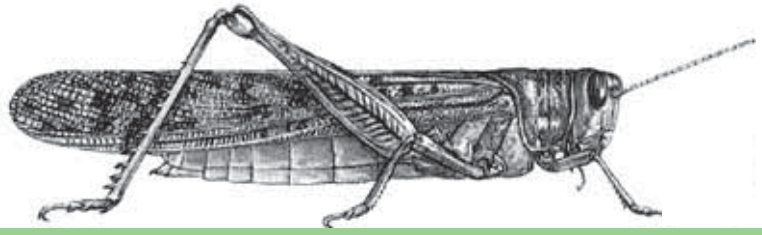

warning level: **CALM**

# DESERT LOCUST BULLETIN

**FAO Emergency Centre for Locust Operations** **No. 376**

*(3 Feb 2010)*

## General Situation during January 2010
## Forecast until mid-March 2010

**The Desert Locust situation remained calm in all countries during January. Ecological conditions are less favourable than normal in the winter breeding areas along both sides of the Red Sea because of poor rainfall. Consequently, only insignificant numbers of locusts were present on the coast of Egypt, Sudan and Yemen. Although small-scale breeding occurred in northwest Mauritania and in Niger where scattered solitarious adults were present, locust numbers remained below threatening levels. A few locusts were also reported in northeast Morocco and in southern Algeria. No significant developments are likely during the forecast period.**

**Western Region.** The locust situation remained calm during January throughout the Region. Scattered solitarious adults were present in northwest and northern **Mauritania**, and limited breeding took place in the few areas that remained green. Low numbers of locusts will persist and limited hatching could occur during the forecast period. In **Niger**, scattered adults moved from the Tamesna Plains to the Air Mountains where favourable ecological conditions could allow small-scale breeding in the coming months. A few adults probably also moved north into southern **Algeria** where isolated adults were reported near the Niger border. Isolated adults were also present in northeast **Morocco**. During the forecast period, low numbers of adults are likely to move into the central Sahara in Algeria and along the southern side of the Atlas Mountains in Morocco. Once temperatures warm up and if good rains fall, small-scale breeding could take place in these areas but locust numbers will remain low.

**Central Region.** The locust situation remained calm during January because of poor rainfall in the winter breeding areas along both sides of the Red Sea. Small-scale breeding occurred on the coast of **Egypt** near the Sudanese border. Scattered adults were present on the coast of **Sudan**, mainly near the Eritrean border, and on the coast of **Yemen**. Unless further rains fall, locust populations will decline along both sides of the Red Sea, and no significant developments are likely.

**Eastern Region.** No locusts were reported in the region during January. Light rains fell along the coast in the spring breeding areas of southeast **Iran** and western **Pakistan**. Low numbers of adults are likely to appear in these areas and breed on a small scale if more rains fall during the forecast period. Regular surveys are recommended in both countries to monitor the situation from February onwards.

The FAO Desert Locust Bulletin is issued every month by the Desert Locust Information Service, AGP Division (Rome, Italy). It is supplemented by Alerts and Updates during periods of increased Desert Locust activity. All products are distributed by e-mail and made available on the Internet.
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## Weather & Ecological Conditions in January 2010

**As very little rain fell in the Desert Locust recession area during January, ecological conditions remained generally unfavourable for breeding in the winter areas along both sides of the Red Sea.**

In the **Western Region**, no significant rain fell in the Desert Locust recession area during January. Consequently vegetation continued to dry out in northwest and northern Mauritania, but ecological conditions remained sufficiently favourable for locust survival and limited breeding mainly in the wadis and other low-lying areas of Inchiri, Adrar and Tiris Zemmour. In Niger, green vegetation and standing water from earlier rainfall were present in some places on the eastern side of the Air Mountains where conditions were favourable for breeding. Vegetation was also green in central and western Air but was drying out on the Tamesna Plains because of a lack of recent rainfall. In Morocco, annual vegetation remained green on the southern and southeastern sides of the Atlas Mountains in the Ziz-Ghris Valley and near Figuig and the Algerian border. In Algeria, favourable ecological conditions persisted in the extreme south near the borders of Mali and Niger but remained dry in the west near Tindouf. Elsewhere in the Region, conditions were dry.

In the **Central Region**, very little rain fell in the winter breeding areas along both sides of the Red Sea and Gulf of Aden during January. In Sudan, light showers fell at times on the Red Sea coast during the first half of the month and ecological conditions were favourable for breeding primarily in the Tokar Delta and on the coastal plains between Aiterba and the Eritrean border. In Eritrea, light to moderate rains fell on the central Red Sea coast for a few days during the last decade of the month. Vegetation was green or becoming green on the central coast near Sheib and the Akbanazouf Plain but was dry further north near Afabet. In Egypt, vegetation was mainly dry in most areas except on the Red Sea coastal plains between Abu Ramad and the Sudanese border. Heavy rains and flooding occurred in parts of the Sinai Peninsula as well as near Aswan, Egypt on 18-20 January; however, this is not likely to have an impact on locust populations. In Saudi Arabia, light to moderate rain fell in the northern interior and on the northern coast of the Red Sea near Al Wejh. Further south, vegetation was becoming green on the coast near Rabigh. In Yemen, light to moderate showers fell in a few places along the Red Sea coastal plains in early January; nevertheless, ecological conditions were generally dry. Although light rains fell at times on the northwest coast of Somalia, vegetation remained dry there as well as on the plateau. In Oman, light showers fell at times, mainly in the north and vegetation was becoming green along the northern Batinah coast and in the northern interior areas of Dhahira and Dakhliya.

In the **Eastern Region**, light rain fell during January in parts of the spring breeding areas in western Pakistan and southeast Iran. Most of the rain fell along the coast of Baluchistan between Jask, Iran and Pasni, Pakistan, while some showers also occurred in the interior near Panjgur, Pakistan. Consequently, ecological conditions were improving in most coastal areas. Light rain also fell in parts of Rajasthan, India where vegetation remained dry.

## Area Treated

No control operations were reported during January.

## Desert Locust Situation and Forecast

*( see also the summary on page 1 )*

**WESTERN REGION**

**Mauritania**

• **Situation**

During January, small-scale breeding continued in parts of the northwest and north where mainly isolated late instar solitarious hoppers were present in a few places near Akjoujt (1945N/1421W), Oujeft (2003N/1301W), Chinguetti (2027N/1221W) and Zouerate (2244N/1221W). Scattered solitarious immature and mature adults at densities less than 600 adults/ha were seen in these areas as well as east of Nouakchott, between Atar (2032N/1308W) and Ouadane (2056N/1137W) and in the extreme north near Bir Moghrein (2510N/1135W). Limited egg laying was reported near Oujeft and Chinguetti.

• **Forecast**

*Low numbers of solitarious adults will persist in parts of the north and west of the country. Limited hatching will occur in parts of Inchiri and Adrar but*

*locust numbers will remain below threatening levels. During periods of warm southerly winds, scattered adults may move towards the north.*

**Mali**

• **Situation**

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

• **Forecast**

*Low numbers of adults are likely to be present and will persist in parts of the Adrar des Iforas.*

**Niger**

• **Situation**

During the second half of January, isolated solitarious immature adults were seen in a few wadis in southeastern Air Mountains to the south and east of Timia (1809N/0846E). Isolated fourth instar solitarious hoppers were also seen at one place.

• Forecast

*Low numbers of adults are expected to persist in the east and southeast of the Air Mountains where they will mature and could breed on a small-scale in areas that remain favourable, especially if more rains fall.*

**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, Guinea Bissau, Liberia, Nigeria, Sierra Leone and Togo**

• **Forecast**

*No significant developments are likely.*

**Algeria**

• **Situation**

During January, isolated immature and mature solitarious adults persisted in the extreme south near In Guezzam (1937N/0552E) and the Niger border. No locusts were seen during surveys carried out in the south near Tamanrasset (2250N/0528E) and Bir Bou Mokhtar (2120N/0056E).

• **Forecast**

*Low numbers of locusts are expected to persist in the southern Sahara while scattered adults could move from the south and appear in the central and northwest Sahara and breed on a small scale as temperatures warm up during the forecast period.*

**Morocco**

• **Situation**

During January, isolated immature and mature solitarious adults were present in a few places in the northeast on the southeastern side of the Atlas Mountains near Figuig (3207N/0113W) and the Algerian border. No locusts were reported elsewhere.

• **Forecast**

*Low numbers of adults will persist on the southern and southeastern side of the Atlas Mountains. Small-scale breeding could occur if more rains fall as temperatures warm up during the forecast period.*

**Libyan Arab Jamahiriya**

• **Situation**

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

• **Forecast**

*Low numbers of locusts are likely to be present and will persist in the southwest near Ghat. Small-scale breeding could occur if rains fall and temperatures remain warm.*

**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 the first half of January, scattered mature solitarious adults at densities up to 150 adults/ha were seen in a few places on the Red Sea coast, mainly on the southern plains between Aiterba (1753N/3819E) and the Eritrean border and, to a lesser extent, in the Tokar Delta and on the northern coast near Oseif (2146N/3651E). No locusts were seen after mid-month in the above areas as well as in Wadi Diib near Sufiya (2119N/3613E).

• **Forecast**

*Small-scale breeding may occur early in the forecast period in the Tokar Delta and on the southern*

*coast; otherwise, locust numbers will decline unless further rains fall.*

**Eritrea**

• **Situation**

No locusts were seen during a survey carried out in the last week of January on the central Red Sea coast between Sheib (1551N/3903E) and Afabet (1612N/3841E).

• **Forecast**

*Small-scale breeding is expected to occur on the central Red Sea coast near Sheib and Shelshela, causing locust numbers to increase slightly but remain below threatening levels. Regular monitoring should continue during the forecast period.*

**Ethiopia**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**Djibouti**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**Somalia**

• **Situation**

During January, no locusts were seen during surveys carried out on the plateau between Boroma (0956N/4313E) and Burao (0931N/4533E) and on the northwest coast between Silil (1058N/4326E) and Berbera (1028N/4502E).

• **Forecast**

*No significant developments are likely.*

**Egypt**

• **Situation**

During January, isolated third and fourth instar solitarious hoppers were present at one place on the Red Sea coast south of Halaib (2213N/3638E) near the Sudanese border. No locusts were seen during surveys elsewhere on the coast as far north as Marsa Alam (2504N/3454E) or near Lake Nasser.

• **Forecast**

*Unless further rains fall, breeding will come to an end on the Red Sea coast south of Shalatyn and locust numbers will decline.*

**Saudi Arabia**

• **Situation**

No locusts were seen during surveys carried out in January on the Red Sea coast near Rabigh (2247N/3901E), in the Asir Mountains near Khamis Mushait (1819N/4245E) and in the interior near Buraydah (2621N/4358E).

• **Forecast**

*Unless further rains fall, locust numbers will remain low or absent.*

**Yemen**

• **Situation**

During January, isolated immature and mature solitarious adults were present at a few places on the Red Sea coast near Hodeidah (1450N/4258E). No locusts were seen elsewhere along the coast.

• **Forecast**

*Low numbers of locusts will persist along the Red Sea coastal plains. Similar populations may be present on the Gulf of Aden coastal plains near Aden and Zinjibar but locust numbers will remain low unless further rains fall.*

**Oman**

• **Situation**

No locusts were seen during surveys carried out in January along the northern Batinah coast, in the interior of Dhahira, Dakhliya and Sharqiya, and in the southern region of Dhofar.

• **Forecast**

*Low numbers of adults could appear and breed on a small scale in areas of recent rainfall in the northern interior and coastal 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 January, no locusts were seen during surveys carried out on the southeast coast between Jask (2540N/5746E) and the Pakistani border, and in the western portion of the Jaz Murian Basin southeast of Kahnuj (2757N/5742E).

• **Forecast**

*Low numbers of adults could appear in the spring breeding areas along the southeast coast and breed on a small scale in areas of recent rainfall.*

**Pakistan**

• **Situation**

No locusts were reported during the second fortnight of December and throughout January.

• Forecast

*Low numbers of adults could appear in the spring breeding areas along the coast of Baluchistan and breed on a small scale in areas of recent rainfall.*

**India**

• **Situation**

No locusts were seen during intensive surveys carried out in January in the summer breeding areas in Rajasthan and Gujarat.

• **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, eLocust2Mapper 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 (www.fao.org/ag/locusts) are:

- **Desert Locust situation updates.** Archives Section – Briefs
- **Desert Locust risk map update.** Archives Section – Risk maps
- **Mauritania outbreak overview.** Information Section – home page
- **CLCPANO session reports.** Publications Section – Regional commission reports

**Locust Watch in Caucasus and Central Asia.** The Locust Group at FAO has launched a new website (www.fao.org/ag/locusts-CCA/en/index.html) that contains information in English and Russian on three locust pests in the Caucasus and Central Asia, the current situation, potential impact on food security, and national and regional level activities.

**2010 events.** The following activities are scheduled or planned:

- **EMPRES/WR Phase 2.** Planning meeting, Dakar (8-12 March)

- **SWAC/CRC Locust Information Officers.** 3rd Inter-regional workshop on the use and improvement of RAMSES and eLocust2, Cairo (18-19 April)
- **SWAC/CRC Master Trainers.** 2nd Master Trainers training course, Iran (8-13 May)
- **CLCPRO.** 6th session of Executive Committee, Ouagadougou, Burkina Faso (28-30 June)
- **SWAC.** 27th session, venue to be determined (Dec)

## 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**

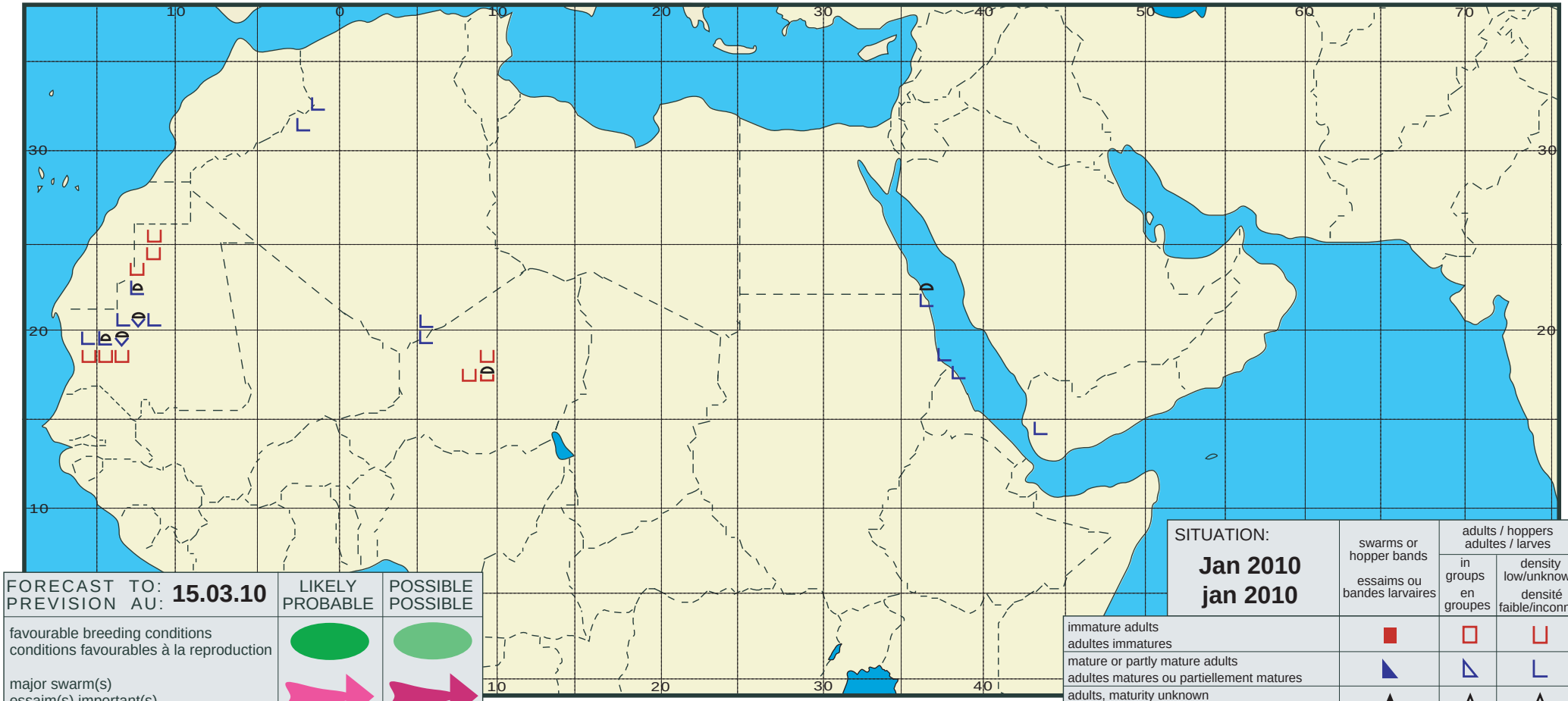
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

**EASTERN**

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

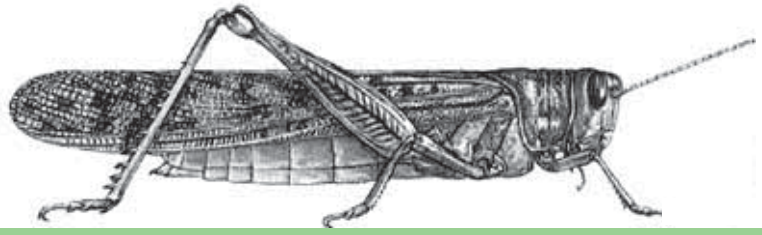
# Desert Locust Summary
# Criquet pèlerin - Situation résumée

**376**




| FORECAST TO: / PREVISION AU: **15.03.10** | LIKELY / PROBABLE | POSSIBLE / POSSIBLE |
|---|---|---|
| favourable breeding conditions<br>conditions favourables à la reproduction | | |
| major swarm(s)<br>essaim(s) important(s) | | |
| minor swarm(s)<br>essaim(s) limité(s) | | |
| non swarming adults<br>adultes non essaimant | | |

| SITUATION: **Jan 2010 / jan 2010** | swarms or hopper bands<br>essaims ou bandes larvaires | adults / hoppers adultes / larves: in groups en groupes | adults / hoppers adultes / larves: density low/unknown densité faible/inconnue |
|---|---|---|---|
| immature adults<br>adultes immatures | | | |
| mature or partly mature adults<br>adultes matures ou partiellement matures | | | |
| adults, maturity unknown<br>adultes, maturité inconnue | | | |
| egg laying or eggs<br>pontes ou œufs | | | |
| hoppers<br>larves | | | |
| hoppers & adults (combined symbol example)<br>larves et adultes (exemple symboles combinés) | | | |



warning level: **CALM**

# DESERT LOCUST BULLETIN

**FAO Emergency Centre for Locust Operations**

**No. 377**

*(3 Mar 2010)*

## General Situation during February 2010
## Forecast until mid-April 2010

**The Desert Locust situation continued to remain calm during February in all countries primarily due to a lack of rainfall and poor ecological conditions. Only low numbers of solitarious locusts were reported in parts of Mauritania, Libya, Sudan and Saudi Arabia. Nevertheless, national teams continue to undertake ground surveys and monitor the situation on a regular basis. During the forecast period, scattered adults are expected to persist in the above-mentioned countries. If more rains fall, small-scale breeding could occur in the spring breeding areas of northwest Africa and southwest Asia but locust numbers will remain below threatening levels and no significant developments are expected.**

**Western Region.** The locust situation remained calm during February throughout the Region. Scattered solitarious adults and a few hoppers were present in northwest and northern **Mauritania** where low numbers of locusts will persist in those areas that remain green during the forecast period. In **Libya**, some scattered adults were seen laying eggs in the southwest near the Algerian border. Low numbers of adults may also be present and will persist in parts of the Adrar des Iforas in northern **Mali** and the Air Mountains in **Niger** but surveys could not be undertaken to confirm this. No locusts were reported elsewhere in the Region.

**Central Region.** The locust situation remained calm during February. Rainfall along both sides of the Red Sea has been unusually poor this winter and, consequently, only limited breeding occurred in a few coastal areas of **Sudan** and **Saudi Arabia**. No locusts were reported elsewhere in the Region. Unless further rains fall, locust numbers will decline along both sides of the Red Sea and Gulf of Aden during the forecast period, and no significant developments are likely.

**Eastern Region.** No locusts were reported in the Region during February. Good rains fell in the spring breeding areas along the coast of southeast **Iran** and western **Pakistan** that could lead to small-scale breeding during the forecast period. Regular surveys are recommended in both countries to monitor the situation.

The FAO Desert Locust Bulletin is issued every month by the Desert Locust Information Service, AGP Division (Rome, Italy). It is supplemented by Alerts and Updates during periods of increased Desert Locust activity. All products are distributed by e-mail and made available on the Internet.
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**DLIS:** www.fao.org/ag/locusts

## Weather & Ecological Conditions in February 2010

**Ecological conditions in the winter breeding areas remained generally unfavourable for the fifth consecutive month because of poor rainfall. Conditions are expected to improve in the spring breeding areas in southeastern Iran and western Pakistan from good rains that fell in February.**

In the **Western Region**, no significant rain fell in the Desert Locust breeding areas during February. Consequently, mainly dry conditions persisted except in parts of northwest and northern Mauritania where vegetation was sufficiently green to allow locusts to survive in a few places. Smaller patches of green vegetation may be present in a few limited areas of the Adrar des Iforas in northern Mali and the Air Mountains in Niger. In Northwest Africa, moderate rains fell south of the Atlas Mountains along the Algerian/Moroccan border, causing flooding in some wadis. In Morocco, annual vegetation remained green on the southern and southeastern sides of the Atlas Mountains in the Ziz-Ghris Valley and near Figuig and the Algerian border. Small patches of green vegetation were present in the Western Sahara near Aousserd. Heavier rains fell on the northern side of the Atlas Mountains in Morocco but these have no impact on the locust situation. In Algeria, ecological conditions were favourable for breeding in parts of the central and western Sahara near Adrar, southwest of Bechar and near Tindouf.

In the **Central Region**, no significant rain fell along the western side of the Red Sea during February. Consequently, ecological conditions were not favourable for breeding along the coast of Egypt, Sudan and Eritrea. In Saudi Arabia, light rains fell in the interior near Buraydah and Riyadh in early February and on the Red Sea coast between Jeddah and Qunfidah at mid-month. Vegetation was green and ecological conditions were favourable for breeding. In Yemen, light rain fell during the second and fourth weeks in parts of the south in Lahij, and in the summer breeding areas in the interior of Shabwah and Hadhramaut. Vegetation was green in a few places near Aden but was dry elsewhere, including along the Red Sea coast. In Oman, light to moderate rains fell at times in the north during early and late February. Consequently, ecological conditions became favourable for breeding in parts of the northern coast and interior regions of Buraimi, Dakhliya, and Sharqiya. Light rains fell in eastern Ethiopia in late February near Dire Dawa and Jijiga, extending to parts of the plateau and escarpment in northern Somalia. Ecological conditions remained dry in the winter breeding areas on the coastal plains in northwestern Somalia.

In the **Eastern Region**, good rains fell in the spring breeding areas along the coast of southeast Iran and western Pakistan in February. Consequently, ecological conditions were improving between Minab, Iran and Pasni, Pakistan and vegetation was becoming green. Light rains also fell at the end of the month in parts of the Jaz Murian Basin in the interior of southeastern Iran.

## Area Treated

No control operations were reported during February.

## Desert Locust Situation and Forecast

*( see also the summary on page 1 )*

**WESTERN REGION**

**Mauritania**

• **SITUATION**

During February, small-scale breeding continued in parts of the northwest and north where mainly isolated late instar solitarious hoppers were present in a few places near Akjoujt (1945N/1421W), Oujeft (2003N/1301W), and Zouerate (2244N/1221W), mixed with scattered solitarious immature and mature adults at densities of less than 100 adults/ha. Scattered adults also persisted near Ouadane (2056N/1137W).

• **FORECAST**

*Low numbers of solitarious adults will persist in parts of Inchiri, southwest Adrar and southern Tiris-Zemmour. Limited breeding could occur in areas that receive rainfall during the forecast period but locust numbers will remain below threatening levels. During periods of warm southerly winds, scattered adults may move towards the north.*

**Mali**

• **SITUATION**

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

• **Forecast**

*Low numbers of adults are likely to be present and will persist in parts of the Adrar des Iforas.*

**Niger**

• **Situation**

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

• Forecast

*Low numbers of adults are expected to persist in the east and southeast of the Air Mountains where they will mature and could breed on a small-scale in areas that remain favourable, especially if more rains fall.*

**Chad**

• **Situation**

No reports were received during February.

• **Forecast**

*No significant developments are likely.*

**Senegal**

• **Situation**

No reports were received during February.

• **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 February in the west between Tindouf (2741N/0811W) and the Mauritanian border, and in the central Sahara near Adrar (2753N/0017W), and between In Salah (2712N/0229E) and Tamanrasset (2250N/0528E).

• **Forecast**

*Low numbers of locusts may be present in parts of the central and southern Sahara that could move northwest towards the Atlas Mountains. Small-scale breeding could occur in areas of recent rainfall near Bechar and the Moroccan border.*

**Morocco**

• **Situation**

No locusts were reported during February.

• **Forecast**

*Low numbers of adults are likely to be present on the southern and southeastern side of the Atlas Mountains where they could breed on a small-scale if rainfall occurs.*

**Libyan Arab Jamahiriya**

• **Situation**

On 26-28 February, isolated and scattered solitarious adults were seen in the southwest near Ghat (2459N/1011E). Some of the adults were copulating and laying eggs.

• **Forecast**

*Limited hatching will occur near Ghat by mid March. Small-scale breeding could continue in the west between Ghat and Ghadames if rains occur during the forecast period.*

**Tunisia**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**CENTRAL REGION**

**Sudan**

• **Situation**

During February, isolated mature solitarious adults persisted in a few places on the Red Sea coast near Karora (1745N/3820E) and the Eritrean border, and at one place on the coast north of Tokar Delta. Further north near the Egyptian border, isolated mature solitarious adults mixed with third to fifth instar solitarious hoppers were present on the coast near Oseif (2146N/3651E) and in Wadi Diib northwest of Sufiya (2119N/3613E).

• **Forecast**

*Limited fledging will occur in the north during the first half of March. Thereafter, locust numbers will decline unless further rainfall occurs, and no significant developments are likely.*

**Eritrea**

• **Situation**

No locusts were seen during a survey carried out in the last week of February on the central Red Sea coast between Sheib (1551N/3903E) and Afabet (1612N/3841E).

• **Forecast**

*No significant developments are likely.*

**Ethiopia**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**Djibouti**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**Somalia**

• **Situation**

No locusts were seen during a survey carried out on the northwest coastal plains between the Djibouti border and Berbera (1028N/4502E) on 17-22 February.

• **Forecast**

*No significant developments are likely.*

**Egypt**

• **Situation**

No locusts were seen during surveys carried out in February on the Red Sea coast and nearby subcoastal areas between Hurghada (2717N/3347E) and the Sudanese border, along the western shore of Lake Nasser between Abu Simbel (2219N/3138E) and Tushka (2247N/3126E), and in the Western Desert southwest of Kharga (2525N/3034E).

• **Forecast**

*No significant developments are likely.*

**Saudi Arabia**

• **Situation**

During February, low numbers of scattered fledglings and mature solitarious adults were present on the Red Sea coast near Rabigh (2247N/3901E). Some of the adults were seen laying eggs in two areas, and isolated fourth instar hoppers were also reported nearby.

• **Forecast**

*Limited hatching will occur in early March near Rabigh and hoppers will fledge by the end of the forecast period. Small-scale breeding could occur in areas of recent rain on the central Red Sea coast between Jeddah and Qunfidah but locust numbers will remain low.*

**Yemen**

• **Situation**

No locusts were seen during surveys carried out on the coast west of Aden (1250N/4503E) on 1-2 February.

• **Forecast**

*Low numbers of locusts are likely to be present and will persist along parts of the Red Sea coastal plains. Breeding is unlikely to occur unless further rains fall.*

**Oman**

• **Situation**

No locusts were seen during surveys carried out in February along the northern Batinah coast, in the interior of Dhahira, Dakhliya and Sharqiya, and in the southern region of Dhofar.

• **Forecast**

*Low numbers of adults could appear and breed on a small scale in areas of recent rainfall in the northern interior and coastal 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 in February on the southeast coast between Bander-e Lengheh (2634N/5452E) and Chabahar (2517N/6036E).

• **Forecast**

*Low numbers of adults are likely to appear in the spring breeding areas along the southeast coast and breed on a small scale in areas of recent rainfall.*

**Pakistan**

• **Situation**

No locusts were reported during the first fortnight of February.

• Forecast

*Low numbers of adults will appear in the spring breeding areas along the coast of Baluchistan and breed on a small scale in areas of recent rainfall.*

**India**

• **Situation**

No locusts were seen during intensive surveys carried out in February in the summer breeding areas in Rajasthan and Gujarat.

• **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.

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**New information on Locust Watch.** Recent additions to the web site (www.fao.org/ag/locusts) are:
- **Desert Locust situation updates.** Archives Section – Briefs
- **Desert Locust risk map update.** Archives Section – Risk maps

**Locust Watch in Caucasus and Central Asia.** The Locust Group at FAO has launched a new website (www.fao.org/ag/locusts-CCA/en/index.html) that contains information in English and Russian on three locust pests in the Caucasus and Central Asia, the current situation, potential impact on food security, and national and regional level activities.

**2010 events.** The following activities are scheduled or planned:
- **EMPRES/WR Phase 2.** Planning meeting, Dakar (8-12 March)
- **SWAC/CRC Locust Information Officers.** 3rd Inter-regional workshop on the use and improvement of RAMSES and eLocust2, Cairo (18-19 April)
- **SWAC/CRC Master Trainers.** 2nd Master Trainers training course, Iran (8-13 May)
- **CLCPRO.** 6th session of Executive Committee, Ouagadougou (28-30 June)
- **CRC.** 31st session of Executive Committee and 27th session of Commission, Beirut (20-24 Sep)
- **SWAC.** 27th session, Islamabad (Dec)

## 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**

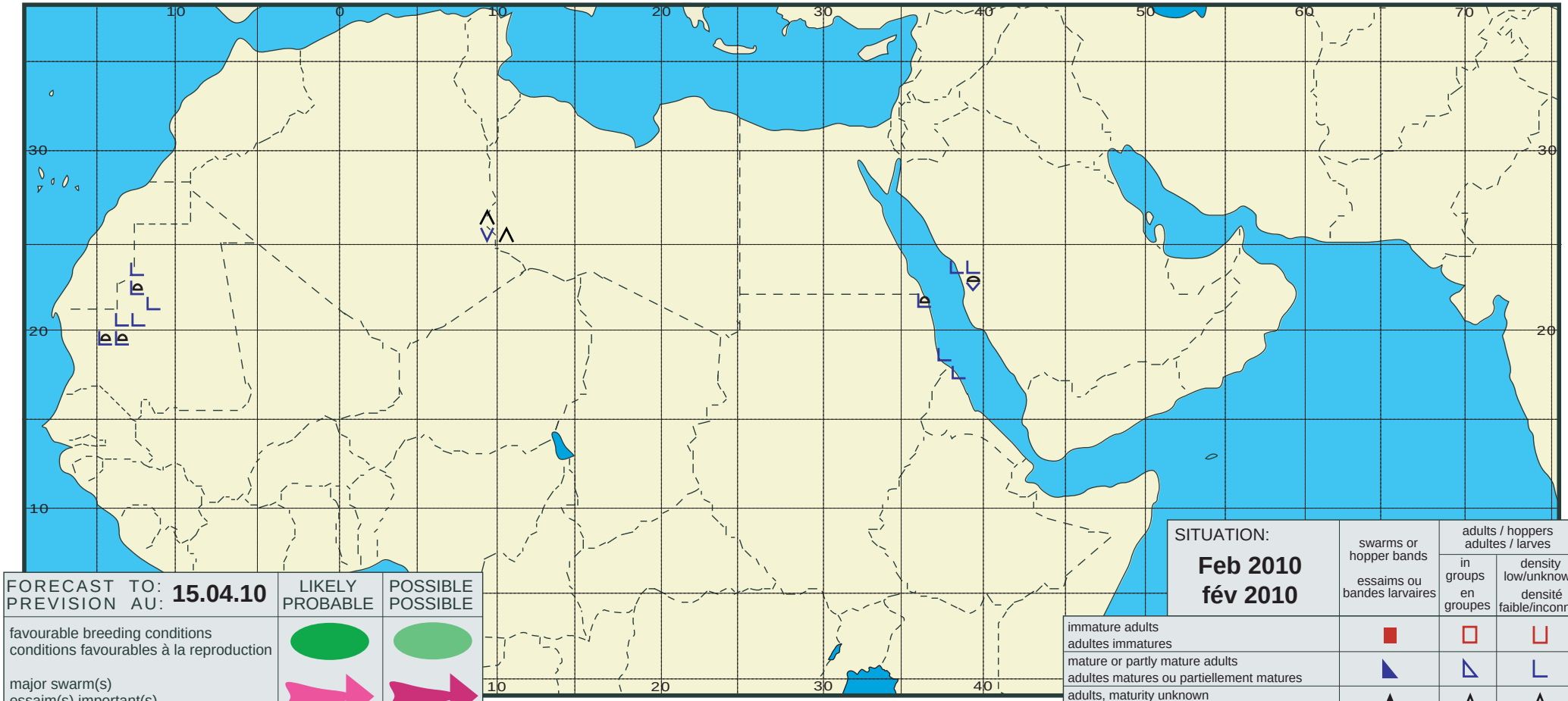
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

**EASTERN**

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

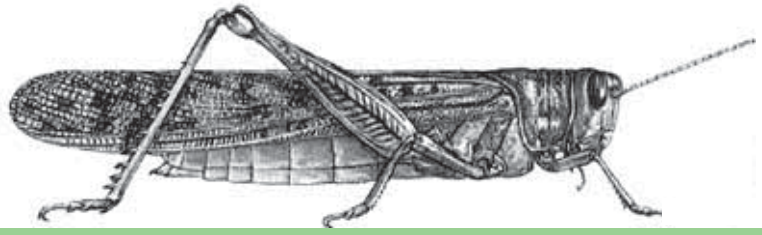
# Desert Locust Summary
# Criquet pèlerin - Situation résumée

**377**




| FORECAST TO: / PREVISION AU: **15.04.10** | LIKELY PROBABLE | POSSIBLE POSSIBLE |
|---|---|---|
| favourable breeding conditions<br>conditions favourables à la reproduction | | |
| major swarm(s)<br>essaim(s) important(s) | | |
| minor swarm(s)<br>essaim(s) limité(s) | | |
| non swarming adults<br>adultes non essaimant | | |

| SITUATION: **Feb 2010 fév 2010** | swarms or hopper bands<br>essaims ou bandes larvaires | adults / hoppers adultes / larves<br>in groups en groupes | density low/unknown densité faible/inconnue |
|---|---|---|---|
| immature adults<br>adultes immatures | ■ | □ | ⊔ |
| mature or partly mature adults<br>adultes matures ou partiellement matures | ◣ | ◺ | L |
| adults, maturity unknown<br>adultes, maturité inconnue | ▲ | △ | ∧ |
| egg laying or eggs<br>pontes ou œufs | ▼ | ▽ | ∨ |
| hoppers<br>larves | ● | ○ | ◡ |
| hoppers & adults (combined symbol example)<br>larves et adultes (exemple symboles combinés) | ◘ | ◙ | ◒ |



warning level: **CALM**

# DESERT LOCUST BULLETIN

**FAO Emergency Centre for Locust Operations** **No. 378**

*(2 Apr 2010)*

## General Situation during March 2010
## Forecast until mid-May 2010

**The Desert Locust situation continued to remain calm during March in all countries because of continuing poor rainfall and ecological conditions. Ground teams treated very small hopper groups and bands that formed in one area on the Red Sea coast in Saudi Arabia and, by the end of the month, the situation was reported to be under control. Elsewhere, isolated adults persisted in Mauritania and Sudan, and low numbers of adults appeared in the spring breeding areas along the border of Morocco and Algeria, and in western Pakistan. During the forecast period, small-scale breeding is likely to occur in the spring breeding areas in Northwest Africa and Southwest Asia but locust numbers are expected to remain below threatening levels. There is a moderate risk that some adults could move from the Red Sea coast of Saudi Arabia into adjacent areas of the interior and breed on a small scale.**

**Western Region.** The locust situation remained calm during March throughout the Region. Low numbers of solitarious adults persisted in northwest and northern **Mauritania**. Scattered solitarious adults appeared in areas of recent rainfall south of the Atlas Mountains in northeast **Morocco** along the border with Algeria. Some of the adults were seen laying eggs. A few adults were also reported in the central Sahara in **Algeria**. During the forecast period, scattered adults will persist in Mauritania and small-scale breeding will occur in parts of Morocco and Algeria but locust numbers will remain low. Elsewhere in the Region, ecological conditions remained dry and no locusts were reported.

**Central Region.** The locust situation remained calm during March except for one area on the Red Sea coast in **Saudi Arabia** where numerous very small hopper groups and bands formed as a result of local breeding and concentration in vegetation that remained green. Ground teams treated 153 ha. As good rains fell in the spring breeding areas in the interior of Saudi Arabia, there is a moderate risk that adults could move from the coast into these areas and breed on a small scale. Good rains also fell in the interior of **Yemen** where low numbers of adults could appear. Low numbers of adults were present in a few areas along the coast in **Sudan**. Dry conditions prevailed and no locusts were reported in other countries in the Region.

**Eastern Region.** Isolated adults appeared in a few places in the spring breeding areas of western **Pakistan** from late February onwards. Although breeding conditions in March remained unfavourable in Pakistan, they improved in parts of southeastern **Iran**. During the forecast period, small-scale breeding is likely to occur in both countries but locust numbers should remain low. A joint Iran/Pakistan survey will be conducted during April to monitor the situation.

The FAO Desert Locust Bulletin is issued every month by the Desert Locust Information Service, AGP Division (Rome, Italy). It is supplemented by Alerts and Updates during periods of increased Desert Locust activity. All products are distributed by e-mail and made 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. 378

DESERT LOCUST BULLETIN

## Weather & Ecological Conditions in March 2010

**Very little rain fell during March in the recession area. Nevertheless, ecological conditions improved slightly in the spring breeding areas of Northwest Africa and Southwest Asia. Elsewhere, mainly dry conditions prevailed.**

In the **Western Region**, no significant rain fell in the Desert Locust breeding areas during March. As a result, ecological conditions were mainly dry and not favourable for breeding except for a few places on the southern side of the Atlas Mountains in Northwest Africa. In Morocco, annual vegetation remained green near the Algerian border in the Ziz-Ghris Valley, Draa Valley and near Figuig. In the Western Sahara, vegetation was dry. In Algeria, ecological conditions continued to be favourable for breeding in parts of the central and western Sahara near Adrar, southwest of Bechar and Beni Abbes, and near Tindouf. In Mauritania, ecological conditions were sufficiently favourable in a few places to allow locust survival in the north and northwest. Annual vegetation was drying out in most areas and conditions were becoming increasingly unfavourable for breeding except in some low-lying areas in parts of Tiris Zemmour and near cultivations in Inchiri and southwestern Adrar. Small patches of green vegetation may be present in a few limited areas of the Adrar des Iforas in northern Mali and the Air Mountains in Niger.

In the **Central Region**, no significant rain fell along the both sides of the Red Sea during March. Consequently, vegetation was dry and ecological conditions remained unfavourable in the winter breeding areas except on the Red Sea coast north of Jeddah from earlier rains. Conditions also remained dry along both sides of the Gulf of Aden except for a few places on the southern coast of Yemen northwest of Aden where green vegetation was present. Light rains fell during the last week of March in the spring breeding areas of the northern interior of Saudi Arabia. Light to moderate rains fell in the summer breeding areas of Shabwah and Hadhramaut in the interior of Yemen that could cause ecological conditions to become favourable for breeding earlier than in most years. Good rains also fell on the plateau of northwest Somalia and in adjacent areas of eastern Ethiopia. Light showers were reported in parts of northern and central Oman but vegetation remained dry and conditions were not favourable for breeding.

In the **Eastern Region**, good rains fell at times during March in the spring breeding areas along the southeast coast of Iran near Jask and in adjacent areas of the interior. Consequently, ecological conditions were favourable in few places, mainly along the coast. Mainly dry conditions prevailed in the spring breeding areas in western Pakistan and along both sides of the Indo-Pakistan border.

## Area Treated

Saudi Arabia 153 ha (March)

## Desert Locust Situation and Forecast

*( see also the summary on page 1 )*

**WESTERN REGION**

**Mauritania**

• **Situation**

During March, isolated solitarious adults were present and maturing in a few places in the northwest between Akjoujt (1945N/1421W) and Ouadane (2056N/1137W) while mainly isolated immature solitarious adults were seen further north near Zouerate (2244N/1221W).

• **Forecast**

*Low numbers of solitarious adults will persist in parts of Inchiri, southwest Adrar and southern Tiris-Zemmour. Breeding is unlikely to occur unless further rains fall.*

**Mali**

• **Situation**

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

• **Forecast**

*Isolated adults may be present and will persist in parts of the Adrar des Iforas.*

**Niger**

• **Situation**

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

• Forecast

*Isolated adults are likely to persist in the east and southeast of the Air Mountains where they will breed on a small-scale if rainfall occurs.*

**Chad**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**Senegal**

• **Situation**

No reports were received 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, a few isolated immature solitarious adults were seen at two places between In Salah (2712N/0229E) and Tamanrasset (2250N/0528E). No locusts were seen during surveys carried out in the west near Tindouf (2741N/0811W) and southwest of Beni Abbes (3011N/0214W), in the central Sahara between Adrar (2753N/0017W) and In Salah, in the south near Tamanrasset (2250N/0528E), and in the east near Djanet (2434N/0930E).

• **Forecast**

*Low numbers of locusts may be present and could breed on a small scale southwest of Beni Abbes, near Bechar and the Moroccan border, and in the central Sahara near Adrar.*

**Morocco**

• **Situation**

During March, isolated immature solitarious adults were present at several places along the Algerian border between Erfoud (3128N/0410W) and Figuig (3207N/0113W). Isolated mature solitarious adults were seen in a few places in the Draa Valley southwest of Zagora (3019N/0550W), where some adults were copulating, and south of Tata (2944N/0758W) along the Algerian border.

• **Forecast**

*Limited hatching will occur by the end of April in parts of the Draa Valley and small-scale breeding is likely along the Algerian border south of Bouarfa, causing locust numbers to increase slightly but remain below threatening levels.*

**Libyan Arab Jamahiriya**

• **Situation**

No locusts were seen during surveys carried out on 1-3 March in the southwest between Ghat (2459N/1011E) and Ghadames (3010N/0930E).

• **Forecast**

*Low numbers of adults may be present and could persist in parts of the southwest near Ghat and Ghadames.*

**Tunisia**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**CENTRAL REGION**

**Sudan**

• **Situation**

During March, scattered mature solitarious adults were seen at one place in the Tokar Delta on the Red Sea coast. Low numbers of solitarious fourth and fifth instar hoppers and mature adults were present on the northern coast near Mohamed Qol (2054N/3709E).

• **Forecast**

*No significant developments are likely.*

**Eritrea**

• **Situation**

No reports were received during March.

• **Forecast**

*No significant developments are likely.*

**Ethiopia**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**Djibouti**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**Somalia**

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• **Forecast**

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**Egypt**

• **Situation**

No locusts were seen during surveys carried out in March on the Red Sea coast and nearby subcoastal areas between Berenice (2359N/3524E) and the Sudanese border, and along the western shore of Lake Nasser between Abu Simbel (2219N/3138E) and Tushka (2247N/3126E).

• **Forecast**

*No significant developments are likely.*

**Saudi Arabia**

• **Situation**

During March, local breeding occurred on the Red Sea coast between Jeddah (2130N/3910E) and Rabigh (2247N/3901E). As vegetation was drying out, first to fourth instar hoppers concentrated and formed numerous very small groups and bands. Ground teams treated 153 ha. Mature solitarious adults were also present, and some adults were copulating. No locusts were seen elsewhere on the coast or in the interior.

• **Forecast**

*Unless further rains fall, breeding should end on the Red Sea coast. Any remaining locusts that escape detection or control are likely to move into the spring breeding areas of the interior where they will mature and could lay eggs in areas of recent rainfall.*

**Yemen**

• **Situation**

No locusts were seen during surveys carried out in mid-March on the central and northern Tihama coast of the Red Sea and on the Gulf of Aden coastal plains west of Aden (1250N/4503E).

• **Forecast**

*Low numbers of solitarious adults could appear in areas of recent rainfall in Shabwah and Hadhramaut.*

**Oman**

• **Situation**

No locusts were seen during surveys carried out in March along the northern Batinah coast, in the interior regions of Buraimi, Dhahira, Dakhliya, and Wusta, and in the southern region of Dhofar.

• **Forecast**

*Low numbers of adults may appear and breed on a small scale in areas of recent rainfall on the Batinah coast and in the central interior near Marmul.*

**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 March, no locusts were seen during surveys carried out on the southeast coast near Jask (2540N/5746E) and at one place in the Jaz Murian Basin southeast of Kahnuj (2757N/5742E).

• **Forecast**

*Small-scale breeding is likely to occur in areas of recent rainfall on the southeastern coast near Jask and in the adjacent interior southeast of Kahnuj, causing locust numbers to increase slightly but remain below threatening levels.*

**Pakistan**

• **Situation**

During the second half of February, isolated mature solitarious adults were seen at three places near the coast in the spring breeding areas of Baluchistan near Pasni (2515N/6328E) and Uthal (2548N/6637E).

During the first half of March, isolated mature solitarious adults were seen at three places near Uthal, Gwadar (2508N/6219E) and Jiwani (2502N/6150E).

• Forecast

*Small-scale breeding is likely to occur in areas of recent rainfall, mainly near Pasni and Turbat, causing locust numbers to increase slightly but remain below threatening levels.*

**India**

• **Situation**

No locusts were seen during intensive surveys carried out in March in the summer breeding areas in Rajasthan and Gujarat.

• **Forecast**

*No significant developments are likely.*

**Afghanistan**

• **SITUATION**

No reports received.

• **FORECAST**

*No significant developments are likely.*

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**Locust Watch in Caucasus and Central Asia.** The Locust Group at FAO has launched a new website (www.fao.org/ag/locusts-CCA/en/index.html) that contains information in English and Russian on three locust pests in the Caucasus and Central Asia, the current situation, potential impact on food security, and national and regional level activities.

**2010 events.** The following activities are scheduled or planned:

- **SWAC/CRC Locust Information Officers.** 3rd Inter-regional workshop on the use and improvement of RAMSES and eLocust2, Cairo, Egypt (18-19 April)
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## Glossary of terms

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

**NON-GREGARIOUS ADULTS AND HOPPERS**

**ISOLATED (FEW)**

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

**SCATTERED (SOME, LOW NUMBERS)**

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

**GROUP**

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

## ADULT SWARM AND HOPPER BAND SIZES

**VERY SMALL**

- swarm: less than 1 $km^2$ • 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.

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- July - September/October

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- October - January/February

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- February - June/July

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- 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.

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- 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**

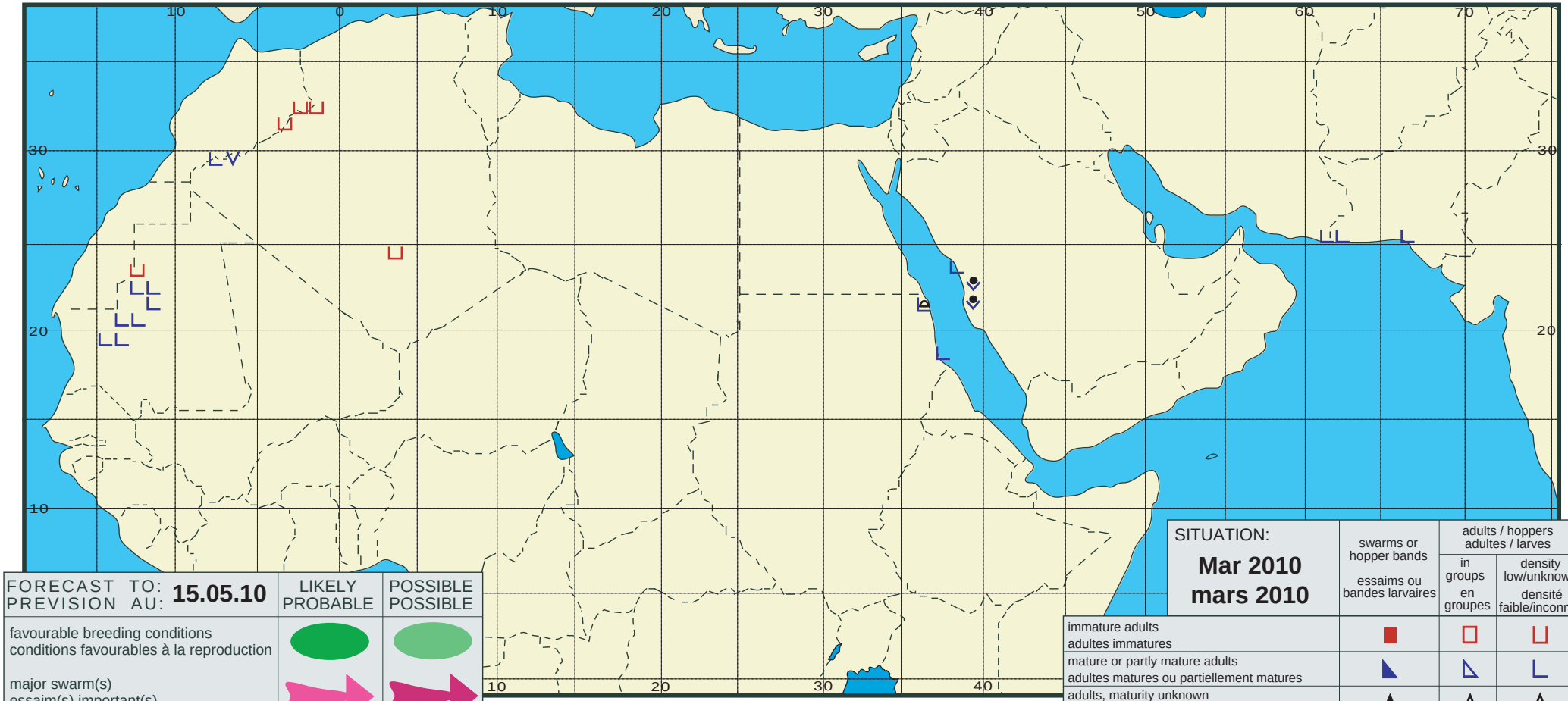
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

**EASTERN**

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

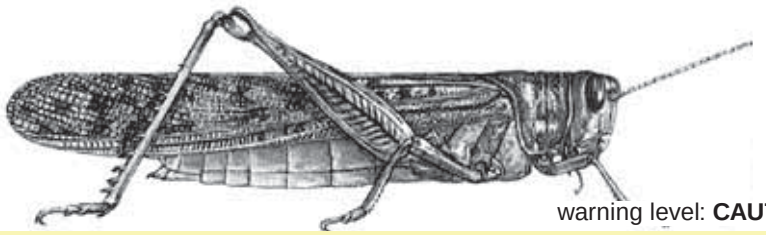
# Desert Locust Summary
# Criquet pèlerin - Situation résumée

**378**




| FORECAST TO: / PREVISION AU: **15.05.10** | LIKELY / PROBABLE | POSSIBLE / POSSIBLE |
|---|---|---|
| favourable breeding conditions<br>conditions favourables à la reproduction | | |
| major swarm(s)<br>essaim(s) important(s) | | |
| minor swarm(s)<br>essaim(s) limité(s) | | |
| non swarming adults<br>adultes non essaimant | | |

| SITUATION: **Mar 2010 mars 2010** | swarms or hopper bands<br>essaims ou bandes larvaires | adults / hoppers adultes / larves<br>in groups en groupes | density low/unknown densité faible/inconnue |
|---|---|---|---|
| immature adults<br>adultes immatures | ■ | □ | ⊔ |
| mature or partly mature adults<br>adultes matures ou partiellement matures | ◣ | ◺ | L |
| adults, maturity unknown<br>adultes, maturité inconnue | ▲ | △ | ⋀ |
| egg laying or eggs<br>pontes ou œufs | ▼ | ▽ | ⋁ |
| hoppers<br>larves | ● | ○ | ◡ |
| hoppers & adults (combined symbol example)<br>larves et adultes (exemple symboles combinés) | ◘ | ◙ | ◒ |



warning level: **CAUTION (Saudi Arabia)**

# DESERT LOCUST BULLETIN

**FAO Emergency Centre for Locust Operations** **No. 379**

*(3 May 2010)*

## General Situation during April 2010 Forecast until mid-June 2010

**The Desert Locust situation remained calm in all countries during April because of continuing poor rainfall and ecological conditions. Ground teams in Saudi Arabia treated numerous small hopper bands that arose from local breeding in one area on the Red Sea coast. Groups of adults may form in this area and move into the interior and breed. Low numbers of solitarious adults were present in Morocco along the Algerian border where small-scale breeding is likely to occur in May. An isolated adult was seen in Niger and isolated hoppers and adults were present on the Gulf of Aden coast in southern Yemen. From mid-June onwards, low numbers of solitarious adults could start to appear in the summer breeding areas in the northern Sahel of West Africa and Sudan, in the interior of Yemen and along both sides of the Indo-Pakistan border; however, breeding will not commence until the seasonal rains begin. No significant developments are expected during the forecast period.**

**Western Region.** The locust situation remained calm during April. Isolated solitarious adults were found at an increasing number of places in **Morocco** south of the Atlas Mountains and along the Algerian border. Local breeding is expected to occur in some areas during May but locust numbers will remain below threatening levels and no significant developments are expected. In **Niger**, an isolated solitarious adult was seen near Agadez. No locusts were reported elsewhere in the Region and ecological conditions continued to be dry and unfavourable for breeding in most areas except along the Moroccan-Algerian border. By the end of the forecast period, low numbers of solitarious adults may start to appear in the summer breeding areas in southern **Mauritania** and, to a lesser extent, in northern **Mali** and Niger. Small-scale breeding will not commence until the onset of the seasonal rains in the northern Sahel.

**Central Region.** Local breeding occurred in one area on the Red Sea coast in **Saudi Arabia** during April, giving rise to numerous small hopper groups and bands. Although ground teams treated nearly 700 ha, there is a risk adults will form small groups that will move into the spring breeding areas of the interior and breed where good rains recently fell. Small-scale breeding occurred on the southern coast of **Yemen**. During the forecast period, low numbers of locusts could appear in the interior of Yemen where good rains fell during April. Elsewhere in the Region, no locusts were reported and no significant developments are expected during the forecast period.

**Eastern Region.** The locust situation remained calm during April. No locusts were reported in the spring breeding areas of western **Pakistan** and southeastern **Iran** due to dry conditions. No significant developments are expected during the forecast period.

The FAO Desert Locust Bulletin is issued every month by the Desert Locust Information Service, AGP Division (Rome, Italy). It is supplemented by Alerts and Updates during periods of increased Desert Locust activity. All products are distributed by e-mail and made 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. 379

DESERT LOCUST BULLETIN

## Weather & Ecological Conditions in April 2010

**Good rains fell in the interior of Saudi Arabia and Yemen during April while mainly dry conditions prevailed elsewhere in the Desert Locust recession area.**

In the **Western Region**, light rain fell in parts of Mauritania and Algeria during April. In Mauritania, light showers fell during the second half of the month in the centre (Tagant), south (Assaba) and southeast (the two Hodhs) while locally heavier showers (40 mm) were reported near Tentemlel in Tagant. Ecological conditions remained favourable for limited survival of locust populations in parts of northwest Mauritania. In the summer breeding areas of the northern Sahel, dry and unfavourable conditions prevailed except in parts of northern Mali (Adrar des Iforas) and Niger (Air Mountains) where very small and insignificant areas of green vegetation were likely to be present. In Northwest Africa, light rain fell at mid-month in southern Algeria but vegetation remained dry except in parts of the northwest (Bechar), centre (Adrar) and southeast (Illizi). In Morocco, vegetation was green south of the Atlas Mountains and near the Algerian border in the Draa and Ziz-Ghris valleys but was starting to dry out in some places. In Western Sahara, vegetation remained dry. Good rains fell in southwest Libya near Ghat at mid-month.

In the **Central Region**, good rains fell in the spring breeding areas of the interior of Saudi Arabia during April. Most of the rain was concentrated in central areas between the northwestern edge of the Empty Quarter and Hail. Some showers also fell in the summer breeding areas in the interior of Yemen between Al Hazm and Hadhramaut. On the Red Sea coast, light rains fell along parts of the Eritrean plains from Assab in the south to Karora in the north. Light showers may have also fallen in adjacent coastal areas of Aiterba in Sudan as well as further north on the coast along the Egyptian-Sudanese border. A few showers fell on the Red Sea coast of Yemen south of Hodeidah. In eastern Ethiopia, light rains fell from Dire Dawa to the Somali border, extending into the Ogaden in Ethiopia and the Somali plateau in northwestern Somalia. Consequently, ecological conditions could improve sufficiently in some of these areas to allow limited breeding during May. Dry conditions prevailed elsewhere in the Region.

In the **Eastern Region**, dry conditions prevailed throughout April in all areas. Consequently, ecological conditions were less favourable than usual in the spring breeding areas of western Pakistan and southeastern Iran. Nevertheless, vegetation was green in a few places along the coast in both countries but soil moisture remained dry.

## Area Treated

Saudi Arabia 673 ha (April)

## Desert Locust Situation and Forecast

*( see also the summary on page 1 )*

**WESTERN REGION**

**Mauritania**

• **SITUATION**

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

• **FORECAST**

*Isolated solitarious adults may be present in a few places in Inchiri, southwest Adrar and southern Tiris-Zemmour. By the end of the forecast period, locusts will decline in these areas as low numbers of solitarious adults could start to appear in the summer breeding areas in the south. No significant developments are likely.*

**Mali**

• **SITUATION**

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

• **FORECAST**

*Isolated adults may be present and will persist in parts of the Adrar des Iforas.*

**Niger**

• **SITUATION**

During April, an isolated solitarious adult was seen in the southern Air Mountains west of Agadez at Inbakaten (1659N/0754E).

• Forecast

*Isolated adults may be present in the southeast of the Air Mountains.*

**Chad**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**Senegal**

• **Situation**

No reports were received 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, no locusts were seen during surveys carried out in the west near Tindouf (2741N/0811W), southwest of Beni Abbes (3011N/0214W) and near Bechar (3135N/0217W), in the central Sahara near Adrar (2753N/0017W), in the south near Tamanrasset (2250N/0528E), and in the east between Djanet (2434N/0930E) and Illizi (2630N/0825E).

• **Forecast**

*Low numbers of locusts may be present and could breed on a small scale between Beni Abbes and the Moroccan border, and perhaps near Adrar and between Djanet and Illizi.*

**Morocco**

• **Situation**

During April, isolated immature and mature solitarious adults were dispersed at an increasing number of places south of the Atlas Mountains along the Algerian border between Foum El Hassan (2901N/0853W) and Bouarfa (3232N/0159W), including the Draa and Ziz-Ghris valleys. Some adults were copulating south of Erfoud (3128N/0410W).

• **Forecast**

*Limited hatching will occur in May in parts of the Draa Valley and along the Algerian border, causing locust numbers to increase slightly but remain below threatening levels.*

**Libyan Arab Jamahiriya**

• **Situation**

During April, small-scale breeding occurred in the southwest near Ghat (2459N/1011E) where scattered third instar solitarious hoppers were seen in one place.

• **Forecast**

*Low numbers of adults are likely to persist in parts of the southwest near Ghat and Ghadames.*

**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 reports were received during April.

• **Forecast**

*No significant developments are likely.*

**Eritrea**

• **Situation**

No reports were received during April.

• **Forecast**

*By the end of the forecast period, low numbers of solitarious adults may start to appear in the summer breeding areas in the interior.*

**Ethiopia**

• **Situation**

No locusts were seen during surveys carried out in April between Dire Dawa (0935N/4150E) and the Somali border.

• **Forecast**

*No significant developments are likely.*

**Djibouti**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**Somalia**

• **Situation**

No reports were received during April.

• **Forecast**

*No significant developments are likely.*

**Egypt**

• **Situation**

No locusts were seen during surveys carried out in the first decade of April on the Red Sea coast between Abu Ramad (2224N/3624E) and the Sudanese border, and on the western side of Lake Nasser near Tushka (2247N/3126E).

• **Forecast**

*No significant developments are likely.*

**Saudi Arabia**

• **Situation**

During April, ground control teams treated 673 ha of numerous but small late instar hopper groups and bands and immature adults from local breeding that occurred on the Red Sea coast near Rabigh (2247N/3901E). Some adults were seen copulating. No locusts were seen elsewhere during surveys.

• **Forecast**

*Locust numbers will decline on the Red Sea coastal plains and groups of adults are expected to move into areas of recent rainfall in the interior between Hail and Riyadh, and breed on a small scale.*

**Yemen**

• **Situation**

During the last week of April, isolated solitarious mature adults and one solitarious hopper were seen at three places on the Gulf of Aden coastal plains northwest of Aden (1250N/4503E). No locusts were seen during surveys on the Red Sea coastal plains.

• **Forecast**

*Low numbers of solitarious adults could appear in areas of recent rainfall in Shabwah and Hadhramaut.*

**Oman**

• **Situation**

No locusts were seen during surveys carried out in April in the northern interior near Buraimi (2415N/5547E) and Adam (2223N/5731E).

• **Forecast**

*Small-scale breeding could occur in areas of earlier rainfall on the eastern side of the Wahiba Sands in Sharqiya region.*

**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 first half of April, no locusts were seen during surveys carried out on the southeast coast near Jask (2540N/5746E) and Bander-e Lengheh (2634N/5452E), and at one place in the Jaz Murian Basin near Bampur (2711N/6028E).

• **Forecast**

*Unless further rains fall, the likelihood of small-scale breeding occurring on the southeast coast will decline during May as conditions continue to dry out. No significant developments are likely.*

**Pakistan**

• **Situation**

No locusts were reported during surveys carried out in the spring breeding areas of Baluchistan during the first half of April.

• Forecast

*Unless further rains fall, the likelihood of small-scale breeding occurring in the spring breeding areas of Baluchistan will decline during May as conditions continue to dry out. By the end of the forecast period, low numbers of solitarious adults may start to appear in the summer breeding areas in Cholistan and Tharparkar. No significant developments are likely.*

**India**

• **Situation**

No locusts were seen during intensive surveys carried out in April in the summer breeding areas in Rajasthan and Gujarat.

• **Forecast**

*By the end of the forecast period, low numbers of solitarious adults may start to appear in the summer breeding areas in Rajasthan and Gujarat.*

**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.

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**Locust Watch in Caucasus and Central Asia.** The first regional monthly bulletin has been issued and is available on the website (www.fao.org/ag/locusts-CCA/en/index.html). The bilingual bulletin (English/Russian) summarizes the regional locust situation in the previous month and includes a forecast for the coming month for Italian, Moroccan and Migratory locusts. It will be issued by the 15th of each month.

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- band: 25 - 2,500 m$^2$

**MEDIUM**

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

**LARGE**

- swarm: 100 - 500 km$^2$
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- swarm: 500+ km$^2$
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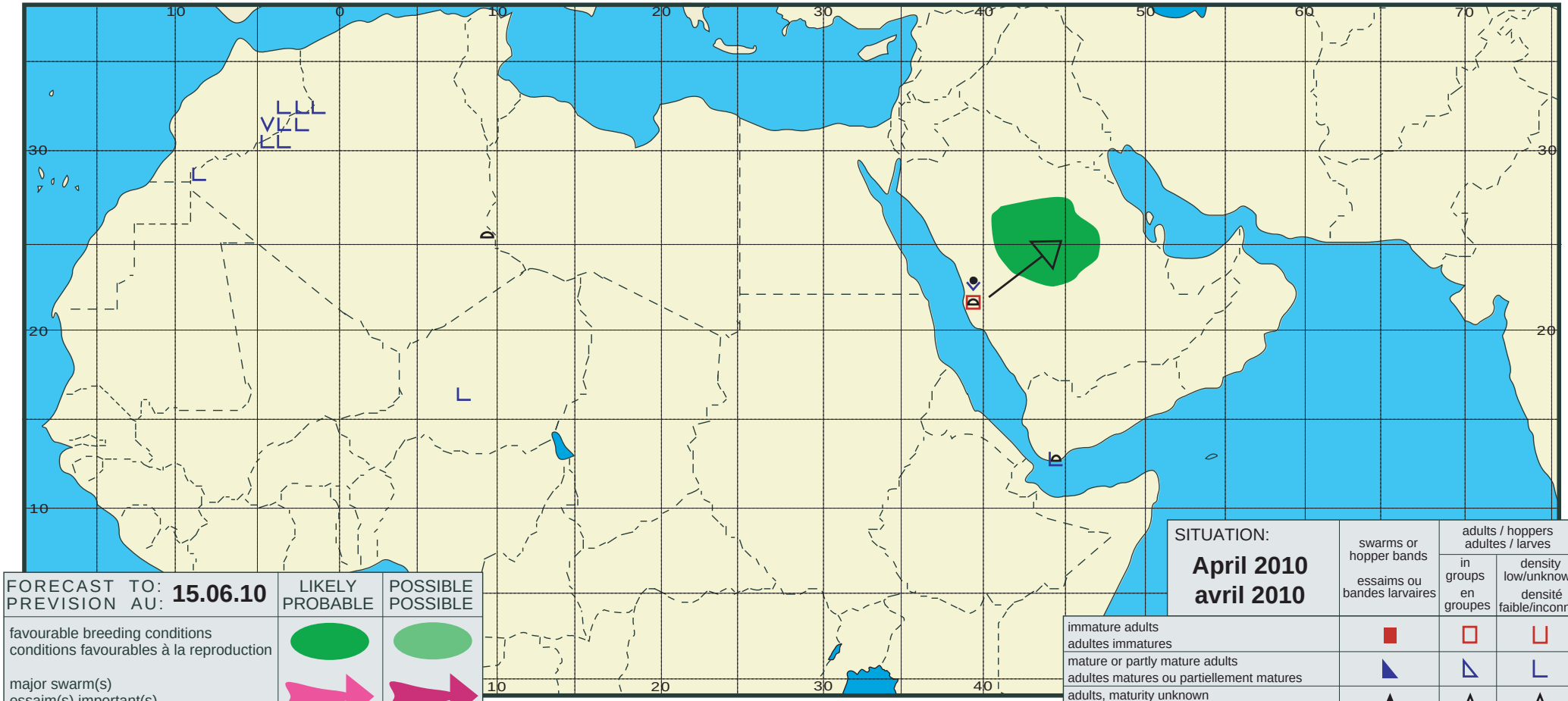
# Desert Locust Summary
# Criquet pèlerin - Situation résumée

**379**




| FORECAST TO: / PREVISION AU: **15.06.10** | LIKELY / PROBABLE | POSSIBLE / POSSIBLE |
|---|---|---|
| favourable breeding conditions<br>conditions favourables à la reproduction | | |
| major swarm(s)<br>essaim(s) important(s) | | |
| minor swarm(s)<br>essaim(s) limité(s) | | |
| non swarming adults<br>adultes non essaimant | | |

| SITUATION: **April 2010 / avril 2010** | swarms or hopper bands<br>essaims ou bandes larvaires | adults / hoppers adultes / larves: in groups / en groupes | adults / hoppers adultes / larves: density low/unknown / densité faible/inconnue |
|---|---|---|---|
| immature adults<br>adultes immatures | ■ | □ | ⊔ |
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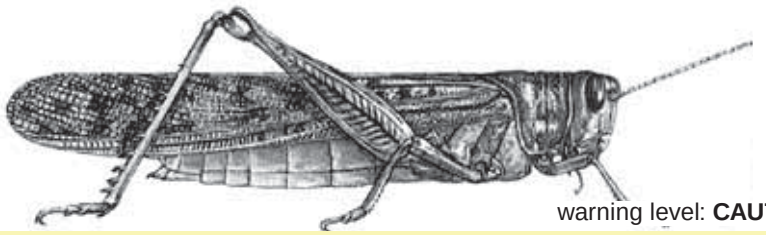

warning level: **CAUTION (Saudi Arabia)**

# DESERT LOCUST BULLETIN

**FAO Emergency Centre for Locust Operations** **No. 380**

*(2 June 2010)*

## General Situation during May 2010 Forecast until mid-July 2010

**The Desert Locust situation remained generally calm during May. Small-scale breeding occurred in Northwest Africa and ground control operations were undertaken in Morocco, Algeria and Libya. Control operations against hopper bands ended by mid-month on the Red Sea coast in Saudi Arabia. Small-scale breeding occurred in northeastern Oman. During the forecast period, locust numbers will decline in Northwest Africa and the Arabian Peninsula as conditions dry out. Some adults could move across the Red Sea from Saudi Arabia to the interior of Sudan. Small-scale breeding will occur in the northern Sahel of West Africa and Sudan and along the Indo-Pakistan border once seasonal rains commence. Breeding this summer is expected to be on a small scale and locust numbers are likely to remain below threatening levels. No significant developments are expected during the forecast period.**

**Western Region.** In the spring breeding areas of Northwest Africa, ground control operations treated nearly 1,500 ha of solitarious and *transiens* hoppers and adults south of the Atlas Mountains in **Morocco** where small-scale breeding occurred in March and April. Nearly 350 ha of hoppers were treated in central **Algeria** and 40 ha of hoppers were controlled in southwest **Libya**. Locust numbers will decline as no further breeding is expected. Dry and unfavourable conditions persisted in the northern Sahel of West Africa. Low numbers of adults are likely to appear in southern **Mauritania**, northern **Mali** and **Niger** and breed on a small scale once seasonal rains commence. Locust numbers are expected to remain below threatening levels and no significant developments are likely.

**Central Region.** Ground control operations continued in early May and treated nearly 2,700 ha of small hopper bands and groups of fledglings in one area on the Red Sea coast in **Saudi Arabia**. Any escapees could move south along the coastal plains or perhaps across the Red Sea to the summer breeding areas in the interior of Sudan where small-scale breeding is expected to commence with the onset of the seasonal rains. Scattered adults were present on the Red Sea coast of **Sudan** in the Tokar Delta. Undetected breeding occurred in northeastern **Oman** in April, causing hoppers to concentrate and form small groups in May as vegetation dried out. Control operations were not required. No locusts were reported elsewhere in the region. Low numbers of adults may appear in June on the northern **Somalia** plateau and in nearby eastern **Ethiopia** and breed on a small-scale in areas of recent rainfall.

**Eastern Region.** No locusts were reported during May in the spring breeding areas of western **Pakistan** and southeastern **Iran** due to prevailing dry conditions. Low numbers of solitarious adults are expected to appear in the summer breeding areas along the Indo-Pakistan border in June. Small-scale breeding will commence with the onset of the seasonal monsoon rains but locust numbers will remain low.

The FAO Desert Locust Bulletin is issued every month by the Desert Locust Information Service, AGP Division (Rome, Italy). It is supplemented by Alerts and Updates during periods of increased Desert Locust activity. All products are distributed by e-mail and made available on the Internet.
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**DLIS:** www.fao.org/ag/locusts

No. 380

DESERT LOCUST BULLETIN

## Weather & Ecological Conditions in May 2010

**Very little rain fell in the recession area during May. Consequently, ecological conditions remained generally unfavourable for breeding.**

In the **Western Region**, light rain fell in parts of the spring breeding areas in Northwest Africa at times during May. In Algeria, light rain fell in the central Sahara south of Adrar and in the southeast near Djanet. Ecological conditions were favourable for breeding in both areas. In Libya, light rain fell in parts of the northwest. Ecological conditions remained dry and unfavourable throughout the country except in the central north near Mizda and in the southwest near Ghat. In Morocco, vegetation continued to dry out south of the Atlas Mountains in the Draa and Ziz-Ghris valleys near the Algerian border. Dry conditions persisted in the summer breeding areas in the northern Sahel where no significant rain fell except for light showers in early May in parts of northern Niger between Agadez, Arlit and In Abangharit.

In the **Central Region**, no significant rain fell during May. Only light showers fell in parts of the spring breeding areas of the interior of Saudi Arabia during the first few days of the month. By mid-month, the seasonal southwesterly winds associated with the Southwest Asia monsoon had become established over the Horn of Africa. Light rain fell at times from the Harar Highlands and the Ogaden in eastern Ethiopia to the Somalia plateau in northern Somalia. As a result, ecological conditions are likely to improve in these areas and allow limited breeding. In northeastern Oman, unusually good rains fell in the Sharqiya region in late April and again during the first and third weeks of May. Consequently, ecological conditions were favourable for small-scale breeding. At the end of the month, light rain fell on the central and southern parts of the Red Sea coast in Yemen.

In the **Eastern Region**, dry conditions prevailed throughout May in all areas. In the absence of rainfall, vegetation continued to dry out in the spring breeding areas of western Pakistan and southeastern Iran. Although pre-monsoon rains fell during the first decade of May in the summer breeding areas along both sides of the Indo-Pakistan border in Cholistan, Pakistan and in adjacent areas of northern Rajasthan, India, more rain will be needed before ecological conditions become suitable for breeding.

## Area Treated

| | |
|---|---|
| Algeria | 348 ha (May) |
| Libya | 40 ha (May) |
| Morocco | 1,495 ha (May) |
| Saudi Arabia | 2,695 ha (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 May.

• **FORECAST**

*Low numbers of solitarious adults are expected to appear in parts of the centre, south and southeast. Small-scale breeding will occur after seasonal rains commence but locust numbers will remain low.*

**Mali**

• **SITUATION**

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

• **FORECAST**

*Isolated adults may be present and will persist in parts of the Adrar des Iforas. Small-scale breeding will occur after seasonal rains commence but locust numbers will remain low.*

**Niger**

• **SITUATION**

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

• Forecast

*Isolated adults may be present in areas of recent rainfall in parts of the Air Mountains. Low numbers of solitarious adults are expected to appear in the Tamesna and breed on a small scale once seasonal rains commence.*

**Chad**

• **SITUATION**

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

• **Forecast**

*No significant developments are likely.*

**Senegal**

• **Situation**

No surveys were carried out and no locusts were reported during 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, ground teams treated 348 ha of solitarious hoppers of all instars and adults at densities of 800-4,000 locusts/ha southeast of Beni Abbes (3011N/0214W) and Adrar (2753N/0017W), and adults northeast of In Salah (2712N/0229E) as a result of small-scale breeding that occurred from mid-April onwards. A few *transiens* hoppers were seen in crops near Adrar. No locusts were seen in the west and along the Moroccan border between Tindouf (2741N/0811W) and Beni Abbes, or in the south and southeast near Tamanrasset (2250N/0528E) and Djanet (2434N/0930E).

• **Forecast**

*Locust numbers will decline in the central Sahara as conditions dry out and low numbers of adults move towards the southern Sahara. Small infestations could persist near agricultural areas in Adrar.*

**Morocco**

• **Situation**

During May, ground teams treated 1,495 ha of solitarious and *transiens* hoppers and adults at 27 places south of the Atlas Mountains in the Draa Valley near the Algerian border between Assa (2836N/0926W) and Zagora (3019N/0550W) where small-scale breeding occurred in March and April. Most of the hoppers were third to fifth instar at densities of 3-12 hoppers/$m^2$ and some hoppers were forming small groups. Adult densities reached as high as 6,000 adults/ha in the Guelmim region. In the northeast, isolated mature solitarious adults persisted between Erfoud (3128N/0410W) and Figuig (3207N/0113W).

• **Forecast**

*Low numbers of adults are expected to concentrate and form small groups in any vegetation that remains green in the Draa Valley and along the Algerian border. No further breeding is expected.*

**Libyan Arab Jamahiriya**

• **Situation**

During May, ground teams treated 40 ha of low-density gregarious fifth instar hoppers and fledglings in crops southwest of Sabha (2704N/1425E) at Alqraya (2638N/1321E). Isolated solitarious adults were present northwest of Ghat (2459N/1011E) near the Algerian border. No locusts were seen during surveys near Kufra (2411N/2315E), Mizda (3127N/1259E), Ghadames (3010N/0930E) and Al Hamada Al Hamra (ca. 3000N/1200E).

• **Forecast**

*Low numbers of solitarious adults are likely to persist in parts of the southwest near Ghat, Ghadames and Sabha.*

**Tunisia**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**CENTRAL REGION**

**Sudan**

• **Situation**

A late report indicated that no surveys were carried out and no locusts were reported during April.

During the first decade of May, scattered mature solitarious adults were present on the Red Sea coast in the Tokar Delta. No locusts were seen during surveys carried out on the northern coast and adjacent subcoastal areas.

• **Forecast**

*Low numbers of solitarious adults are likely to appear in the summer breeding areas of West and North Darfur, West and North Kordofan, and White Nile and breed on a small scale once the summer rains start. There is a low to moderate risk that a few adult groups arriving from the eastern side of the Red Sea could supplement local populations. Consequently, locust numbers are expected to increase slightly but will remain below threatening levels.*

**Eritrea**

• **Situation**

No reports were received during May.

• **Forecast**

*Low numbers of solitarious adults may appear in the summer breeding areas in the western lowlands and breed on a small scale with the onset of the summer rains.*

**Ethiopia**

• **Situation**

No locusts were seen during a survey on 14 May near Dire Dawa (0935N/4150E). At the end of the month, there was an unconfirmed report of locusts near Aysha (1045N/4234E) and the borders of Djibouti and northern Somalia.

• **Forecast**

*Low numbers of solitarious adults may appear in the Aysha area near the borders of Djibouti and northern Somalia where small-scale breeding could take place during the forecast period.*

**Djibouti**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**Somalia**

• **Situation**

No reports were received during May.

• **Forecast**

*Low numbers of solitarious adults may be present in parts of the plateau between Boroma and Burao where small-scale breeding could occur in areas of recent rainfall.*

**Egypt**

• **Situation**

During May, no locusts were seen during surveys carried out on the Red Sea coast between Abu Ramad (2224N/3624E) and the Sudanese border, on the western side of Lake Nasser near Tushka (2247N/3126E) and Abu Simbel (2219N/3138E), and in the Western Desert near Sh. Oweinat (2219N/2845E), Abu Mingar (2630N2740E), Farafra (2710N/2818E) and Siwa (2912N/2531E).

• **Forecast**

*No significant developments are likely.*

**Saudi Arabia**

• **Situation**

During the first half of May, ground control operations continued and increased against numerous small late instar hopper bands and groups of fledglings and immature adults on the Red Sea coast near Rabigh (2247N/3901E). Limited control was carried out against a group of immature adults near Jeddah. In all, 2,695 ha were treated. No locusts were seen elsewhere on the coast or in the spring breeding areas of the interior.

• **Forecast**

*Scattered adults and perhaps a few adult groups that form on the Red Sea near Rabigh could eventually move south along the coastal plains or possibly west across the Red Sea towards the interior of Sudan.*

**Yemen**

• **Situation**

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

• **Forecast**

*Low numbers of solitarious adults could appear in areas of recent rainfall in Shabwah and Hadhramaut.*

**Oman**

• **Situation**

Undetected breeding occurred in April along a 25 km stretch of the northeastern edge of the Wahiba Sands southeast of Ibra (2243N/5831E) in Sharqiya where rains had fallen in February and mid-April. By the first week of May, vegetation dried out and third to fifth instar hoppers concentrated and formed small groups at densities of up to 5 hoppers/$m^2$ in 2 ha. Isolated solitarious hoppers and immature adults were seen nearby. By the last decade of the month, the hoppers had fledged and low numbers of immature adults were maturing along Wadi Bath and Wadi Al Hamir. No locusts were seen during surveys in Muscat, Dakhliya and Dhahera regions.

• **Forecast**

*Locust numbers will decline in Sharqiya as vegetation continues to dry out. 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 the second half of April, no locusts were

seen during the annual joint survey carried out on the coast and in interior areas of the southeast.

During May, no locusts were seen on the southeastern coast near Jask (2540N/5746E).

• **Forecast**

*No significant developments are likely.*

**Pakistan**

• **Situation**

During the second half of April, isolated mature solitarious adults were seen at one place on the coast near Uthal (2548N/6637E).

No locusts were seen during surveys carried out in the spring breeding areas of Baluchistan during the first half of May.

• Forecast

*Low numbers of adults are expected to appear in parts of the summer breeding areas in Cholistan and Tharparkar and breed on a small scale with the onset of the monsoon rains.*

**India**

• **Situation**

No locusts were seen during intensive surveys carried out during the first half of May in the summer breeding areas in Rajasthan and Gujarat.

• **Forecast**

*Low numbers of solitarious adults are expected to appear in the summer breeding areas in Rajasthan and Gujarat and breed on a small scale with the onset of the monsoon rains.*

**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, eLocust2Mapper 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 (www.fao.org/ag/locusts) are:

- **2010 Iran/Pakistan Joint Survey report.** Publications Section – Reports
- **Desert Locust situation updates.** Archives Section – Briefs
- **Desert Locust risk map update.** Archives Section – Risk maps

**Locust Watch in Caucasus and Central Asia.** The second regional monthly bulletin has been issued and is available on the website (www.fao.org/ag/locusts-CCA/en/index.html). The bilingual bulletin (English/Russian) summarizes the regional locust situation in the previous month and includes a forecast for the

coming month for Italian, Moroccan and Migratory locusts. It will be issued by the 15th of each month.

**2010 events.** The following activities are scheduled or planned:

- **CLCPRO.** 6th session of Executive Committee, Ouagadougou, Burkina Faso (28-30 June)
- **CRC training.** 3rd regional aerial Desert Locust training course, Moshi, Tanzania (2-6 Aug)
- **CRC.** 31st session of Executive Committee and 27th session of Commission, Beirut, Lebanon (20-24 Sep)
- **EMPRES/WR.** Desert Locust Master Trainers (Survey) regional workshop, Mauritania (Oct)
- **SWAC.** 27th session, Islamabad, Pakistan (Dec)
- **EMPRES/WR.** 6th Steering Committee meeting and 9th EMPRES Liaison Officers meeting, Tripoli, Libya (Dec)

## 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**

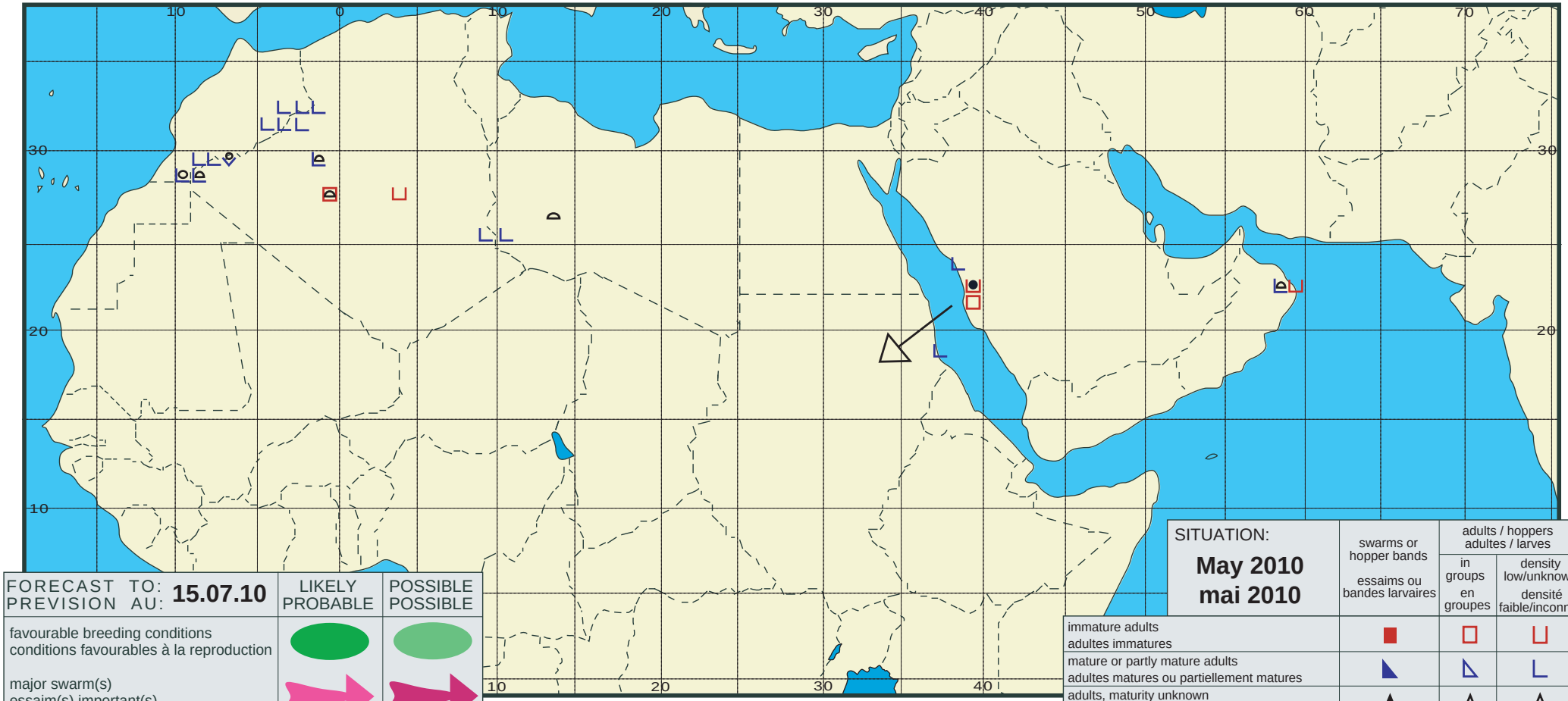
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

**EASTERN**

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

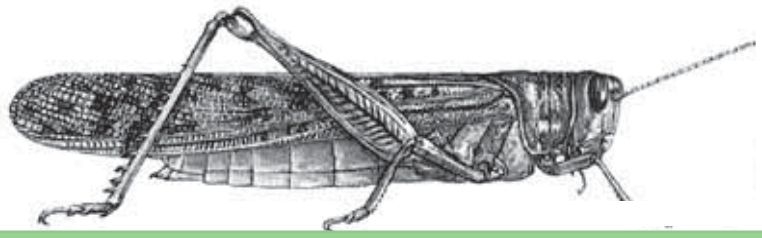
# Desert Locust Summary
# Criquet pèlerin - Situation résumée

**380**




| FORECAST TO: / PREVISION AU: **15.07.10** | LIKELY PROBABLE | POSSIBLE POSSIBLE |
|---|---|---|
| favourable breeding conditions<br>conditions favourables à la reproduction | | |
| major swarm(s)<br>essaim(s) important(s) | | |
| minor swarm(s)<br>essaim(s) limité(s) | | |
| non swarming adults<br>adultes non essaimant | | |

| SITUATION: **May 2010 mai 2010** | swarms or hopper bands<br>essaims ou bandes larvaires | adults / hoppers adultes / larves | |
|---|---|---|---|
| | | in groups<br>en groupes | density low/unknown<br>densité faible/inconnue |
| immature adults<br>adultes immatures | ■ | □ | ⊔ |
| mature or partly mature adults<br>adultes matures ou partiellement matures | ◣ | ◺ | L |
| adults, maturity unknown<br>adultes, maturité inconnue | ▲ | △ | ⋀ |
| egg laying or eggs<br>pontes ou œufs | ▼ | ▽ | ⋁ |
| hoppers<br>larves | ● | ○ | ◞ |
| hoppers & adults (combined symbol example)<br>larves et adultes (exemple symboles combinés) | ◘ | ◙ | ◛ |



warning level: **CALM**

# DESERT LOCUST BULLETIN

**FAO Emergency Centre for Locust Operations** **No. 381**

*(2 July 2010)*

## General Situation during June 2010 Forecast until mid-August 2010

**The Desert Locust situation remained calm during June. Locusts declined in the spring breeding areas of Northwest Africa and Arabia due to control operations and drying conditions. Limited control was carried out against hopper bands in Saudi Arabia, groups of adults in Algeria and scattered adults in Morocco. Unusually heavy rains associated with Cyclone Phet fell in parts of Oman, Iran, Pakistan and India in early June. Small-scale breeding occurred in southwest Libya, the interior of Saudi Arabia and in eastern Ethiopia. Scattered adults were present in Sudan, Yemen and Oman. Seasonal rains commenced in the summer breeding areas of the Sahel in West Africa and Sudan. During the forecast period, small-scale breeding will occur in the northern Sahel of West Africa and Sudan and along the Indo-Pakistan border, causing locust numbers to increase slightly but remain below threatening levels. No significant developments are expected.**

**Western Region.** Locust populations declined in Northwest Africa along the southern side of the Atlas Mountains in **Morocco** where 303 ha of scattered adults were treated. Ground teams in **Algeria** treated 350 ha of solitarious hoppers and adults near cropping areas in the central Sahara. Small-scale breeding occurred in southwest **Libya** where scattered hoppers and adults were reported. No locust surveys were carried out in the summer breeding areas of the Sahel in West Africa. During the forecast period, locusts will decline in Northwest Africa as they move towards the southern Sahara in Algeria and the northern Sahel in West Africa. Small-scale breeding is expected to commence in southern **Mauritania**, northern **Mali** and **Niger**, and perhaps eastern **Chad** where seasonal rains started in June. This will cause locust numbers to increase slightly during the forecast period but remain below threatening levels.

**Central Region.** Locust infestations declined on the Red Sea coast of **Saudi Arabia** where control operations were carried out in May. Ground teams treated 5 ha of hopper bands that formed on the edge of the spring breeding area in the interior. Unusually heavy rains associated with Cyclone Phet fell in northern **Oman** in early June. Although only scattered adults were present, there is a high risk that additional breeding could occur during the next several months, causing locust numbers to increase. Surveys began in the summer breeding areas in the interior of **Sudan** and **Yemen** in June. So far, only low numbers of adults were seen in cropping areas along the Nile in northern Sudan and in a few places in Yemen. During the forecast period, small-scale breeding will occur in Sudan in areas where seasonal rains commenced in June. Isolated adults were seen in the Western Desert in **Egypt**. Undetected breeding occurred in eastern **Ethiopia** during May, giving rise to scattered hoppers and adults in June. During the forecast period, breeding is likely to continue in areas of recent rainfall. No locusts were reported elsewhere in the region.

**Eastern Region.** Low numbers of solitarious locusts began to appear in the summer breeding areas of Cholistan, **Pakistan** near the border of **India** in mid-June. Breeding conditions are expected to be unusually favourable this year along both sides of the border because of heavy rains that fell in early June from Cyclone Phet. Consequently, small-scale breeding will cause locusts to increase during the forecast period in both countries but numbers will remain below threatening levels. No locusts were reported in **Iran** and **India** during June.

The FAO Desert Locust Bulletin is issued every month by the Desert Locust Information Service, AGP Division (Rome, Italy). It is supplemented by Alerts and Updates during periods of increased Desert Locust activity. All products are distributed by e-mail and made available on the Internet.
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No. 381

DESERT LOCUST BULLETIN

## Weather & Ecological Conditions in June 2010

**Vegetation continued to dry out in the spring breeding areas of Northwest Africa and the interior of Saudi Arabia. Unusually heavy rains associated with Cyclone Phet fell in northern Oman, extending to parts of Iran, Pakistan and India. Ecological conditions started to become favourable in the summer breeding areas of the Sahel in West Africa and Sudan where seasonal rains began to fall during June.**

In the **Western Region**, light rain fell at times in the Hoggar Mountains in southern Algeria, causing runoff in several nearby wadis. Light rains also fell in parts of eastern Algeria, extending to northwest Libya, and in the extreme south along the borders of Mali and Niger. Ecological conditions remained favourable in parts of the central Sahara in Algeria between Tamanrasset and In Salah, and in agricultural areas near Adrar. In Morocco, vegetation continued to dry out in the Draa Valley where conditions were no longer favourable for breeding. In West Africa, the Inter-Tropical Convergence Zone (ITCZ) moved progressively northwards during June. Consequently, seasonal rains commenced from the first decade of the month onwards in southeast Mauritania, northern Mali (Adrar des Iforas, Tilemsi Valley, Tamesna), Niger (Tamesna and western Air Mountains) and eastern Chad (as far north as Abeche). Sufficient rain has fallen in some areas to allow small-scale breeding to commence in July.

In the **Central Region**, vegetation continued to dry out in the spring breeding areas in the interior of Saudi Arabia as well as along the Red Sea coastal plains. As the ITCZ moved progressively northwards during June, seasonal rains began to fall in the summer breeding areas in the interior of Sudan, reaching 15N by the end of the month. Sufficient rain is likely to have fallen in some areas to allow small-scale breeding to commence in July. In Yemen, light rains fell on the Red Sea coast and a few showers were reported in the summer breeding areas in the interior of Shabwah and Hadhramaut where conditions remained unfavourable for breeding. In the Horn of Africa, light showers fell on the plateau between Dire Dawa, Ethiopia and Hargeisa, northern Somalia. This should allow conditions to become favourable for Desert Locust survival and limited breeding. In northern Oman, unusually heavy rains associated with Cyclone Phet fell in the Sharqiya region on 3-4 June. The cyclone then moved east across the Arabian Sea. Once floodwaters recede, ecological conditions are expected to be favourable for locust survival and breeding for several months.

In the **Eastern Region**, heavy rains associated with Cyclone Phet fell on 4-5 June in coastal areas from Zaribad, Iran to Karachi, Pakistan, extending to the summer breeding areas of Tharparkar, Pakistan and Rajasthan, India on 6-7 June. Consequently, ecological conditions will be unusually favourable for locust breeding in these areas during the coming months. The cyclone appears to have temporarily disrupted the seasonal advance of the monsoon towards the summer breeding areas in both countries. However, by the end of the month, monsoon rains began to fall in Gujarat and parts of southeastern Rajasthan but vegetation remained dry.

## Area Treated

| | |
|---|---|
| Algeria | 428 ha (May revised) |
| | 350 ha (June) |
| Morocco | 303 ha (June) |
| Saudi Arabia | 5 ha (June) |

## Desert Locust Situation and Forecast

*( see also the summary on page 1 )*

**WESTERN REGION**

**Mauritania**

• **SITUATION**

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

• **FORECAST**

*Locust numbers will gradually increase in the southeast as small-scale breeding commences in areas of recent rainfall. Small-scale breeding will occur in other areas of the south and centre of the country depending on rainfall.*

**Mali**

• **SITUATION**

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

• **Forecast**

*Isolated adults are likely to be present in parts of the Adrar des Iforas where small-scale breeding will commence with the onset of the seasonal rains, causing locust numbers to increase slightly but remain below threatening levels.*

**Niger**

• **Situation**

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

• Forecast

*Isolated adults are likely to be present in southern and eastern parts of the Tamesna where small-scale breeding is expected to occur in areas of recent rainfall, causing locust numbers to increase slightly but remain below threatening levels.*

**Chad**

• **Situation**

No reports were received during June.

• **Forecast**

*Isolated adults are likely to appear in parts of the east near Abeche where small-scale breeding is expected to occur in areas of recent rainfall, causing locust numbers to increase slightly but remain below threatening levels.*

**Senegal**

• **Situation**

No surveys were carried out and no locusts were reported during 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 June, ground teams treated 350 ha in the central Sahara near Adrar (2753N/0017W) where second to fifth instar hoppers mixed with immature and mature solitarious adults were present in about a dozen agricultural areas. Adult densities varied from 500 to 3,000 adults/ha. Some of the mature adults were *transiens* and forming small groups. *Transiens* hoppers were also present. No locusts were seen during surveys carried out in the west near Tindouf (2741N/0811W) and Beni Abbes (3011N/0214W), in the south between In Salah (2712N/0229E) and Tamanrasset (2250N/0528E) and in the east near Djanet (2434N/0930E).

• **Forecast**

*Locust numbers will decline in the central Sahara as conditions dry out and low numbers of adults move towards the southern Sahara. Small infestations could persist near agricultural areas in Adrar.*

**Morocco**

• **Situation**

During June, locust numbers declined along the southern side of the Atlas Mountains. Only low densities of scattered immature and mature solitarious adults were present at about a dozen places in the Draa Valley along the Algerian border south of Foum El Hassan (2901N/0853W). Ground teams treated 303 ha during the first decade of the month

• **Forecast**

*Locust numbers will continue to decline south of the Atlas Mountains and no significant developments are likely.*

**Libyan Arab Jamahiriya**

• **Situation**

During June, scattered second to fourth instar solitarious hoppers and immature and mature solitarious adults were present in the southwest near Ghat (2459N/1011E) and the Algerian border at densities up to 2,000 adults/ha. A few adults were copulating at mid-month. In the northwest, no locusts were seen during surveys carried out in the Al Hamada Al Hamra between Ghadames (3010N/0930E) and Mizda (3127N/1259E).

• **Forecast**

*Low numbers of locusts are likely to persist in parts of the southwest near Ghat.*

**Tunisia**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**CENTRAL REGION**

**Sudan**

• **Situation**

During June, scattered mature solitarious adults were present in a few cropping areas along the Nile River in Northern and River Nile States near Merowe (1830N/3149E), Abu Hamed (1932N/3320E)

and Atbara (1742N/3400E) as well as along the Atbara River. No locusts were seen near Dongola (1910N/3027E) and in the summer breeding areas of North Kordofan, Khartoum, White Nile and Kassala States.

• **Forecast**

*Low numbers of solitarious adults are likely to appear in the summer breeding areas of West and North Darfur, West and North Kordofan, and White Nile and breed on a small scale once the summer rains start. Low numbers of locusts will persist and could breed in cropping areas along the Nile and Atbara Rivers. Consequently, locust numbers are expected to increase slightly but will remain below threatening levels.*

**Eritrea**

• **Situation**

No reports were received during June.

• **Forecast**

*Low numbers of solitarious adults may appear in the summer breeding areas in the western lowlands and breed on a small scale with the onset of the summer rains.*

**Ethiopia**

• **Situation**

Unconfirmed reports from late May were confirmed to be isolated maturing solitarious adults in a few places near Aysha (1045N/4234E) and the borders of Djibouti and northern Somalia. Undetected small-scale breeding occurred during May, giving rise to scattered hoppers in June. A few adults were seen copulating during the second and third weeks of June. No locusts were seen during surveys near Dire Dawa (0935N/4150E).

• **Forecast**

*Small-scale breeding will cause locust numbers to increase slightly in the Aysha area, but numbers will remain below threatening levels. Hatching will occur in early July and fledging will take place during the first half of August.*

**Djibouti**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**Somalia**

• **Situation**

During June, no locusts were seen during surveys carried out on the northwest escarpment between Hargeisa (0931N/4402E) and Silil (1058N/4326E) and on the coastal plains from the Djibouti border to Berbera (1028N/4502E).

• **Forecast**

*Low numbers of solitarious adults may be present in parts of the plateau between Boroma and Burao where small-scale breeding could occur in areas of recent rainfall.*

**Egypt**

• **Situation**

During June, isolated solitarious adults were seen at one farm near Sh. Oweinat (2219N/2845E). Elsewhere, no locusts were seen during surveys carried out in the Western Desert near Bahariya (2821N/2851E), Farafra (2710N/2818E) and Dakhla (2530N/2900E), and on the western shore of Lake Nasser near Tushka (2247N/3126E) and Abu Simbel (2219N/3138E).

• **Forecast**

*No significant developments are likely.*

**Saudi Arabia**

• **Situation**

During June, locusts declined on the Red Sea coast where only small residual populations of immature solitarious adults remained near Rabigh (2247N/3901E). On the western edge of the interior, low-density groups of immature adults were present east of Taif (2115N/4021E) near Al Khurmah (2155N/4202E) and ground teams treated 5 ha of late instar hopper bands. Small-scale breeding occurred in the interior near Hail (2731N/4141E) where isolated fifth instar solitarious hoppers were present at mid-month. No locusts were seen in the interior near Buraydah (2621N/4358E) or in the Asir Mountains near Khamis Mushait (1819N/4245E).

• **Forecast**

*Locusts will continue to decline in all areas and no significant developments are expected.*

**Yemen**

• **Situation**

During June, scattered immature and mature solitarious adults were present at a few places of the interior near Shabwah (1522N/4700E) and between Ataq (1435N/4649E) and Bayhan (1452N/4545E). No locusts were seen elsewhere in the summer breeding areas.

• **Forecast**

*Scattered adults will persist in the summer breeding areas of the interior and breed on a small scale if rainfall occurs.*

**Oman**

• **Situation**

During June, scattered mature solitarious adults were present at two places on the northeastern edge of the Wahiba Sands southeast of Ibra (2243N/5831E) in Sharqiya. This area received unusually heavy rains in early June from Cyclone Phet. No locusts were seen during surveys in Dakhliya and Dhahera and Dhofar regions.

• **Forecast**

*Small-scale breeding is likely to occur in those areas of Sharqiya that received heavy rainfall from Cyclone Phet, causing locust numbers to increase slightly. Regular monitoring is recommended.*

**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 June, no locusts were seen during surveys carried out on the southeastern coast near Bander-e Lengheh (2634N/5452E), Jask (2540N/5746E), and Chabahar (2517N/6036E).

• **Forecast**

*No significant developments are likely.*

**Pakistan**

• **Situation**

No locusts were seen during surveys carried out in the spring breeding areas of Baluchistan during the second half of May.

During the last week of June, isolated mature solitarious adults were present at two places in Cholistan near Dhandwala (2818N/7207E) and the Indian border.

• Forecast

*Small-scale breeding is expected to occur in parts of the summer breeding areas in Cholistan and Tharparkar that received rainfall associated with Cyclone Phet in June.*

**India**

• **Situation**

No locusts were seen during intensive surveys carried out during the second half of May and during June in the summer breeding areas in Rajasthan and Gujarat.

• **Forecast**

*Low numbers of solitarious adults are expected to appear in the summer breeding areas in Rajasthan and Gujarat and breed on a small scale in areas that received rainfall associated with Cyclone Phet in June.*

**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, eLocust2Mapper 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 (www.fao.org/ag/locusts) are:

- **2010 Iran/Pakistan Joint Survey report.** Publications Section – Reports
- **Desert Locust situation updates.** Archives Section – Briefs
- **Desert Locust risk map update.** Archives Section – Risk maps

**Locust Watch in Caucasus and Central Asia.** The third regional monthly bulletin has been issued and is available on the website (www.fao.org/ag/locusts-CCA/en/index.html). The bilingual bulletin (English/Russian) summarizes the regional locust situation in the previous month and includes a forecast for the coming month for Italian, Moroccan and Migratory locusts. It will be issued by the 15th of each month.

**2010 events.** The following activities are scheduled or planned:

- **CRC training.** 3rd regional aerial Desert Locust training course, Moshi, Tanzania (2-6 Aug)
- **CRC.** 31st session of Executive Committee and 27th session of Commission, Beirut, Lebanon (20-24 Sep)
- **EMPRES/WR.** Desert Locust Master Trainers (Survey) regional workshop, Mauritania (Oct)
- **SWAC.** 27th session, Islamabad, Pakistan (Dec)
- **EMPRES/WR.** 6th Steering Committee meeting and 9th EMPRES Liaison Officers meeting, Tripoli, Libya (Dec)

## 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**

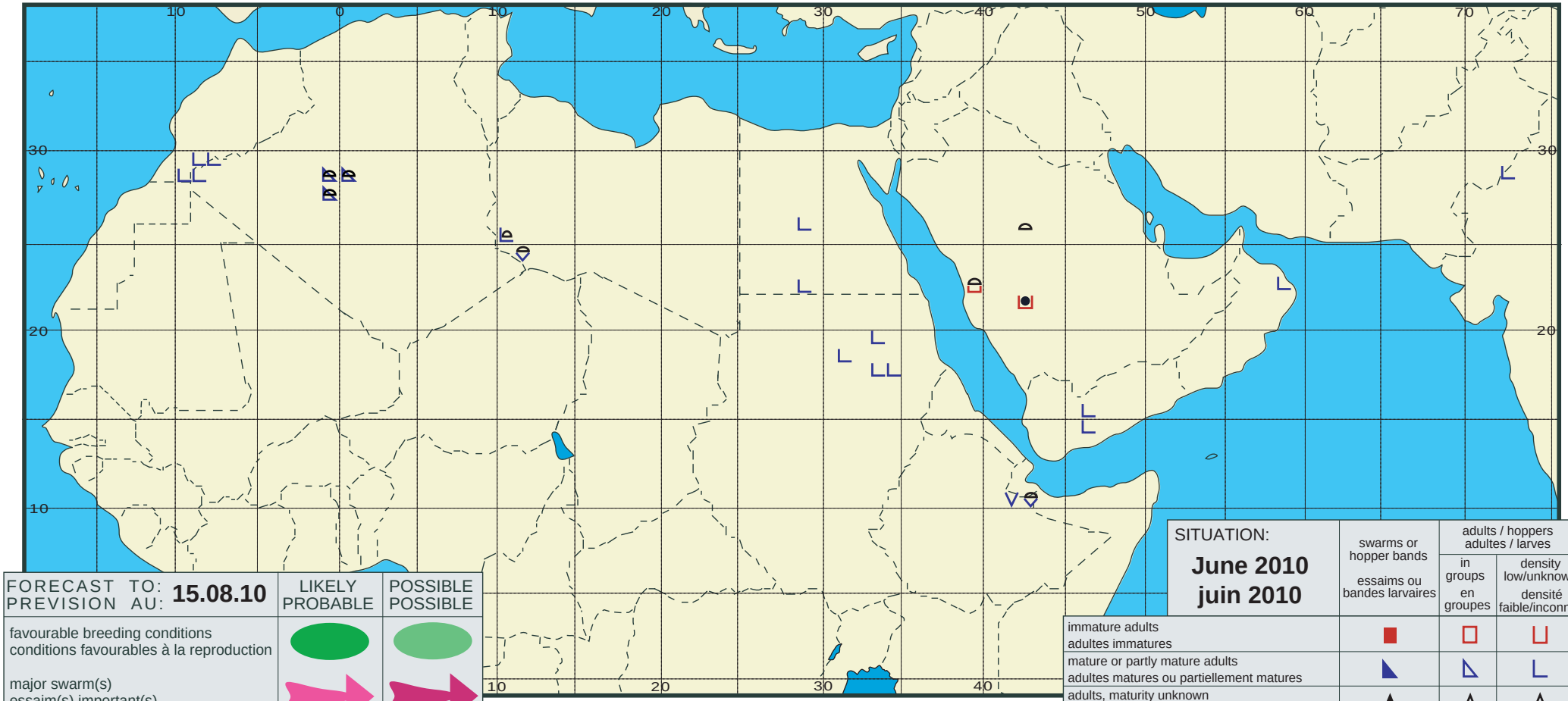
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

**EASTERN**

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

# Desert Locust Summary
# Criquet pèlerin - Situation résumée

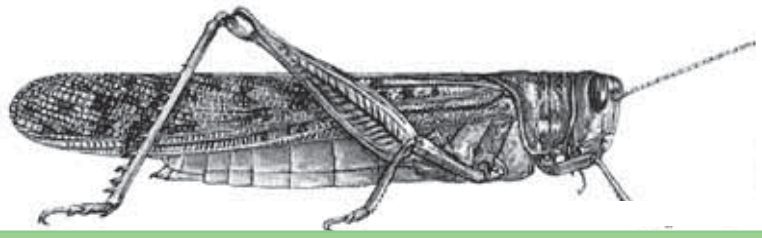
**381**




| FORECAST TO: / PREVISION AU: **15.08.10** | LIKELY PROBABLE | POSSIBLE POSSIBLE |
|---|---|---|
| favourable breeding conditions<br>conditions favourables à la reproduction | | |
| major swarm(s)<br>essaim(s) important(s) | | |
| minor swarm(s)<br>essaim(s) limité(s) | | |
| non swarming adults<br>adultes non essaimant | | |

SITUATION:
**June 2010**
**juin 2010**

| | swarms or hopper bands<br>essaims ou bandes larvaires | adults / hoppers adultes / larves: in groups en groupes | adults / hoppers adultes / larves: density low/unknown densité faible/inconnue |
|---|---|---|---|
| immature adults<br>adultes immatures | ■ | □ | ⊔ |
| mature or partly mature adults<br>adultes matures ou partiellement matures | ◣ | ◺ | L |
| adults, maturity unknown<br>adultes, maturité inconnue | ▲ | △ | ⋀ |
| egg laying or eggs<br>pontes ou œufs | ▼ | ▽ | ⋁ |
| hoppers<br>larves | ● | ○ | ◡ |
| hoppers & adults (combined symbol example)<br>larves et adultes (exemple symboles combinés) | ◘ | ◙ | ◒ |



warning level: **CALM**

# DESERT LOCUST BULLETIN

**FAO Emergency Centre for Locust Operations**

**No. 382**

*(3 August 2010)*

## General Situation during July 2010
## Forecast until mid-September 2010

**The Desert Locust situation remained calm during July. Small infestations of solitarious adults were treated in central Algeria. Scattered adults are likely to be present in parts of the summer breeding areas in the northern Sahel between Mauritania and Eritrea, in the interior of Yemen and on both sides of the Indo-Pakistan border. As widespread good rains fell in July, small-scale breeding during the forecast period will cause locust numbers to increase slightly but remain below threatening levels. All efforts should be made to conduct regular surveys during the next few months to monitor the situation.**

**Western Region.** Good rains fell throughout the summer breeding areas in the northern Sahel between **Mauritania** and **Chad**. Although no surveys were carried out and no locusts were reported, scattered solitarious adults are almost certainly present in parts of southern Mauritania, northern **Mali**, northern **Niger** and eastern Chad. During the forecast period, small-scale breeding will cause locust numbers to increase slightly but remain below threatening levels. In Northwest Africa, ground control was carried out against 100 ha of solitarious adults in central **Algeria**. No locusts were reported elsewhere in the region.

**Central Region.** Good rains fell throughout the summer breeding areas in **Sudan**, **Eritrea** and parts of **Yemen**. Scattered solitarious adults were seen in northern Sudan and are likely to be present in Eritrea and Yemen but ground surveys could not be undertaken to confirm this. During the forecast period, small-scale breeding will cause locust numbers to increase slightly but remain below threatening levels. No locusts were reported elsewhere in the region.

**Eastern Region.** Despite good monsoon rains and intensive surveys, no locusts were reported in the summer breeding areas in Rajasthan, **India**. Nevertheless, low numbers of solitarious adults are likely to be present in some places as well as in adjacent areas of Tharparkar and Cholistan in **Pakistan**. Small-scale breeding is expected to occur during the forecast period in both countries.

The FAO Desert Locust Bulletin is issued every month by the Desert Locust Information Service, AGP Division (Rome, Italy). It is supplemented by Alerts and Updates during periods of increased Desert Locust activity. All products are distributed by e-mail and made available on the Internet.
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**Internet:** www.fao.org
**DLIS:** www.fao.org/ag/locusts

No. 382

DESERT LOCUST BULLETIN

## Weather & Ecological Conditions in July 2010

**Good rains fell throughout the summer breeding areas of the Sahel in West Africa and Sudan, causing ecological conditions to improve and become favourable for breeding in most areas. Good rains also fell along both sides of the Red Sea, in the interior of Yemen and along the Indo-Pakistan border.**

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) continued to move progressively northwards during July, oscillating near 18N in West Africa. It was slightly further north than usual over northeastern Mali, Niger and Chad. Consequently, good rains fell in most of the northern Sahel giving rise to favourable breeding conditions. In Mauritania, good rains fell in the south between Nouakchott and Nema while heavier showers occurred in Aguilal Faye and east of Nema during the first decade, and near Tmeimichat and east of Ouadane in the second decade. In Mali, rains commenced near Tombouctou in the first decade and Timetrine in the second decade while good rains fell most of the month in the Adrar des Iforas and the Tamesna. In Niger, heavy rains fell in the central Tamesna and southern Air during the first decade, and good rains fell during the remainder of July in the Tamesna. In Chad, good rains fell as far north as Faya and Fada during the second decade, including parts of Tibesti, and rains fell during most of the month in the east. Mainly dry conditions prevailed in Northwest Africa, except in southern Algeria where good rains fell near the Mali border and vegetation was green or becoming green near Tamanrasset.

In the **Central Region**, the ITCZ was located further north than usual over Sudan during July. This allowed rains to continue to fall in the summer breeding areas where conditions were already favourable in some places west of the Nile. During the second decade, heavy showers occurred over the northern portion of Darfur, Kordofan, Khartoum and Kassala states, while good rains fell as far north as the Baiyuda Desert and northwest Sudan. This will cause breeding conditions to become favourable over a relatively large area. The heavy rainfall during the second decade extended to all parts of Eritrea and covered the Red Sea coast from Jeddah, Saudi Arabia to Mocca, Yemen. Lighter rain fell over the Harar Highlands and near Dire Dawa in eastern Ethiopia, the plateau of northwestern Somalia near Boroma, and in the summer breeding areas in the interior of Yemen. In northern Oman, good rains fell in the interior between Buraimi and Adam. Good rains fell in parts of southeastern Egypt near Allaqi at mid-month.

In the **Eastern Region**, good rains associated with the seasonal monsoon fell in the summer breeding areas along both sides of the Indo-Pakistan border during July. Although most of the rains occurred during the first decade, enough rain has fallen to allow small-scale breeding to take place.

## Area Treated

| | |
|---|---|
| Algeria | 100 ha (July) |

## Desert Locust Situation and Forecast

*( see also the summary on page 1 )*

**WESTERN REGION**

**Mauritania**

• **SITUATION**

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

• **FORECAST**

*Low numbers of solitarious adults are almost certainly present in parts of the south, and small-scale breeding may have already commenced in those areas that received rain in late June and early July. During the forecast period, small-scale breeding will cause locust numbers to increase gradually in the southern and central areas.*

**Mali**

• **SITUATION**

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

• **FORECAST**

*Isolated adults are likely to be present in parts of the Adrar des Iforas, Tilemsi Valley and Tamesna where small-scale breeding may have already commenced in some places. During the forecast period, small-scale breeding will cause locust numbers to increase gradually in these areas and perhaps in parts of Timetrine and Tombouctou.*

**Niger**

• **Situation**

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

• Forecast

*Isolated adults are almost certainly present in parts of the Tamesna and small-scale breeding may have already commenced in areas of recent rainfall. During the forecast period, small-scale breeding will cause locust numbers to increase gradually in the Tamesna and near Tanout.*

**Chad**

• **Situation**

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

• **Forecast**

*Low numbers of adults are likely to be present in parts of the east between Abeche and Fada, and perhaps in some places of Kanem and Batha. Small-scale breeding is expected to occur in areas of recent rainfall, causing locust numbers to increase slightly but remain below threatening levels.*

**Senegal**

• **Situation**

No surveys were carried out and no locusts were reported during June and 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 the last week of June, isolated immature solitarious adults were seen at four places in the south near Tamanrasset (2250N/0528E).

During July, ground teams treated 100 ha of immature solitarious adults at two places about 400 km north of Tamanrasset at Tahihaouet (ca. 2636N/0681E). No locusts were seen near Tamanrasset and Adrar (2753N/0017W).

• **Forecast**

*Scattered adults are likely to persist in a few places near Tamanrasset. Locust numbers may increase slightly in the extreme south if small-scale breeding occurs in areas of recent rainfall near the borders of Mali and Niger.*

**Morocco**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**Libyan Arab Jamahiriya**

• **Situation**

No locusts were seen during surveys carried out in the last decade of July in the centre of the country east of Sabha (2704N/1425E) near Al Harouj Al Aswad (ca. 2630N/1630E).

• **Forecast**

*Low numbers of locusts are likely to persist in parts of the southwest near Ghat.*

**Tunisia**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**CENTRAL REGION**

**Sudan**

• **Situation**

During July, surveys were carried out in the summer breeding areas and scattered mature solitarious adults were seen in the north near Merowe (1830N/3149E). Further details are awaited.

• **Forecast**

*Scattered adults are almost certainly present in parts of West and North Darfur, West and North Kordofan, White Nile, River Nile, Northern and Kassala states where small-scale breeding will cause locust numbers to increase during the forecast period.*

**Eritrea**

• **Situation**

No reports were received during July.

• **Forecast**

*Scattered adults are almost certainly present in the summer breeding areas of the western lowlands. During the forecast period, small-scale breeding will cause locust numbers to increase slightly in areas of recent rainfall.*

**Ethiopia**

• **Situation**

No locusts were seen during surveys carried out in July in northeastern Tigray and near Dire Dawa (0935N/4150E).

• **Forecast**

*Isolated adults may be present and could persist in the Aysha area.*

**Djibouti**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**Somalia**

• **Situation**

During July, no locusts were seen during surveys carried out on the northwest escarpment between Hargeisa (0931N/4402E) and the Djibouti border, and on the coastal plains from the Djibouti border to Lughaye (1041N/4356E).

• **Forecast**

*Low numbers of solitarious adults may be present in parts of the plateau between Boroma and Burao where small-scale breeding could occur in areas of recent rainfall.*

**Egypt**

• **Situation**

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

• **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**

*Scattered adults may appear in areas of recent rainfall on the Red Sea coast near Qunfidah and Jizan. No significant developments are likely.*

**Yemen**

• **Situation**

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

• **Forecast**

*Scattered adults are almost certainly present in the summer breeding areas of the interior between Marib and Hadhramaut. During the forecast period, small-scale breeding will cause locust numbers to increase slightly in areas of recent rainfall.*

**Oman**

• **Situation**

No locusts were seen during surveys in Dakhliya and Buraimi regions in July.

• **Forecast**

*Small-scale breeding is likely to occur in those areas of Sharqiya that received heavy rainfall from Cyclone Phet, causing locust numbers to increase slightly. Regular monitoring is recommended.*

**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 were received during July.

• **Forecast**

*No significant developments are likely.*

**Pakistan**

• **Situation**

No reports were received during July.

• Forecast

*Low numbers of solitarious adults are likely to be present in parts of the summer breeding areas in Cholistan and Tharparkar where small-scale breeding will cause locust numbers to increase slightly during the forecast period.*

**India**

• **Situation**

No locusts were seen during intensive surveys carried out during July in the summer breeding areas in Rajasthan and Gujarat.

• **Forecast**

*Low numbers of solitarious adults are likely to be present in parts of the summer breeding areas in Rajasthan and Gujarat where small-scale breeding will cause locust numbers to increase slightly during the forecast period.*

**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.

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- **Desert Locust risk map update.** Archives Section – Risk maps

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- **CRC training.** 3rd regional aerial Desert Locust training course, Moshi, Tanzania (2-6 Aug)
- **CRC.** 31st session of Executive Committee and 27th session of Commission, Beirut, Lebanon (20-24 Sep)
- **EMPRES/WR.** Desert Locust Master Trainers (Survey) regional workshop, Mauritania (Oct)
- **SWAC.** 27th session, Islamabad, Pakistan (14-16 Dec)
- **EMPRES/WR.** 6th Steering Committee meeting and 9th EMPRES Liaison Officers meeting, Tripoli, Libya (Dec)

## 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**

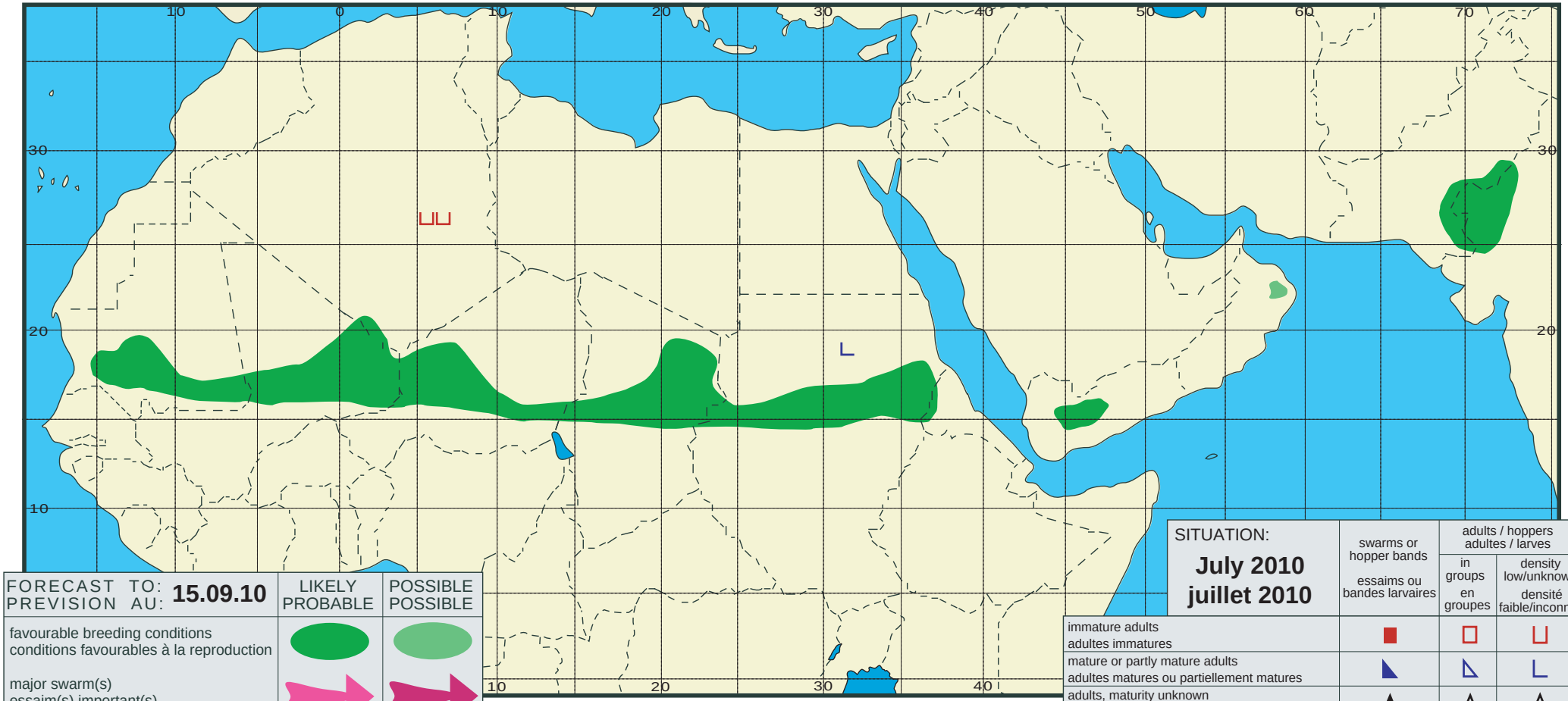
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

**EASTERN**

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

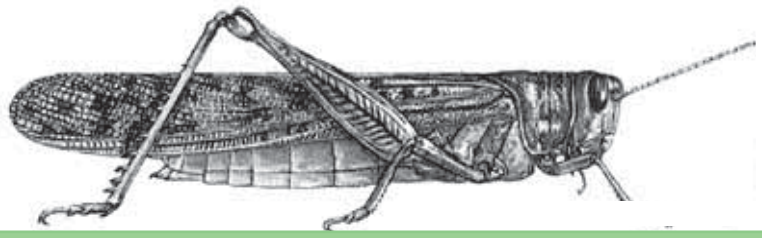
# Desert Locust Summary
# Criquet pèlerin - Situation résumée

**382**




| FORECAST TO: / PREVISION AU: **15.09.10** | LIKELY / PROBABLE | POSSIBLE / POSSIBLE |
|---|---|---|
| favourable breeding conditions<br>conditions favourables à la reproduction | | |
| major swarm(s)<br>essaim(s) important(s) | | |
| minor swarm(s)<br>essaim(s) limité(s) | | |
| non swarming adults<br>adultes non essaimant | | |

| SITUATION: **July 2010 / juillet 2010** | swarms or hopper bands<br>essaims ou bandes larvaires | adults / hoppers adultes / larves: in groups en groupes | adults / hoppers adultes / larves: density low/unknown densité faible/inconnue |
|---|---|---|---|
| immature adults<br>adultes immatures | | | |
| mature or partly mature adults<br>adultes matures ou partiellement matures | | | |
| adults, maturity unknown<br>adultes, maturité inconnue | | | |
| egg laying or eggs<br>pontes ou œufs | | | |
| hoppers<br>larves | | | |
| hoppers & adults (combined symbol example)<br>larves et adultes (exemple symboles combinés) | | | |



warning level: **CALM**

# DESERT LOCUST BULLETIN

**FAO Emergency Centre for Locust Operations**

**No. 383**

*(2 September 2010)*

## General Situation during August 2010
## Forecast until mid-October 2010

**The Desert Locust situation remained calm during August despite good rainfall throughout the summer breeding areas in the Sahel of West Africa and Sudan as well as along both sides of the Indo-Pakistan border. Small-scale breeding occurred in Mauritania and in Pakistan, and is likely to be underway in parts of Mali, Niger, Algeria, Chad, Sudan, Eritrea, and India. During the forecast period, small-scale breeding will continue in these areas and locust numbers could increase rapidly. By mid-October, there is a low risk that locusts could concentrate in vegetation that remains green and form small groups.**
**All efforts should be made to conduct regular surveys during the next few months to monitor the situation.**

**Western Region.** Good rains fell during August for a second consecutive month in the summer breeding areas of the northern Sahel between Mauritania and Chad. Small-scale breeding occurred in southeast **Mauritania** and is likely to be in progress in northern **Mali** and **Niger** (but surveys could not confirm this because of continued insecurity), in southern **Algeria** and in eastern **Chad**. During the forecast period, small-scale breeding will continue in the northern Sahel and locust numbers could increase rapidly. By mid-October, there is a low risk that locusts could concentrate in vegetation that remains green and form small groups, primarily in northwest Mauritania and to a lesser extent in other areas of northern Mali and Niger.

**Central Region.** Good rains fell during August for a second consecutive month in the summer breeding areas of northern **Sudan**, western **Eritrea** and the interior in **Yemen**. Only scattered solitarious adults were seen in Sudan. A few hoppers and adults were present in eastern **Ethiopia** from undetected breeding in July. During the forecast period, small-scale breeding will cause locust numbers to increase in the interior of Sudan and western Eritrea and, to a lesser extent, in the interior of Yemen. Low numbers of solitarious adults could appear in areas of recent rainfall on the Red Sea and Gulf of Aden coasts in Yemen and on the plateau in northern **Somalia**.

**Eastern Region.** Good rains associated with the monsoon fell during August for a second consecutive month throughout the summer breeding areas along both sides of the Indo-Pakistan border. Low numbers of adults were present between Tharparkar and Cholistan in **Pakistan** and small-scale breeding was reported. So far, breeding has not been detected in adjacent areas of Rajasthan, **India**. During the forecast period, small-scale breeding will cause locust numbers to increase in both countries.

The FAO Desert Locust Bulletin is issued every month by the Desert Locust Information Service, AGP Division (Rome, Italy). It is supplemented by Alerts and Updates during periods of increased Desert Locust activity. All products are distributed by e-mail and made 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. 383

DESERT LOCUST BULLETIN

## Weather & Ecological Conditions in August 2010

**Good rains fell for the second consecutive month throughout the summer breeding areas of the Sahel in West Africa and Sudan, and along the Indo-Pakistan border. Consequently, ecological conditions improved and were favourable for breeding. Good rains also fell along parts of the southern Red Sea coast, the Gulf of Aden coast, the interior of Yemen and on the Somali plateau.**

In the **Western Region**, good rains fell in the summer breeding areas of the northern Sahel between Mauritania and Chad, especially during the second decade of August. The Inter-Tropical Convergence Zone (ITCZ) remained slightly further north (21N) than usual over the western portion of the Sahel. In Mauritania, rains reached as far north as southern Adrar and parts of Inchiri, and heavy rains fell in Tagant and southwest Adrar between Tidjikja and Oujeft. Good rains, heavy at times, also fell in northern Mali (Taoudenni, Timetrine and Adrar des Iforas), Niger (Tamesna between In Abangharit and Agadez), and in eastern Chad (Abeche to Fada). In Algeria, light rains fell in parts of the central and southern Sahara near Tindouf, Bechar, Tamanrasset and Djanet while moderate rains were reported near the Malian border at Bir Bou Mokhtar. Consequently, ecological conditions improved in all of the above-mentioned areas and were favourable for breeding.

In the **Central Region**, the ITCZ persisted over northern Sudan during August and good rains continued to fall in the summer breeding areas of Darfur, Kordofan, Khartoum, River Nile and Kassala states, reaching as far north as Merowe. Heavy showers fell near Hamrat Esh Sheikh, El Obeid, and Ed Dueim. Good rains also fell in the summer breeding areas in the western lowlands of Eritrea and in parts of the interior of Yemen as well as on the Red Sea coast from Zabid, Yemen to Qunfidah, Saudi Arabia and on the southern Eritrean coast. Heavier showers fell on the central and southern Tihama in Yemen while lighter rains fell along parts of the southern coast of Yemen near Aden and on the plateau and coast in northwest Somalia. As a result of these rains, ecological conditions remained favourable for breeding in the interior of Sudan and western Eritrea, and are likely to be improving in the other areas mentioned above.

In the **Eastern Region**, good rains associated with the seasonal monsoon continued to fall in the summer breeding areas along both sides of the Indo-Pakistan border during August. Rainfall was heaviest during the first two decades while it tapered off during the third decade. In any case, ecological conditions improved and were favourable for breeding in Pakistan from Tharparkar to Cholistan and in Rajasthan and Gujarat in India.

## Area Treated

### Area Treated

No control operations were reported in August.

## Desert Locust Situation and Forecast

*( see also the summary on page 1 )*

### Desert Locust Situation and Forecast

*(see also the summary on page 1)*

**WESTERN REGION**

**Mauritania**

• **SITUATION**

During August, small-scale breeding occurred in a few places in the southeast between Timbedra (1614N/0809W) and Nema (1636N/0715W) where first instar hoppers were seen at densities of up to 8 hoppers/site at mid-month. Isolated immature and mature solitarious adults were present in the same area as well as north of Aioun El Atrous (1639N/0936W), near Kiffa (1638N/1124W) and north of Magta Lahjar (1730N/1305W).

• **FORECAST**

*Small-scale breeding will continue and extend to the south, southwest and central areas where recent rains have fallen. This could cause locust numbers to increase rapidly. Fledging will commence by mid-September. By the end of the forecast period, locusts could concentrate and form small groups east and northeast of Nouakchott.*

**Mali**

• **SITUATION**

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

• **Forecast**

*Scattered adults are likely to be present and breeding in parts of the Adrar des Iforas, Tilemsi Valley, Timetrine and Tamesna. During the forecast period, small-scale breeding could cause locust numbers to increase rapidly in these areas. Once rains come to an end and vegetation starts to dry out, there is a low risk that adults could concentrate and form small groups in some areas.*

**Niger**

• **Situation**

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

• Forecast

*Scattered adults are likely to be present and breeding in the Tamesna and near Tanout, and perhaps in the western Air Mountains. During the forecast period, small-scale breeding could cause locust numbers to increase rapidly in these areas. Once rains come to an end and vegetation starts to dry out, there is a low risk that adults could concentrate and form small groups in some areas.*

**Chad**

• **Situation**

No reports were received during August.

• **Forecast**

*Scattered adults are likely to be present and breeding in parts of the east between Abeche and Fada, and in some places of Kanem and Batha. During the forecast period, small-scale breeding could cause locust numbers to increase rapidly in these areas. Once rains come to an end and vegetation starts to dry out, there is a low risk that adults could concentrate and form small groups in some areas.*

**Senegal**

• **Situation**

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

• **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, no locusts were seen near Tamanrasset (2250N/0528E) and Adrar (2753N/0017W).

• **Forecast**

*Scattered adults are likely to be present and breeding in the extreme south near the Malian border. During the forecast period, small-scale breeding could cause locust numbers to increase rapidly.*

**Morocco**

• **Situation**

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

• **Forecast**

*Low numbers of solitarious adults may appear in the southern portion of Western Sahara by the end of the forecast period.*

**Libyan Arab Jamahiriya**

• **Situation**

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

• **Forecast**

*Low numbers of locusts are likely to be present in parts of the southwest near Ghat.*

**Tunisia**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**CENTRAL REGION**

**Sudan**

• **Situation**

During August, scattered immature and mature solitarious adults at densities of up to 100 adults/ha were present in North Kordofan near Sodiri (1423N/2906E) and Umm Saiyala (1426N/3112E), and scattered mature adults were seen in Northern State near Merowe (1830N/3149E), in River Nile State near Berber (1801N/3400E) and Ed Damer (1734N/3358E), and near Khartoum (1533N/3235E).

• **Forecast**

*Small-scale breeding is almost certainly in progress and will continue in parts of West and North Darfur, West and North Kordofan, White Nile, River Nile, Northern and Kassala states, causing locust numbers to increase gradually during the forecast period.*

**Eritrea**

• **Situation**

A late report indicated that no locusts were seen on 27-31 July on the Red Sea coast between Tio (1441N/4057E) and the Sudanese border except near Sheib (1551N/3903E) where solitarious adults were present.

No reports were received during August.

• **Forecast**

*Scattered adults are almost certainly present and breeding in the summer breeding areas of the western lowlands. During the forecast period, small-scale breeding will continue, causing locust numbers to increase slightly.*

**Ethiopia**

• **Situation**

Isolated second to fourth instar solitarious hoppers were present in the Somali Region near Ayasha (1045N/4234E) in early August, indicating that small-scale breeding occurred from undetected egg laying in mid-July. Isolated mature solitarious adults were seen between Ayasha and Dire Dawa (0935N/4150E).

• **Forecast**

*Low numbers of adults are expected to persist and mature near Ayasha where they could eventual breed on a small scale if conditions remain favourable.*

**Djibouti**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**Somalia**

• **Situation**

No reports were received during August.

• **Forecast**

*Low numbers of solitarious adults may be present and breeding in parts of the plateau between Boroma and Burao, causing locust numbers to increase slightly during the forecast period.*

**Egypt**

• **Situation**

No locusts were seen during surveys carried out near Abu Simbel (2219N/3138E) and Tushka (2247N/3126E) in early August.

• **Forecast**

*No significant developments are likely.*

**Saudi Arabia**

• **Situation**

No locusts were seen during surveys carried out on the Red Sea coast near Jeddah (2130N/3910E) and north of Jizan (1656N/4233E), and in the Asir Mountains near Khamis Mushait (1819N/4245E) and Al Barzah (2157N/3942E) during August.

• **Forecast**

*Scattered adults may appear in areas of recent rainfall on the Red Sea coast near Qunfidah and Jizan. No significant developments are likely.*

**Yemen**

• **Situation**

No reports were received during August.

• **Forecast**

*Scattered adults are almost certainly present and breeding in parts of the summer breeding areas of the interior between Marib and Hadhramaut. During the forecast period, small-scale breeding will continue, causing locust numbers to increase slightly. Low numbers of adults could appear in areas of recent rainfall on the Red Sea and Gulf of Aden coasts.*

**Oman**

• **Situation**

No locusts were seen during surveys in Musandam, Buraimi, Dhahira and Dakhliya regions in August.

• **Forecast**

*Small-scale breeding may occur in those areas of Sharqiya that received heavy rainfall from Cyclone Phet, causing locust numbers to increase slightly. Regular monitoring is recommended.*

**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 southeastern coast near Jask (2540N/5746E) in August.

• **Forecast**

*No significant developments are likely.*

**Pakistan**

• **Situation**

Late reports indicated that mature solitarious

adults were present during July at densities of up to 25 adults/ha in a few places of Mirpurkhas (2533N/6905E), Sukkur (2742N/6854E) and Uthal (2548N/6637E) areas.

During the first half of August, small-scale breeding occurred in Cholistan east of Rahimyar Khan (2822N/7020E) near the Indian border where isolated mid-instar hopper were seen at two places. Scattered mature solitarious adults were present at more places along the border in Cholistan and, to a lesser extent, in Sukkur, Khairpur and Tharparkar.

• Forecast

*Locust numbers will increase slightly as small-scale breeding continues in the summer breeding areas in Cholistan, Khairpur and Tharparkar. Unless further rains fall, breeding is expected to come to an end by mid-October.*

**India**

• **Situation**

No locusts were seen during intensive surveys carried out during August in the summer breeding areas in Rajasthan and Gujarat except for isolated mature solitarious adults at one location west of Barmer (2543N/7125E) near the Pakistani border.

• **Forecast**

*Locust numbers will increase slightly as small-scale breeding continues in the summer breeding areas in Rajasthan and Gujarat. Unless further rains fall, breeding is expected to come to an end by mid-October.*

**Afghanistan**

• **Situation**

No reports received.

• **Forecast**

*No significant developments are likely.*

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- **SWAC.** 27th session, Islamabad, Pakistan (14-16 Dec)
- **EMPRES/WR.** 6th Steering Committee meeting and 9th EMPRES Liaison Officers meeting, Tripoli, Libya (Dec)

## 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).

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- 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.

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- July - September/October

**WINTER RAINS AND BREEDING**

- October - January/February

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- February - June/July

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- 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.

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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.

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- 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.

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- period without widespread and heavy infestations by swarms.

**REMISSION**

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

### WARNING LEVELS

**GREEN**

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

**YELLOW**

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

**ORANGE**

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

**RED**

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

## REGIONS

**WESTERN**

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

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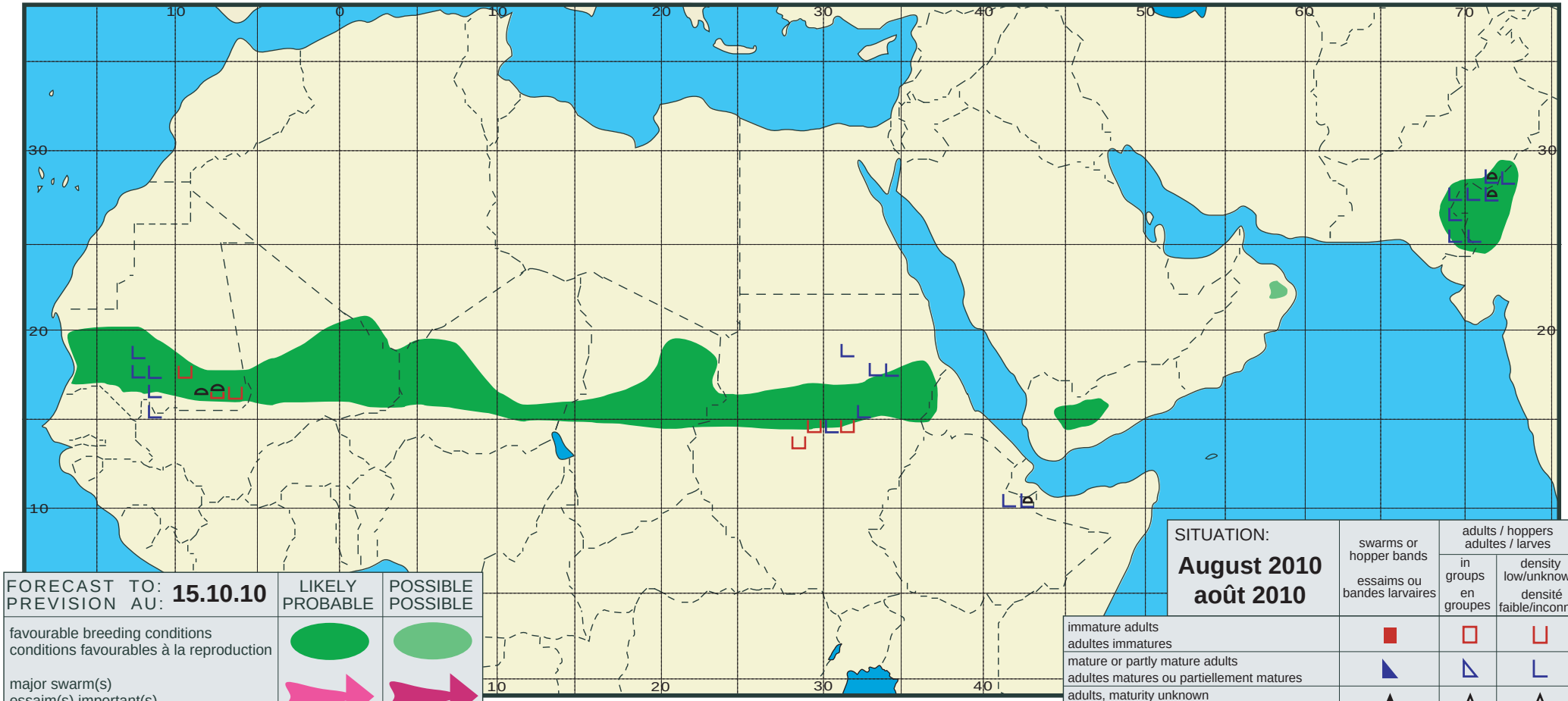
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

**EASTERN**

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

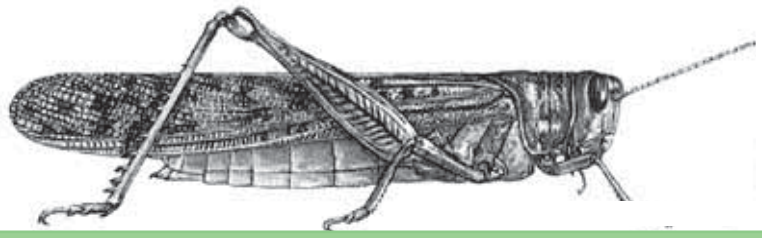
# Desert Locust Summary
# Criquet pèlerin - Situation résumée

**383**




| FORECAST TO: / PREVISION AU: **15.10.10** | LIKELY PROBABLE | POSSIBLE POSSIBLE |
|---|---|---|
| favourable breeding conditions<br>conditions favourables à la reproduction | | |
| major swarm(s)<br>essaim(s) important(s) | | |
| minor swarm(s)<br>essaim(s) limité(s) | | |
| non swarming adults<br>adultes non essaimant | | |

| SITUATION: **August 2010 août 2010** | swarms or hopper bands<br>essaims ou bandes larvaires | adults / hoppers adultes / larves<br>in groups en groupes | density low/unknown densité faible/inconnue |
|---|---|---|---|
| immature adults<br>adultes immatures | ■ | □ | ⊔ |
| mature or partly mature adults<br>adultes matures ou partiellement matures | ◣ | ◺ | L |
| adults, maturity unknown<br>adultes, maturité inconnue | ▲ | △ | ⋀ |
| egg laying or eggs<br>pontes ou œufs | ▼ | ▽ | ⋁ |
| hoppers<br>larves | ● | ○ | ◡ |
| hoppers & adults (combined symbol example)<br>larves et adultes (exemple symboles combinés) | ◘ | ◙ | ⊕ |



warning level: **CALM**

# DESERT LOCUST BULLETIN

**FAO Emergency Centre for Locust Operations**

**No. 384**

*(4 October 2010)*

## General Situation during September 2010 Forecast until mid-November 2010

**The Desert Locust situation remained calm during September. Scattered adults were present throughout southern Mauritania and central Chad, and in parts of northern Mali and central Sudan. Small-scale breeding occurred, causing locust numbers to increase slightly in all areas. In South-West Asia, local breeding took place in Pakistan and India, and a few adult groups were treated near the Indian border in Pakistan. Although seasonal rains had nearly ceased by the end of September, breeding conditions remained favourable in the Sahel and along the Indo-Pakistan border. During the forecast period, locusts could increase rapidly in northwest Mauritania, and to a lesser extent in parts of northern Mali, Niger and Chad, concentrate in vegetation that remains green, and form small groups. Locusts may persist along the Indo-Pakistan border. All efforts should be made to conduct regular surveys to monitor the situation.**

**Western Region.** Good rains fell during the first two decades of September in the summer breeding areas of the northern Sahel between Mauritania and Chad but declined thereafter. Low numbers of solitarious adults were scattered throughout the summer breeding areas of southern **Mauritania** and central and eastern **Chad**. Small-scale breeding occurred in Mauritania, northern **Mali** and northeast Chad. Breeding is also likely to be in progress in northern **Niger** but surveys could not confirm this because of continued insecurity. As seasonal rains end and vegetation dries out, locusts are likely to concentrate in vegetation that remains green, increase in density and perhaps form a limited number of groups, mainly in northwest Mauritania, northern Mali and Niger, and northeast Chad.

**Central Region.** Even though good rains fell during September for a third consecutive month in the summer breeding areas of northern **Sudan**, western **Eritrea** and the interior in **Yemen**, only low numbers of solitarious adults were seen during surveys carried out in Sudan. A few hoppers and adults mixed with African Migratory Locusts were present in northern **Somalia**. During the forecast period, breeding will come to an end in the summer breeding areas and low numbers of adults are likely to move towards the winter breeding areas along the Red Sea coast in Sudan, **Saudi Arabia** and Yemen. No significant developments are likely.

**Eastern Region.** Good rains associated with the monsoon fell during the first half of September throughout the summer breeding areas along both sides of the Indo-Pakistan border. Low numbers of solitarious adults were present between Tharparkar and Cholistan in **Pakistan** and, to a lesser extent, in Rajasthan, **India**. A few groups of adults were seen near the border in Pakistan where ground teams treated 900 ha. Small-scale breeding occurred in both countries. As the monsoon comes to an end and vegetation dries out, locusts are likely to concentrate along the border.

The FAO Desert Locust Bulletin is issued every month by the Desert Locust Information Service, AGP Division (Rome, Italy). It is supplemented by Alerts and Updates during periods of increased Desert Locust activity. All products are distributed by e-mail and made 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

## Weather & Ecological Conditions in September 2010

**Good rains fell for the third consecutive month throughout the summer breeding areas of the Sahel in West Africa and Sudan, and along the Indo-Pakistan border but declined in all areas at the end of September. Nevertheless, ecological conditions remained favourable for breeding.**

In the **Western Region**, good rains felll during the first two decades of September in the summer breeding areas of the northern Sahel between Mauritania and Chad. During the first decade, widespread rains fell throughout southern, central, northwestern and northern areas in Mauritania (except in Hodh Gharbi), in northern Mali (Taoudenni, and Adrar des Iforas), in southern Algeria (along the Malian border), in northern Niger (Tamesna and the Air Mountains), and in eastern Chad. During the second decade, rains declined in all areas except in northern Chad where good rains fell between Kalait, Fada and Faya. Although very little rain during the last decade of the month, except for northwest Mauritania, ecological conditions remained favourable for local breeding in most places. Dry conditions prevailed in northwest Africa except in wadis near Tamanrasset, Algeria where ecological conditions were favourable for breeding.

In the **Central Region**, good rains fell in parts of the summer breeding areas and in some places along the Red Sea coast during September. In the summer breeding areas of the interior of Sudan, good rains fell in Khartoum and Kassala States but were poor in North Kordofan. Although rains had declined by the end of the month, vegetation remained green and breeding conditions continued to be favourable in most areas. Good rains also fell in the western lowlands of Eritrea, on the eastern side of the Red Sea along the southern coastal plains in Saudi Arabia and the Tihama in Yemen, and on the plateau of northern Somalia. However, rainfall in these areas was generally better during the first decade of the month except for the Tihama in Yemen where good rains fell in both the first and second decades.

In the **Eastern Region**, good rains associated with the seasonal monsoon continued to fall intermittently in the summer breeding areas along both sides of the Indo-Pakistan border during the first half of September. Thereafter, rainfall declined significantly but ecological conditions remained favourable for breeding in Cholistan and Tharparkar deserts in Pakistan and in Gujarat and Rajasthan in India.

## Area Treated

| | |
|---|---|
| Pakistan | 900 ha (18-30 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 occurred northwest of Tamchekket (1714N/1040W) and between Aguilal Faye (1827N/1444W) and N'Beika (1758N/1215W) where isolated first to fourth instar solitarious hoppers and mature adults were present. During the second half of the month, isolated immature and mature solitarious adults were seen in more places west of N'Beika between Boutilimit (1732N/1441W), Nouakchott (1809N/1558W) and Akjoujt (1945N/1421W) while solitarious hoppers of all instars were present in only a few locations. Isolated immature and mature solitarious adults persisted east of Nema (1636N/0715W), northwest of Aioun El Atrous (1639N/0936W) and east of Tidjikja (1833N/1126W).

• **FORECAST**

*As seasonal rains end and vegetation dries out in the south and southeast, adults will move towards the northwest and concentrate in the Aguilal Faye area where there is a low to moderate risk that locust numbers could increase rapidly and perhaps a few small groups could form.*

**Mali**

• **SITUATION**

In early September, surveys were carried out in the Adrar des Iforas east of Aguelhoc (1927N/0052E) and north of Kidal (1827N/0125E) where isolated fourth and fifth instar solitarious hoppers and scattered immature and maturing solitarious adults, at densities of up to 100 adults/ha, were seen in a few places on

the 6-9th. Unfortunately, surveys had to be suspended due to insecurity.

• **Forecast**

*Small-scale breeding will continue in parts of the Adrar des Iforas, Tilemsi Valley, Timetrine and Tamesna where conditions remain favourable. Unless further rains occur, there is a low risk that adults could concentrate and form small groups in some areas as vegetation dries out.*

**Niger**

• **Situation**

No locusts were reported during September.

• Forecast

*Small-scale breeding will continue in parts of Tamesna where conditions remain favourable. Unless further rains occur, there is a low risk that adults could concentrate and form small groups in some areas as vegetation dries out.*

**Chad**

• **Situation**

During September, isolated immature and mature solitarious adults were mainly present in BET between Kalait (1550N/2054E), Fada (1714N/2132E) and Faya (1756N/1907E), and to a lesser extent further south in eastern Kanem near Salal (1448N/1712E), throughout Batha, and in Biltine near Abeche (1349N/2049E). Egg laying was reported near Kalait on 8 September.

• **Forecast**

*Small-scale breeding will cause locust numbers to increase in BET and, to a lesser extent, in parts of Kanem, Batha and Biltine. Hatching is expected to occur during October and fledging by the end of the forecast period. Unless further rains occur, there is a low risk that adults could concentrate and form small groups in some areas as vegetation dries out.*

**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 September near Adrar (2753N/0017W) and Tamanrasset (2250N/0528E).

• **Forecast**

*Scattered adults are likely to be present and breeding in the extreme south near the Malian border, causing locust numbers to increase. Once rains come to an end and vegetation starts to dry out, there is a low risk that adults could concentrate and form small groups in some areas.*

**Morocco**

• **Situation**

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

• **Forecast**

*Low numbers of solitarious adults may appear in the southern portion of Western Sahara.*

**Libyan Arab Jamahiriya**

• **Situation**

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

• **Forecast**

*Low numbers of locusts are likely to be present in parts of the southwest near Ghat.*

**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 at densities of 50-150 adults/ha were seen at a few places in Khartoum State northwest of Khartoum (1533N/3235E). No locusts were seen during surveys carried out in White Nile and River Nile states.

• **Forecast**

*Small-scale breeding will decline in West and North Darfur, West and North Kordofan, White Nile, River Nile, Northern and Kassala states as summer rains end and vegetation starts to dry out. By the end of the forecast period, a few adults are likely to appear in the winter breeding areas on the Red Sea coast.*

**Eritrea**

• **Situation**

No reports were received during September.

• **Forecast**

*Scattered adults are almost certainly present and breeding in the summer breeding areas of the western lowlands. Breeding should come to an end by November and a few adults are likely to appear in the winter breeding areas on the central and northern Red Sea coast.*

**Ethiopia**

• **Situation**

No locusts were seen during surveys carried out near Dire Dawa (0935N/4150E) during the first half of September.

• **Forecast**

*Low numbers of adults are expected to persist and mature near Ayasha where they could eventual breed on a small scale if conditions remain favourable.*

**Djibouti**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**Somalia**

• **Situation**

During September, fourth to sixth instar solitarious hoppers, fledglings and immature adults mixed with African Migratory Locusts were seen about 40 km northeast of Erigavo (1040N/4720E) at Jiidale (1041N/4739E) during surveys carried out in the area on the 17-23rd.

• **Forecast**

*Low numbers of solitarious adults are likely to persist and breed on a small scale in parts of the plateau between Boroma and Burao, causing locust numbers to increase slightly during the forecast period.*

**Egypt**

• **Situation**

No reports were received during September.

• **Forecast**

*No significant developments are likely.*

**Saudi Arabia**

• **Situation**

During September, no locusts were seen during surveys carried out on the Red Sea coast near Jeddah (2130N/3910E), in the Asir Mountains near Khamis Mushait (1819N/4245E), and in the interior near Buraydah (2621N/4358E).

• **Forecast**

*Scattered adults may appear in areas of recent rainfall on the Red Sea coast. No significant developments are likely.*

**Yemen**

• **Situation**

In early September, isolated adults were reported in a few places of the interior near Marib (1527N/4519E) and Shabwah (1522N/4700E) but this could not be confirmed by surveys due to insecurity.

• **Forecast**

*Small-scale breeding is likely to occur in parts of the interior between Marib, Ataq and Wadi Hadhramaut. Low numbers of adults may be present in areas of recent rainfall on the Red Sea and Gulf of Aden coasts.*

**Oman**

• **Situation**

No locusts were seen during surveys in Dakhliya and no locusts were reported in the other regions during September.

• **Forecast**

*There remains a low risk of small-scale breeding in those areas of Sharqiya that received heavy rainfall from Cyclone Phet in June. Regular monitoring is recommended.*

**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, no locusts were seen during surveys carried out on the southeastern coast near Jask (2540N/5746E) and in the western Jaz Murain Basin near Kahnuj (2757N/5742E).

• **Forecast**

*No significant developments are likely.*

**Pakistan**

• **Situation**

During the second half of August, small-scale breeding continued in Cholistan east of Rahimyar

Khan (2822N/7020E) near the Indian border and there was an increase in the number of locations reporting mature solitarious adults. Most of the adults were present along the border in Cholistan, at densities up to 80 adults/ha. Small-scale breeding also occurred at two places near Uthal (2548N/6637E).

During the first half of September, more locusts were seen mainly in Cholistan where mature solitarious adults, at densities up to 125 adults/ha, were reported from 86 places along the Indian border between Rahimyar Khan and Bahawalpur (2924N/7147E), at 11 places south of Sukkur (2742N/6854E), and 3 places near Uthal. On the 15-19th, a few small groups of mature adults appeared just inside the border in the Ghotki district near Pir Jatmal (2726N/6948E). The groups dispersed quickly to lay eggs. Ground control operations treated 900 ha from 18-30 September.

• Forecast

*Breeding will end and locust numbers will decline as monsoon rains cease and vegetation dries out in the summer breeding areas in Cholistan, Khairpur and Tharparkar. Low numbers of locusts are likely to concentrate in areas that remain green.*

**India**

• **Situation**

During September, scattered solitarious hoppers and immature and mature adults were present in Rajasthan between Barmer and Bikaner. Most of the infestations were along the Pakistani border north of Jaisalmer (2652N/7055E) where adults where copulating and laying eggs.

• **Forecast**

*Breeding will end and locust numbers will decline as monsoon rains cease and vegetation dries out in the summer breeding areas in Rajasthan and Gujarat.*

**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 site.** FAO DLIS has created a Google site (https://sites.google.com/site/faodlis) for national locust information officers to share problems, solutions and tips in using new technologies (eLocust2, eLocust2Mapper, RAMSES, remote sensing) and to make available the latest files for downloading. The site replaces the FAODLIS Google group, which will no longer be maintained. Interested users should contact Keith Cressman (keith.cressman@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 (www.fao.org/ag/locusts) are:

- **2010 Iran/Pakistan Joint Survey report.** Publications Section – Reports
- **Desert Locust situation updates.** Archives Section – Briefs
- **Desert Locust risk map update.** Archives Section – Risk maps

No. 384

DESERT LOCUST BULLETIN

**2010-11 events.** The following activities are scheduled or planned:

- **EMPRES/WR.** Desert Locust Master Trainers (Survey) regional workshop, Mauritania (18-28 Oct)
- **SWAC.** 27th session, Islamabad, Pakistan (14-16 Dec)
- **EMPRES/WR.** 6th Steering Committee meeting and 9th EMPRES Liaison Officers meeting, Tripoli, Libya (Dec)
- **DLCC.** 40th session, Cairo, Egypt (6-10 Mar)

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- forming ground or basking groups;
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- 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**

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**HEAVY**

- more than 50 mm of rainfall.

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- the process of reproduction from copulation to fledging.

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- 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.

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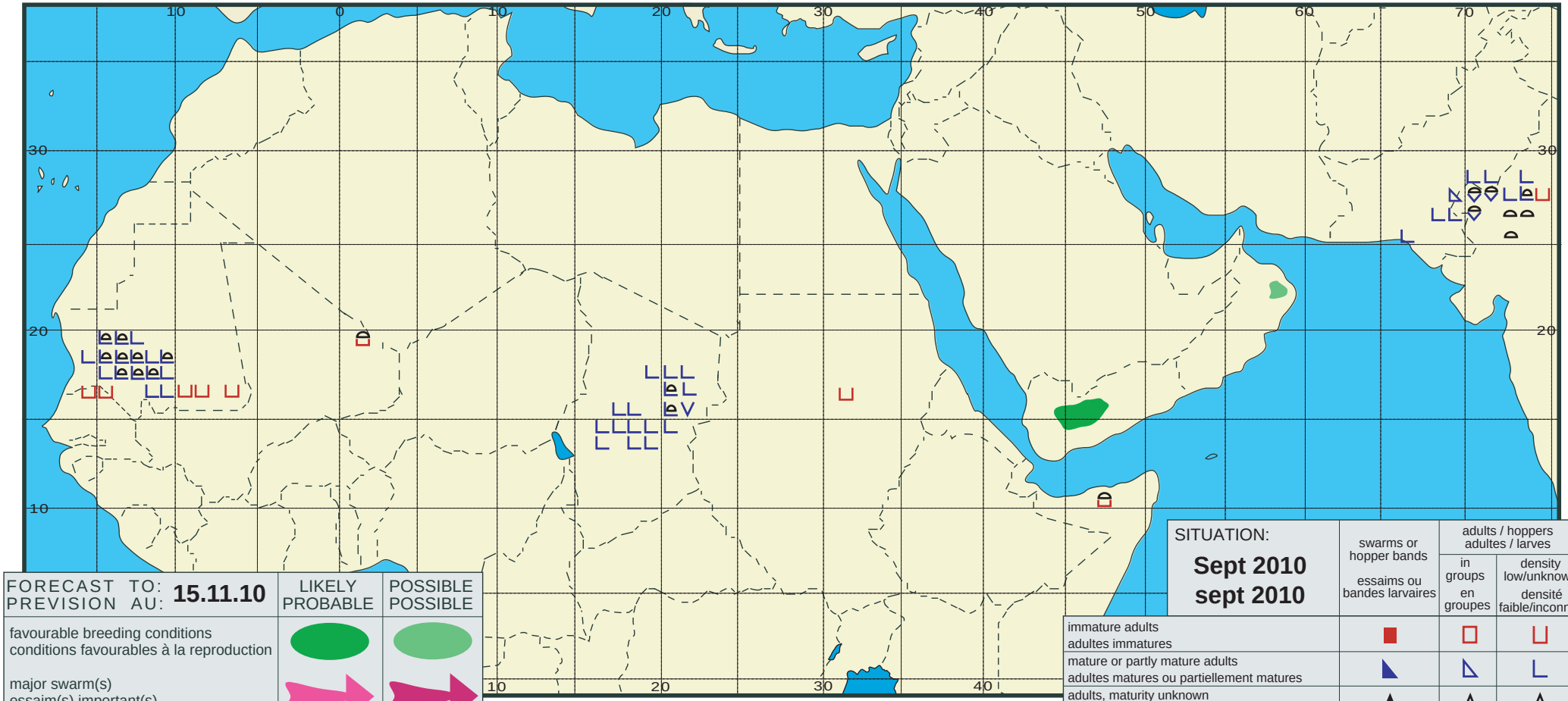
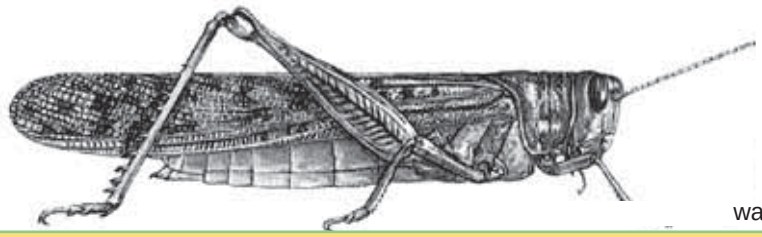
# Desert Locust Summary
# Criquet pèlerin - Situation résumée

**384**




| FORECAST TO: / PREVISION AU: **15.11.10** | LIKELY / PROBABLE | POSSIBLE / POSSIBLE |
|---|---|---|
| favourable breeding conditions<br>conditions favourables à la reproduction | | |
| major swarm(s)<br>essaim(s) important(s) | | |
| minor swarm(s)<br>essaim(s) limité(s) | | |
| non swarming adults<br>adultes non essaimant | | |

| SITUATION: **Sept 2010 / sept 2010** | swarms or hopper bands<br>essaims ou bandes larvaires | adults / hoppers adultes / larves: in groups en groupes | adults / hoppers adultes / larves: density low/unknown densité faible/inconnue |
|---|---|---|---|
| immature adults<br>adultes immatures | ■ | □ | ⊔ |
| mature or partly mature adults<br>adultes matures ou partiellement matures | ◣ | ◺ | L |
| adults, maturity unknown<br>adultes, maturité inconnue | ▲ | △ | ⋀ |
| egg laying or eggs<br>pontes ou œufs | ▼ | ▽ | ⋁ |
| hoppers<br>larves | ● | ○ | ◞ |
| hoppers & adults (combined symbol example)<br>larves et adultes (exemple symboles combinés) | ◘ | ◙ | ◓ |



warning level: **CAUTION**

# DESERT LOCUST BULLETIN

**FAO Emergency Centre for Locust Operations** **No. 385**

*(4 Nov 2010)*

## General Situation during October 2010
## Forecast until mid-December 2010

**There was a significant increase in Desert Locust activity during October. As vegetation dried out in the summer breeding areas, locusts concentrated and formed small groups in several countries that required control. National ground teams treated hopper bands along both sides of the Indo-Pakistan border. A few hopper bands and a swarm formed in northern Sudan and control was in progress. Hoppers formed groups in northern Niger, and national teams treated an increasing number of locusts in western Mauritania. During the forecast period, there is a high risk that more groups will form that could lead to small hopper bands and swarms. Breeding will occur in northwest Mauritania and in the winter breeding areas along both sides of the Red Sea. Vigilant monitoring is required on a regular basis and the necessary control measures should be taken.**

**Western Region.** Seasonal rains declined in the summer breeding areas of the northern Sahel during October. In **Mauritania**, adults moved from the southeast towards the west where unusually good rains fell during the second decade. Locust numbers increased there and hoppers concentrated and increased in density. Ground teams treated 24 ha. In **Niger**, hoppers concentrated and formed small groups in central Tamesna. Locust numbers remained low in eastern **Chad**. In Northwest Africa, a few locusts were present in southern **Algeria** and southwest **Libya**. During the forecast period, locusts will increase rapidly in northwest Mauritania as more breeding occurs in areas of recent rainfall. Small groups could form in some places. All efforts should continue to monitor the situation carefully.

**Central Region.** There was a sudden increase in locust numbers in northern **Sudan** that led to the formation of small hopper bands and a swarm in the Baiyuda Desert during October. Although control operations started, no details have been forthcoming. Adults also started appearing on the western side of the Red Sea Hills and on the coast in Tokar Delta. All efforts should continue to monitor the situation carefully and take the necessary control measures. In **Yemen**, scattered adults were present on the Red Sea coast and Gulf of Aden, and small-scale breeding occurred on the northern Tihama. Isolated adults were seen in southern **Egypt** and eastern **Ethiopia**. During the forecast period, locusts will shift to the winter breeding areas along both sides of the Red Sea and breed on a small scale in areas that receive rainfall.

**Eastern Region.** Locust numbers suddenly increased along both sides of the Indo-Pakistan border, causing **India** and **Pakistan** to mobilize control teams in early October. As vegetation dried out, locusts concentrated and formed small groups and hopper bands. Ground teams treated more than 4,000 ha in India and 3,500 ha in Pakistan. There is a moderate risk that a few small adult groups and swarms could move west to the spring breeding areas in western Pakistan during the forecast period.

The FAO Desert Locust Bulletin is issued every month by the Desert Locust Information Service, AGP Division (Rome, Italy). It is supplemented by Alerts and Updates during periods of increased Desert Locust activity. All products are distributed by e-mail and made available on the Internet.
**Telephone:** +39 06 570 52420 (7 days/week, 24 hr)
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**DLIS:** www.fao.org/ag/locusts

No. 385

DESERT LOCUST BULLETIN

## Weather & Ecological Conditions in October 2010

**Seasonal rains declined and vegetation dried out in the summer breeding areas of the Sahel in West Africa and Sudan, and along the Indo-Pakistan border. Unusually good rains fell in western Mauritania that should allow ecological conditions to remain favourable for breeding for several months.**

In the **Western Region**, seasonal rains declined in the northern Sahel from Mauritania to Chad during October, causing vegetation to dry out in most areas. During the first decade, good rains fell in south and southeast Mauritania between Nema and Kiffa, and in eastern Chad between Abeche and Arada. During the second decade, unusually good rains fell over a substantial area of western Mauritania from Kiffa to Zouerate, extending to the coast. Rainfall was heaviest in the Aguilal Faye and Inchiri areas. Good rains also fell in the Adrar des Iforas in northern Mali near Kidal and in the Air Mountains in Niger near Iferouane. No rain fell during the last decade of October. In northwest Mauritania, ecological conditions are expected to remain favourable for breeding for several months in the Aguilal Faye area as well as in Inchiri and southwest Adrar. In Niger, vegetation was drying out in the central Tamesna except in the interdunal areas near In Ontololog. In Northwest Africa, generally dry conditions prevailed. Light rains may have fallen during the second decade in southwest Libya near Ghat. In southern Algeria, green vegetation was present in several wadis west of Tamanrasset.

In the **Central Region**, seasonal rains declined in the summer breeding areas of Sudan, first in the north and then further south as the month progressed. Consequently, only light rains fell near Ed Dueim in the first decade of October and El Obeid in the second. By the third decade of the month, rainfall had ceased in the Desert Locust areas. Good rains fell on the Red Sea coast from Qunfidah, Saudi Arabia to Bab Al Mendab, Yemen during the first decade. Ecological conditions were favourable for breeding in Yemen on the Tihama and, to a lesser extent, on the Gulf of Aden coast near Aden. Light rains also fell in a few places on the plateau in northern Somalia in early October but ecological conditions remained dry and generally unfavourable for breeding.

In the **Eastern Region**, except for a few showers during the last decade of October, no rain fell in the summer breeding areas along both sides of the Indo-Pakistan border. Consequently, vegetation progressively dried out in most areas and ecological conditions were not suitable for further breeding.

## Area Treated

| | |
|---|---|
| India | 4,330 ha (4-31 October) |
| Mauritania | 24 ha (23-31 October) |
| Pakistan | 3,500 ha (1-15 October) |
| Sudan | awaiting details |

## Desert Locust Situation and Forecast

*( see also the summary on page 1 )*

**WESTERN REGION**

**Mauritania**

• **SITUATION**

During October, isolated immature solitarious adults were present at a few places in the south and southeast between Timbedra (1614N/0809W) and Kiffa (1638N/1124W). Most of these adults moved towards the west of the country where small-scale breeding increased between Tidjikja (1833N/1126W) and Nouakchott (1809N/1558W) and solitarious hoppers were present in many places. After mid-month, solitarious hoppers started to concentrate at densities of 2-4 hoppers/bush and up to 6,000 hoppers/ha in small areas of less than 15 ha near Agane (1818N/1231W). Ground teams treated 24 ha during the last decade. Egg laying occurred further north towards Akjoujt (1945N/1421W), Atar (2032N/1308W) and Chinguetti (2027N/1221W) and, by the end of the month, hatching was commencing.

• **FORECAST**

*There is a high probability that locust numbers will continue to increase rapidly in the northwest as more hatching occurs in areas of recent rainfall. Small groups could form in some places. All efforts should continue to monitor the situation carefully.*

**Mali**

• **Situation**

On 3 October, there was an unconfirmed report of a group of solitarious adults moving southwest near the Algerian border and Bir Bou Mokhtar (2119N/0057E).

• **Forecast**

*Low numbers of adults are likely to persist in the Adrar des Iforas between Gao and the Algerian border.*

**Niger**

• **Situation**

During October, scattered solitarious hoppers and immature and mature solitarious adults were present in the central Tamesna between In Abangharit (1754N/0559E) and Tassara (1650N/0550E). Small groups were seen at two places in the interdunes near In Ontololog (1738N/0545E). Solitarious and *transiens* hoppers at densities of 5-10 hoppers/$m^2$ were also seen during the survey. Elsewhere, scattered hoppers and adults were present at few places southeast of Agadez (1700N/0756E) and east of Tanout (1505N/0850E).

• Forecast

*As vegetation dries out in central Tamesna, there is an increased risk that hoppers and adults will form additional small groups. All efforts should continue to monitor the situation carefully.*

**Chad**

• **Situation**

During October, locust numbers remained low even though small-scale breeding continued in the northeast. Isolated solitarious hoppers were seen at five places near Fada (1714N/2132E) and at one place near Kalait (1550N/2054E). Egg laying was reported north of Fada on the 19th. Mainly isolated mature solitarious adults were present between Arada (1501N/2040E) in Biltine to Fada and, to a lesser extent, in parts of Kanem and Batha.

• **Forecast**

*Locust numbers will decline as conditions dry out and no significant developments are likely.*

**Senegal**

• **Situation**

No reports were received during 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**

During October, isolated mature solitarious adults were seen at one place west of Tamanrasset (2250N/0528E) in Wadi Amded (2250N/0424E). No locusts were seen elsewhere nearby or in the Adrar (2753N/0017W) area of the central Sahara.

• **Forecast**

*Low numbers of solitarious adults could persist in parts of the extreme south. No significant developments are likely.*

**Morocco**

• **Situation**

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

• **Forecast**

*Low numbers of solitarious adults may appear in the southern portion of Western Sahara.*

**Libyan Arab Jamahiriya**

• **Situation**

During October, scattered solitarious adults were seen at one place in the southwest near Ghat (2459N/1011E). No locusts were seen during surveys carried in the centre south of Sabha (2704N/1425E) and in the southeast near Jebel Uweinat (2154N/2458E).

• **Forecast**

*A few solitarious adults could persist near Ghat. 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, locusts increased in the Baiyuda Desert south of Merowe (1830N/3149E) from hatching that started in the second week. During the last decade of the month, small first to fourth instar hopper bands of up to 80 $m^2$ in size had formed at six places. On the 22nd, a 1.5 $km^2$ swarm was seen laying eggs east of Jebel Barkol (1738N/3201E). Control

operations started at the end of the month but details are not forthcoming. In other nearby areas, mature solitarious and gregarious adults were present, and groups of gregarious adults at densities of 500-750 adults/ha laid eggs at three places. In the River Nile State, mature gregarious groups were seen copulating in a few places between Ed Dueim (1400N/3220E) and Umm Saiyala (1426N/3112E). Scattered mature solitarious adults were present in parts of North Kordofan and Khartoum states. In the Red Sea State, scattered mature solitarious adults were copulating at four places on the western side of the Red Sea Hills between Derudeb (1731N/3607E) and Haiya (1820N/3621E). Mature solitarious adults were also seen on the coast in the Tokar Delta.

• **Forecast**

*Hatching will continue in the Baiyuda Desert in early November and hoppers are likely to form small bands that would augment those that currently exist. Unless controlled, the bands will fledge during November and December, and new adults could form a few small swarms that are likely to move towards the Red Sea coast. Hatching is also expected on the western side of the Red Sea Hills where a few small groups could form and eventually move to the coast. All efforts should continue to monitor the situation carefully.*

**Eritrea**

• **Situation**

No reports were received during October.

• **Forecast**

*Low numbers of locusts are expected to appear on the Red Sea coast between Massawa and the Sudanese border. Small-scale breeding will occur in areas that receive rainfall, causing locust numbers to increase slightly.*

**Ethiopia**

• **Situation**

During October, isolated solitarious adults were seen in a few places north of Dire Dawa (0935N/4150E).

• **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 during October.

• **Forecast**

*No significant developments are likely.*

**Egypt**

• **Situation**

A late report indicated that no surveys were carried out and no locusts were reported during September.

During October, isolated immature solitarious adults were seen at Sh. Oweinat (2219N/2845E)

• **Forecast**

*No significant developments are likely.*

**Saudi Arabia**

• **Situation**

During October, no locusts were seen during surveys carried out on the Red Sea coast near Jeddah (2130N/3910E), Rabigh (2247N/3901E), Qunfidah (1909N/4107E), in the Asir Mountains near Khamis Mushait (1819N/4245E), and in the interior near Buraydah (2621N/4358E).

• **Forecast**

*Scattered adults may appear and breed on a small scale in areas of recent rainfall on the Red Sea coast. There is a low to moderate risk that a few adults groups could appear from Sudan.*

**Yemen**

• **Situation**

During October, scattered immature and mature solitarious adults were present at densities of less than 100 adults/ha on the northern Red Sea coastal plains between Midi (1619N/4248E) and Al Zuhrah (1541N/4300E) and on the central coast between Bajil (1458N/4314E) and Zabid (1410N/4318E). Scattered solitarious hoppers of all instars were also seen on the northern plains. On the Gulf of Aden coastal plains, scattered mature solitarious adults were present at five places near Am Rija (1302N/4434E).

• **Forecast**

*Locust numbers will gradually increase on the central and northern Red Sea coast as another generation of breeding occurs in areas of recent rainfall. All efforts should continue to monitor the situation on a regular basis.*

**Oman**

• **Situation**

No locusts were seen during surveys in Musandam, Bureimi, Dakhliya, and Dhofar regions during October.

• **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 October, no locusts were seen during surveys carried out on the southern coast near Jask (2540N/5746E) and Bander-e Lengheh (2634N/5452E).

• **Forecast**

*No significant developments are likely.*

**Pakistan**

• **Situation**

On 1 October, 200 ha of mature adult groups were treated in Ghotki district near Gopan Wari (2733N/6956E). During the remainder of the month, locust numbers continued to increase near the Indian border as eggs hatched mainly in Ghotki and, to a lesser extent, in Bahawalpur district. The new hoppers immediately concentrated, started to change phase, and formed small groups and bands. Scattered solitarious hoppers and mature solitarious adults were also present. Ground teams treated more than 3,500 ha on 1-15 October.

• Forecast

*As vegetation dries out, locusts will continue to concentrate and form small bands and swarms in Ghotki and Bahawalapur districts. Similar populations from adjacent areas in the east could augment this. There is a moderate risk that small groups and swarms could move west towards the spring breeding areas of Baluchistan.*

**India**

• **Situation**

During October, locust numbers increased along the Pakistani border in Jaisalmer and Bikaner districts of Rajasthan. Hoppers were concentrating in those areas that remained green and formed small groups and bands while adults formed only small groups. Ground teams treated 4,330 ha from 4-31 October.

• **Forecast**

*As vegetation dries out, locusts will continue to concentrate and form small bands and swarms in Jaisalmer and Bikaner districts. There is a moderate risk that small groups and swarms could move west towards the spring breeding areas of western Pakistan.*

**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 site.** FAO DLIS has created a Google site (https://sites.google.com/site/faodlis) for national locust information officers to share problems, solutions and tips in using new technologies (eLocust2, eLocust2Mapper, RAMSES, remote sensing) and to make available the latest files for downloading. The site replaces the FAODLIS Google group, which will no longer be maintained. Interested users should contact Keith Cressman (keith.cressman@fao.org) for details.

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DESERT LOCUST BULLETIN

**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 (www.fao.org/ag/locusts) are:

- **Desert Locust situation updates.** Archives Section – Briefs
- **Desert Locust risk map update.** Archives Section – Risk maps

**2010-11 events.** The following activities are scheduled or planned:

- **EMPRES/WR.** 9th EMPRES Liaison Officers meeting (12-16 Dec) and 6th Steering Committee meeting (19-20 Dec), Tripoli, Libya
- **SWAC.** 27th session, Islamabad, Pakistan (14-16 Dec)
- **DLCC.** 40th session, Cairo, Egypt (6-10 Mar)

## 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**

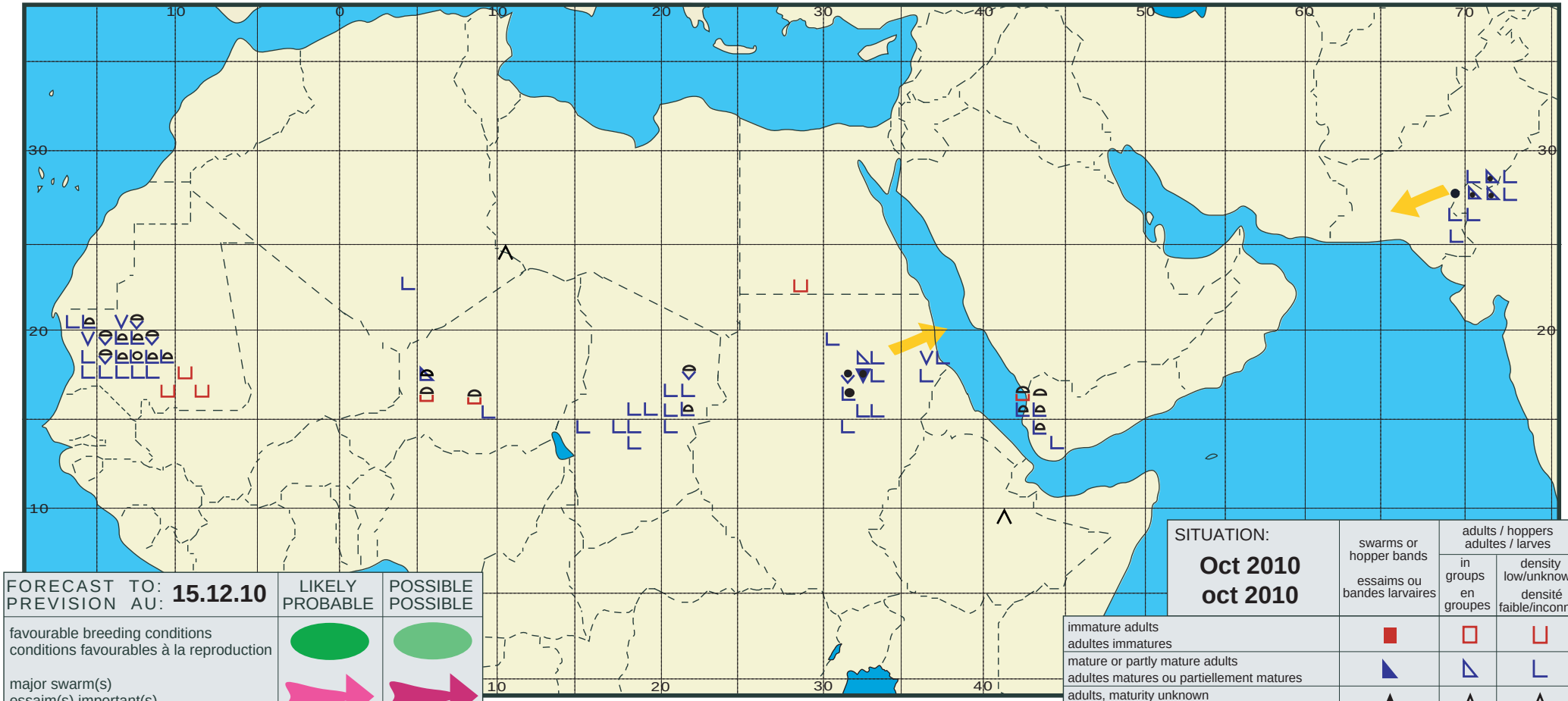
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

**EASTERN**

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

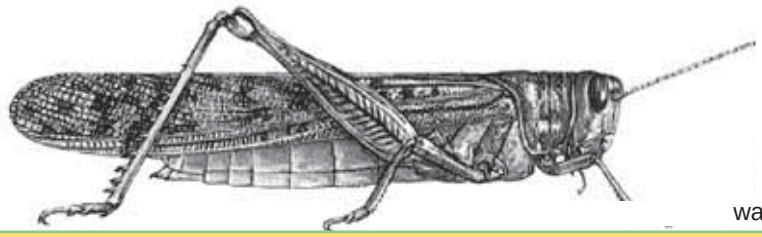
# Desert Locust Summary
# Criquet pèlerin - Situation résumée

**385**




| FORECAST TO: / PREVISION AU: **15.12.10** | LIKELY PROBABLE | POSSIBLE POSSIBLE |
|---|---|---|
| favourable breeding conditions<br>conditions favourables à la reproduction | | |
| major swarm(s)<br>essaim(s) important(s) | | |
| minor swarm(s)<br>essaim(s) limité(s) | | |
| non swarming adults<br>adultes non essaimant | | |

| SITUATION: **Oct 2010**<br>**oct 2010** | swarms or hopper bands<br>essaims ou bandes larvaires | adults / hoppers adultes / larves: in groups en groupes | adults / hoppers adultes / larves: density low/unknown densité faible/inconnue |
|---|---|---|---|
| immature adults<br>adultes immatures | ■ | □ | ⊔ |
| mature or partly mature adults<br>adultes matures ou partiellement matures | ◣ | ◺ | L |
| adults, maturity unknown<br>adultes, maturité inconnue | ▲ | △ | Λ |
| egg laying or eggs<br>pontes ou œufs | ▼ | ▽ | V |
| hoppers<br>larves | ● | ○ | ◡ |
| hoppers & adults (combined symbol example)<br>larves et adultes (exemple symboles combinés) | ◘ | ◙ | ◒ |



warning level: **CAUTION**

# DESERT LOCUST BULLETIN

**FAO Emergency Centre for Locust Operations**

**No. 386**

*(2 Dec 2010)*

## General Situation during November 2010
## Forecast until mid-January 2011

**The Desert Locust situation continues to remain a cause for concern in Sudan. Despite control efforts during November, adults formed small groups that moved to northeast Sudan and laid eggs while several other groups crossed the Red Sea to the northern coast of Saudi Arabia. If good rains fall in either country, locust numbers could increase rapidly and threaten the region. Therefore, it is essential that the highest priority be given to deploying additional survey and control teams in the field immediately in both countries. Elsewhere, the current situation is being monitored closely along the Indo-Pakistan border where control operations continued in November against gregarious infestations, in northern Mali and Niger where the situation is not entirely clear but locusts are likely to be present and gregarizing, and in northwest Mauritania where breeding and limited control operations are underway for the second consecutive month.**

**Western Region.** Very little rain fell during November in the Region. Small-scale breeding continued for a second consecutive month in northwest **Mauritania**, causing locust numbers to increase slightly and, in some areas, concentrate and form small groups that were treated (400 ha). During the forecast period, locust numbers will decline in central and western Mauritania as adults move to the northwest and north and breed on a small scale. Local reports of hopper bands in northern **Mali** were confirmed as gregarizing adults. A similar situation probably exists in adjacent areas of northern **Niger** but this could not be confirmed due to insecurity. Scattered adults persisted in **Chad** and in the Sahara of **Algeria**. During the forecast period, there is a low to moderate risk that adults and perhaps a few small groups or swarmlets could move from northern Mali and Niger to parts of central, eastern and southern Algeria.

**Central Region.** Very little rain fell during November in the Region. Ground control operations continued during November in northern **Sudan** (6,909 ha) against hopper bands and adult groups in the summer breeding areas. Nevertheless, groups of adults moved to northeast Sudan where they laid eggs, and several groups reportedly crossed the Red Sea to the northern coast of **Saudi Arabia** on the 30th. Isolated adults were already present in a few places along the coast. During the forecast period, groups and perhaps a few small swarms will form in the interior of Sudan and move to the coast in December. Locust numbers will increase in the northeast as hatching commences and small hopper groups and bands form, and on the coast where breeding will occur in areas of recent rainfall. Breeding will also occur in areas of recent rainfall on the Red Sea coast of Saudi Arabia as well as in **Yemen** from earlier rains. Ground teams treated 8 ha of adults in northern **Oman**.

**Eastern Region.** Ground control operations continued during November in **Pakistan** (4,100 ha) against groups of hoppers and adults and, to a lesser extent, in **India** (370 ha), against adult groups. Consequently, locust infestations declined in both countries and the situation is expected to return to normal by the end of the year. Nevertheless, there remains a moderate risk that a few small adult groups and swarms could move west to the spring breeding areas in western Pakistan during the forecast period.

The FAO Desert Locust Bulletin is issued every month by the Desert Locust Information Service, AGP Division (Rome, Italy). It is supplemented by Alerts and Updates during periods of increased Desert Locust activity. All products are distributed by e-mail and made available on the Internet.
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## Weather & Ecological Conditions in November 2010

**Vegetation continued to dry out in most of the recession area as a result of a lack of rainfall during November, except in northwest Mauritania where breeding conditions remained favourable and in northeast Sudan where light showers fell at mid-month.**

In the **Western Region**, very little rain fell during November. Consequently, vegetation in the summer breeding areas of the northern Sahel in West Africa continued to dry out or was already dry in nearly all areas except for parts of western and central Mauritania (Tagant, northern Brakna and the Aouker area near Boutilimit) and northern Niger (Tamesna and Air Mountains) where there were localized areas of green vegetation. In northwest Mauritania, ecological conditions were favourable for locust survival and breeding in Dakhlet Nouadhibou, Inchiri and Adrar regions where annual vegetation was green and soil was moist. Conditions were also expected to be favourable in the extreme north in wadis and low-lying areas. In Northwest Africa, conditions were favourable in southern and eastern Algeria near Tamanrasset and Illizi but dry elsewhere in the region.

In the **Central Region**, very little rain fell during November. Consequently, vegetation continued to dry out in the summer breeding areas of the interior in northern Sudan. At mid-month, light rain fell in northeast Sudan and adjacent areas of southeast Egypt, mainly in the Red Sea Hills between Sinkat, Sudan and Shalatyn, Egypt and to a lesser extent on the Red Sea coastal plains from Eit, Sudan to Shalatyn. The heaviest showers fell in Sudan between Tomala and Sufiya, including Wadi Oko/Diib. Consequently, ecological conditions were favourable for breeding along Wadi Oko/Diib and many of its tributaries between Tomala and Shalatyn. Light rains fell at the same time in Saudi Arabia near Al Barzah and Al Baha in the Asir Mountains. Breeding conditions are likely to improve as a result of runoff onto the Red Sea coastal plains from south of Jeddah to Thuwal, and near Qunfidah. Ecological conditions are expected to be favourable for locust survival and breeding along the Tihama in Yemen from earlier rainfall. Elsewhere, dry conditions prevailed in the region.

In the **Eastern Region**, no significant rain fell during November. As a result, vegetation continued to dry out in the summer breeding areas along both sides of the Indo-Pakistan border. Dry condition prevailed in the spring breeding areas in western Pakistan and southeast Iran.

## Area Treated

| | |
|---|---|
| India | 370 ha (November) |
| Mauritania | 400 ha (1-28 November) |
| Oman | 8 ha (November) |
| Pakistan | 5,044 ha (16-31 October) |
| | 4,160 ha (1-27 November) |
| Sudan | 2,869 ha (26-31 October) |
| | 6,909 ha (1-28 November) |

## Desert Locust Situation and Forecast

*( see also the summary on page 1 )*

**WESTERN REGION**

**Mauritania**

• **SITUATION**

During November, adults shifted gradually from central areas to the west and north where low numbers of immature and mature solitarious adults persisted between Nouakchott (1809N/1558W) and Tidjikja (1833N/1126W). In the northwest, mainly fifth instar solitarious hoppers originating from October breeding and mature solitarious adults were scattered between Tijirat (1929N/1557W) and Chinguetti (2027N/1221W) where laying continued throughout November. Some solitarious and *transiens* hoppers formed a few small groups at densities of 2 hoppers/$m^2$ during the second half of November near Oujeft (2003N/1301W) and Akjoujt (1945N/1421W). By the last week, scattered early instar solitarious hoppers were present in the extreme northwest near Tmeimichat (2119N/1420W) and in the north near Zouerate (2244N/1221W) from laying that occurred in late October and early November. Elsewhere, local breeding occurred at the end of the month in western Tagant north of Moudjeria (1752N/1219W). Ground teams treated 400 ha during on 1-28 November.

• **FORECAST**

*Hatching will continue in Inchiri, Adrar and western Tagant, causing locust numbers to increase slightly.*

*Locust numbers will decline in the centre as adults continue to move to the northwest and north. Local concentration of hoppers and adults is expected to occur in those areas where vegetation is drying out, causing a few small groups to form. Scattered adults are likely to appear in the extreme north and breed on a small scale.*

**Mali**

• **Situation**

On 8 November, there were unconfirmed reports of hopper bands on the western edge of the Tilemsi Valley in Timetrine near Erg Lahmar (1856N/0016E) and in Tamesna. A survey in Tamesna later confirmed that immature solitarious and *transiens* adults were present at six locations east of Tin Essako (1826N/0229E) and adults were forming groups at half of these places. Field operations were limited by continued insecurity.

• **Forecast**

*Low to moderate numbers of adults are likely to persist in parts of Tamesna, the Adrar des Iforas and Timetrine. There is a low to moderate risk that a few small groups or swarmlets may form, which could move towards the north during periods of warm southerly winds.*

**Niger**

• **Situation**

No surveys were carried out during November in Tamesna and the Air Mountains due to insecurity, and no locusts were reported.

• Forecast

*Scattered adults and perhaps a few small groups are likely to be present in parts of Tamesna. Some adults may move towards the north during periods of warm southerly winds while others could move east to the Air Mountains. All efforts should be made to clarify and monitor the situation.*

**Chad**

• **Situation**

During November, low numbers of mainly mature solitarious adults persisted in Kanem near Salal (1448N/1712E), in Batha near Haraz-Djombo (1357N/1926E) and in the northeast between Arada (1501N/2040E) and Fada (1714N/2132E).

• **Forecast**

*Locust numbers will decline as conditions dry out and no significant developments are likely.*

**Senegal**

• **Situation**

No reports were received 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, isolated immature and mature solitarious and *transiens* adults were present in the eastern part of the central Sahara between Illizi (2630N/0825E) and In Salah (2712N/0229E) and in the southern Sahara west of Tamanrasset (2250N/0528E). No locusts were seen near Adrar (2753N/0017W).

• **Forecast**

*There is a low to moderate risk that adults and perhaps a few small groups or swarmlets could move from northern Mali and Niger to parts of the southern, central and eastern Sahara during periods of warm southerly winds.*

**Morocco**

• **Situation**

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

• **Forecast**

*Low numbers of solitarious adults are likely to be present and could continue to appear in the southern portion of Western Sahara. Small-scale breeding will take place if rainfall occurs.*

**Libyan Arab Jamahiriya**

• **Situation**

No reports were received during November.

• **Forecast**

*A few solitarious adults could persist near Ghat. 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**

A late report indicated that control teams treated 2,869 ha of second to fifth instar hopper bands, adult groups and a swarm that was laying eggs in the Baiyuda Desert as well as third to fifth instar hopper bands along the Atbara River from 26 to 31 October.

Control operations continued against hopper bands of all instars, varying in size from 20 $m^2$ to 1 ha, until 10 November and resumed again on the 20th until the end of the month against late instar bands, fledglings and groups of immature adults in Northern and River Nile States, and against groups of mature solitarious adults in the southern part of the Baiyuda Desert in Khartoum State. Mature solitarious adults began to appear on the central Red Sea coast between Suakin (1906N/3719E) and Port Sudan (1938N/3713E) on the 20th and laid eggs. On 24-26 November, groups of immature and mature adults appeared further north in Wadi Oko and Wadi Diib between Tomala (2002N/3551E) and the Egyptian border. Egg laying was reported on the 26th in several wadis north of Sufiya (2119N/3613E). Ground teams treated 6,909 ha from 1 to 28 November.

• **Forecast**

*Small groups and perhaps a few small swarms will form in early December in the Baiyuda Desert and along the Atbara River and move to the coast. Locust numbers could increase rapidly once hatching occurs in Wadi Oko/Diib and small hopper groups and bands form. This is likely to be supplemented by breeding in coastal areas between Suakin and the Egyptian border, and, if rains fall, on the coast south of Suakin, including Tokar Delta.*

**Eritrea**

• **Situation**

A late report indicated that no locusts were seen during a survey carried out on the Red Sea coast on 10-15 October between Shelshela (1553N/3906E) and the Sudanese border, except near Shelshela where scattered solitarious adults were present at two places.

No locusts were seen during a survey on the Red Sea between Shelshela and Embere (1628N/3856E) on 24-27 November.

• **Forecast**

*Small-scale breeding will occur in areas that receive rainfall on the Red Sea coastal plains between Massawa and the Sudanese border, causing locust numbers to increase slightly but remain below threatening levels.*

**Ethiopia**

• **Situation**

During November, no locusts were seen during a survey on the 13th in the Tigray region.

• **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 locusts were seen during a survey on 26 October to 1 November on the plateau between Burao (0931N/4533E) and Boroma (0956N/4313E).

• **Forecast**

*No significant developments are likely.*

**Egypt**

• **Situation**

No locusts were seen during surveys carried out in November on the Red Sea coast between Shalatyn (2308N/3535E) and the Sudanese border, west of Marsa Alam (2504N/3454E), and along the shore of Lake Nasser near Garf Husein (2317N/3252E) and between Abu Simbel (2219N/3138E) and Tushka (2247N/3126E).

• **Forecast**

*If rainfall occurs, small-scale breeding will take place on the Red Sea coastal plains between Shalatyn and the Sudanese border, causing locust numbers to increase slightly. There is a moderate risk that adults and a few groups may appear in these areas from northern Sudan during December.*

**Saudi Arabia**

• **Situation**

During November, isolated immature solitarious adults were present on the Red Sea coast between Jeddah (2130N/3910E) and Rabigh (2247N/3901E), and between Qunfidah (1909N/4107E) and Jizan (1656N/4233E). On the 30th, there were unconfirmed reports of groups of gregarious immature adults on the northern coast at Umm Lajj (2501N/3716E).

• **Forecast**

*Adults, including those arriving from Northeast Africa, are expected to mature rapidly and lay eggs in areas on the Red Sea coast that receive rainfall or runoff. In some places, this could lead to the formation of small groups of hoppers while in other areas, only low numbers of hoppers are likely to result.*

**Yemen**

• **Situation**

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

• **Forecast**

*Low numbers of locusts are likely to be present and breeding on a small scale on the Red Sea coast. Consequently, locust numbers will gradually increase during the forecast period. All efforts should be made to monitor the situation on a regular basis.*

**Oman**

• **Situation**

During November, isolated immature solitarious adults were present on the Batinah coast west of Muscat in Wadi Al Khoudh (2338N/5809E). Control teams treated 8 ha of solitarious and *transiens* adults in the nearby mountains at Al Sahiya (2314N/5807E).

• **Forecast**

*Low numbers of adults may be present and could persist on the Batinah coast and in adjacent areas that received good rainfall from Cyclone Phet in June.*

**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 were received during November.

• **Forecast**

*No significant developments are likely.*

**Pakistan**

• **Situation**

New information indicated that there were several reports of medium to high density immature swarms of 1-9 km$^2$ in size in Ghotki district on the Indian border near Gopan Wari (2733N/6956E) from 21 to 31 October. Ground teams treated 5,044 ha during the second fortnight of October.

During November, groups of fourth and fifth instar hoppers were present along the Indian border south of Rahimyar Khan (2822N/7020E). Further south, groups of immature solitarious, *transiens* and gregarious adults were present along the border from Ghotki district to south of Rahimyar Khan while, to the north, low numbers of immature and mature solitarious adults were present in Bahawalpur district. As a result of control operations, the number of hopper groups and locations with adult infestations declined during the month. Ground teams treated 4,160 ha on 1-27 November.

• Forecast

*There is a moderate risk that small groups and perhaps a few small swarms could form in currently infested areas and move west towards the spring breeding areas of Baluchistan.*

**India**

• **Situation**

During the first half of November, ground control operations continued against groups of immature solitarious and *transiens* adults between Jaisalmer (2652N/7055E) and the Pakistani border, treating 370 ha. Low numbers of fourth and fifth instar solitarious hoppers were seen at one place northwest of Jaisalmer.

During the second half of November, isolated immature adults were seen west of Jodhpur (2618N/7308E) and a few mature adults were present near the Pakistani border northwest of Barmer (2543N/7125E).

• **Forecast**

*Locust adults are expected to concentrate in the few areas that remain green in Jaisalmer district. There is a low risk that they could form a limited number of small groups that are expected to move west towards the spring breeding areas of western Pakistan.*

**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 site.** FAO DLIS has created a Google site (https://sites.google.com/site/faodlis) for national locust information officers to share problems, solutions and tips in using new technologies (eLocust2, eLocust2Mapper, RAMSES, remote sensing) and to make available the latest files for downloading. The site replaces the FAODLIS Google group, which will no longer be maintained. Interested users should contact Keith Cressman (keith.cressman@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 (www.fao.org/ag/locusts) are:

- **Desert Locust situation updates.** Archives Section – Briefs
- **Desert Locust risk map update.** Archives Section – Risk maps

**2010-11 events.** The following activities are scheduled or planned:

- **EMPRES/WR.** 9th EMPRES Liaison Officers meeting (12-16 Dec) and 6th Steering Committee meeting (19-20 Dec), Tripoli, Libya
- **SWAC.** 27th session, Islamabad, Pakistan (25-27 Jan)
- **EMPRES/WR.** Desert Locust Information Officer workshop, Bamako, Mali (8-10 Feb, tentative)
- **DLCC.** 40th session, Cairo, Egypt (6-10 Mar)
- **CRC/SWAC.** Desert Locust Information Officer workshop, Cairo, Egypt (Apr)
- **SWAC.** Desert Locust joint survey in the spring breeding areas of Pakistan and Iran (1 Apr - 4 May)

## Glossary of terms

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

**NON-GREGARIOUS ADULTS AND HOPPERS**

ISOLATED (FEW)

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

SCATTERED (SOME, LOW NUMBERS)

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

GROUP

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

**ADULT SWARM AND HOPPER BAND SIZES**

VERY SMALL

- swarm: less than 1 $km^2$ • 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**

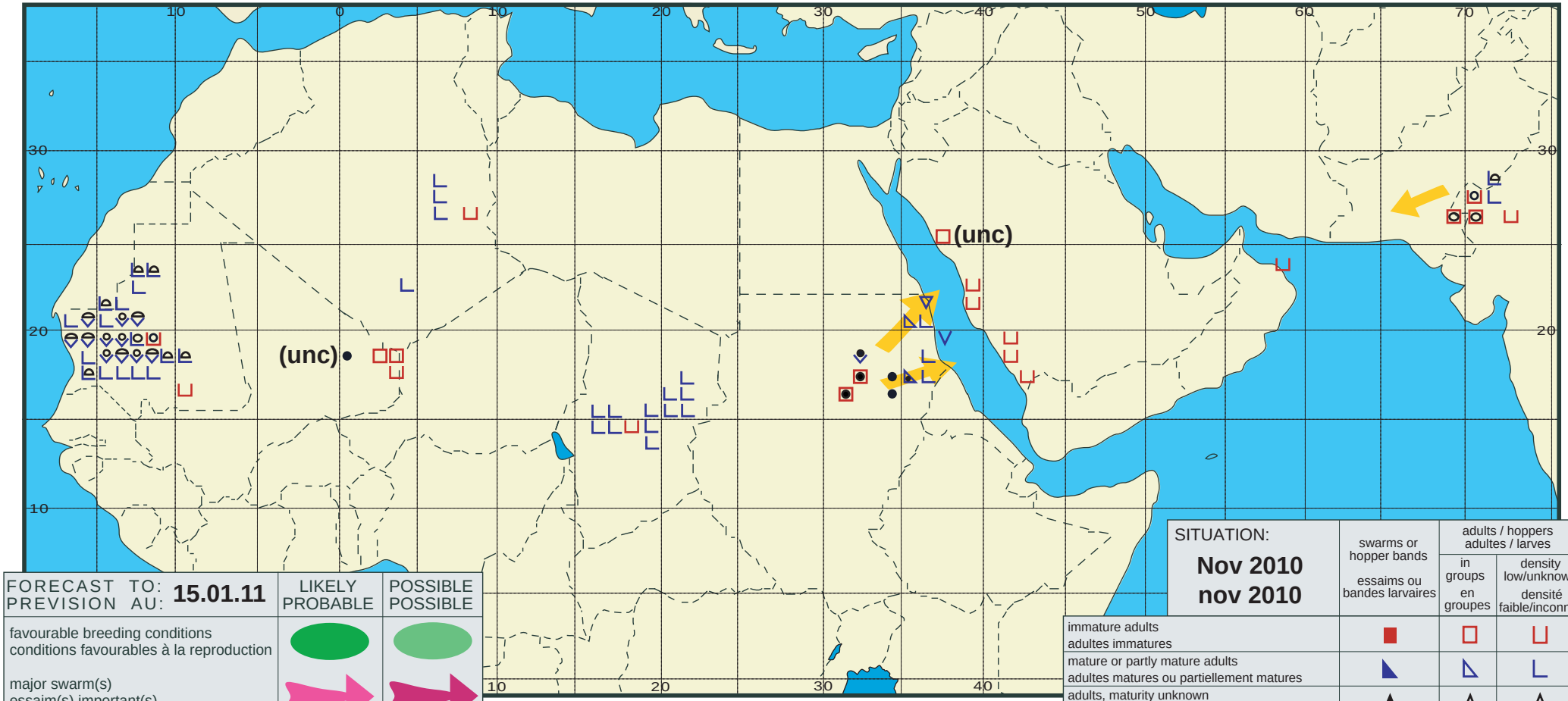
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

**EASTERN**

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

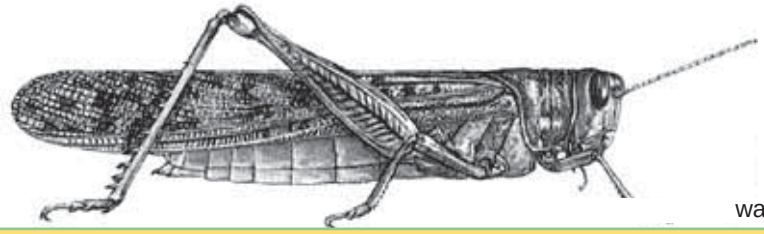
# Desert Locust Summary
# Criquet pèlerin - Situation résumée

**386**




| FORECAST TO: / PREVISION AU: **15.01.11** | LIKELY / PROBABLE | POSSIBLE / POSSIBLE |
|---|---|---|
| favourable breeding conditions<br>conditions favourables à la reproduction | | |
| major swarm(s)<br>essaim(s) important(s) | | |
| minor swarm(s)<br>essaim(s) limité(s) | | |
| non swarming adults<br>adultes non essaimant | | |

| SITUATION: **Nov 2010 nov 2010** | swarms or hopper bands<br>essaims ou bandes larvaires | adults / hoppers adultes / larves: in groups en groupes | adults / hoppers adultes / larves: density low/unknown densité faible/inconnue |
|---|---|---|---|
| immature adults<br>adultes immatures | ■ | □ | ⊔ |
| mature or partly mature adults<br>adultes matures ou partiellement matures | ◣ | ◺ | L |
| adults, maturity unknown<br>adultes, maturité inconnue | ▲ | △ | ⋀ |
| egg laying or eggs<br>pontes ou œufs | ▼ | ▽ | ⋁ |
| hoppers<br>larves | ● | ○ | ◡ |
| hoppers & adults (combined symbol example)<br>larves et adultes (exemple symboles combinés) | ◘ | ◙ | ◒ |



warning level: **CAUTION**

# DESERT LOCUST BULLETIN

**FAO Emergency Centre for Locust Operations** **No. 387**

*(4 Jan 2011)*

## General Situation during December 2010 Forecast until mid-February 2011

**The Desert Locust situation remained serious in Sudan during December. Despite control efforts, adult groups and swarms from the summer areas in the interior moved into the northeast and onto the Red Sea coast where they laid eggs that hatched and small hopper groups and bands formed. A few hopper groups and small bands also formed on the Red Sea coast in Yemen, and small-scale breeding occurred in southeast Egypt. During the forecast period, locust numbers will increase further along both sides of the Red Sea and hoppers will form small groups and bands while adults will form small groups and perhaps a few small swarms mainly in Sudan. In northwest Mauritania, locust numbers increased slightly and small groups of hoppers formed. In South West Asia, locust populations declined along the Indo-Pakistan border due to control operations, drying conditions and emigration towards the spring breeding areas in western Pakistan.**

**Western Region.** Small-scale breeding continued for a third consecutive month in northwest **Mauritania**, causing locusts to increase and form small groups that were treated (2,689 ha). Some adults moved into the north of the country. During the forecast period, small-scale breeding is likely to continue in the northwest and commence in the north. Locusts are likely to concentrate in areas that remain green and form small groups. A similar situation could develop in adjacent areas of the Western Sahara in **Morocco**. Low numbers of adults were present in parts of southern and eastern **Algeria** and ground teams treated 410 ha. In northern **Mali**, ground teams treated 850 ha where small-scale breeding occurred and adults formed small groups. Small-scale breeding also occurred in northern **Niger**. During the forecast period, low numbers of adults are likely to persist in parts of northern Mali and Niger, and in southern, central and eastern Algeria.

**Central Region.** Small groups and swarms moved from the summer breeding areas of the interior of **Sudan** to the winter breeding areas in the northwest and on the Red Sea coast where they laid eggs. Hatching commenced in mid-month and small hopper bands formed in most areas. Infestations were scattered within an area of about 40,000 km$^2$. Ground and aerial control operations treated more than 5,000 ha. Small-scale breeding occurred in adjacent areas of southern **Egypt**. The adult groups that crossed the Red Sea to **Saudi Arabia** in late November dispersed and laid eggs along the coastal plains to the south. Small-scale breeding occurred on the Red Sea coast in **Yemen** and 1,050 ha of hopper groups and bands were treated. During the forecast period, breeding in Sudan, Saudi Arabia and Yemen will cause locust numbers to increase. Small groups, bands and swarms may form in Sudan while mainly groups of hoppers and adults are likely to form in Saudi Arabia and Yemen.

**Eastern Region.** Locust populations declined in the summer breeding areas along both sides of the Indo-Pakistan border during December as a result of ground control operations against adult groups in **Pakistan** (600 ha) and drying conditions. During the forecast period, residual populations will move west towards the spring breeding areas of Baluchistan, Pakistan where low numbers of adults are likely to appear and breed in coastal and interior areas with the onset of the spring rains.

The FAO Desert Locust Bulletin is issued every month by the Desert Locust Information Service, AGP Division (Rome, Italy). It is supplemented by Alerts and Updates during periods of increased Desert Locust activity. All products are distributed by e-mail and made available on the Internet.
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**Internet:** www.fao.org
**DLIS:** www.fao.org/ag/locusts

No. 387

DESERT LOCUST BULLETIN

## Weather & Ecological Conditions in December 2010

**Vegetation continued to dry out in most of the recession area as a result of a lack of rainfall during December, except in northwest Mauritania, northeast Sudan and parts of the Red Sea coast where breeding conditions remained favourable.**

In the **Western Region**, no significant rain fell during December. Consequently, dry conditions prevailed in most of the northern Sahel except for northwest Mauritania where ecological conditions were favourable for breeding in wadis and low-lying areas of Adrar, Inchiri and Dakhlet Nouadhibou, and to a lesser extent in Tiris-Zemmour. Small localized areas of green vegetation persisted in parts of northern Mali (Adrar des Iforas) and Niger (Tamesna). In Northwest Africa, conditions were favourable in southern Algeria near Tamanrasset, in the east near Illizi, in the northwest near Bechar and, to a lesser extent, in the centre near Adrar, while dry conditions prevailed in the west near Tindouf. In Morocco, green vegetation persisted in a few areas of Wadi Draa and Ziz-Ghris while further south vegetation became green in parts of central and southern Western Sahara.

In the **Central Region**, very little rain fell during December for the second consecutive month. Light to moderate rains fell at times near Shalatyn on the Red Sea coast in southeast Egypt and on the central coast in Sudan, in the Tokar Delta, and in subcoastal areas (Wadi Diib) of the northeast. Consequently, ecological conditions remained favourable for breeding in all of these areas. In Yemen, even though no significant rain has fallen on the Red Sea coast since October, ecological conditions remained favourable in a few places for locust breeding but vegetation was drying out in other areas, causing locusts to concentrate. In northern Oman, light to heavy rains fell in the third decade on the Batinah coast and in the interior region of Sharqiya. Breeding conditions were favourable in the Musandam Peninsula.

In the **Eastern Region**, no significant rain fell during December. Consequently, vegetation was nearly dry in the summer breeding areas along both sides of the Indo-Pakistan border. Dry conditions prevailed in the spring breeding areas of western Pakistan and southeast Iran.

## Area Treated

| | |
|---|---|
| Algeria | 410 ha (December) |
| Mali | 850 ha (7-22 December) |
| Mauritania | 2,689 ha (1-25 December) |
| Pakistan | 600 ha (1-15 December) |
| Sudan | 600 ha (29-30 November) |
| | 5,072 ha (December) |
| Yemen | 1,050 ha (21-26 December) |

## Desert Locust Situation and Forecast

*( see also the summary on page 1 )*

**WESTERN REGION**

**Mauritania**

• **SITUATION**

Locusts increased progressively in the northwest and, to a lesser extent, in the north in late November and early December. Scattered immature and mature adults were seen in Tiris-Zemmour near Bir Moghrein (2510N/1135W) on 29 November. During the first decade of December, small-scale solitarious and *transiens* egg-laying continued in Adrar, Inchiri and Dakhlet Nouadhibou where concentrations of mainly late instar solitarious and *transiens* hoppers formed small groups at densities up to 5 hoppers/m$^2$ near Bennichab (1932N/1512W), Akjoujt (1945N/1421W) and Oujeft (2003N/1301W), and immature and mature solitarious and *transiens* adults formed small groups at densities up to 10,000 adults/ha. Scattered immature and mature adults were present in parts of Tagant, Trarza and Aouker Boutilimit. During the remainder of the month, hoppers and adults continued to mature slowly and form groups in areas that were drying out. Ground control teams treated 2,689 ha on 1-25 December.

• **FORECAST**

*Small-scale breeding will continue in parts of Inchiri, Adrar and Dakhlet Nouadhibou and may commence in Tiris-Zemmour, causing locust numbers to increase further. Hoppers and adults are expected to concentrate in areas that remain green and form small groups.*

**Mali**

• **SITUATION**

During December, small-scale breeding occurred in Tamesna east of Kidal (1827N/0125E) and west

of Aguelhoc (1927N/0052E) in the Tilemsi Valley and Timetrine where isolated second to fifth instar solitarious and *transiens* hoppers were present and mature adults were forming small groups. Ground teams treated 850 ha.

• **Forecast**

*Low to moderate numbers of adults are likely to persist in parts of Tamesna, the Adrar des Iforas and Timetrine. There is a low to moderate risk that a few small groups or swarmlets may form, which could move towards the north during periods of warm southerly winds.*

**Niger**

• **Situation**

During December, small-scale breeding occurred in northern Tamesna where scattered solitarious hoppers were present.

• Forecast

*Scattered adults and perhaps a few small groups are likely to be present in parts of Tamesna. Some adults may move towards the north during periods of warm southerly winds while others could move east to the Air Mountains. All efforts should be made to clarify and monitor the situation.*

**Chad**

• **Situation**

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

• **Forecast**

*Locust numbers will decline as conditions dry out and no significant developments are likely.*

**Senegal**

• **Situation**

No reports were received during December.

• **Forecast**

*No significant developments are likely.*

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

• **Forecast**

*No significant developments are likely.*

**Algeria**

• **Situation**

During December, scattered solitarious adults were maturing west and southwest of Tamanrasset. Lower numbers of locusts were present near Djanet (2434N/0930E), Illizi (2630N/0825E) and In Salah (2712N/0229E). Ground teams treated 410 ha near Tamanrasset. No locusts were seen near Adrar (2753N/0017W), Beni Abbes (3011N/0214W), and Tindouf (2741N/0811W).

• **Forecast**

*Low numbers of locusts are likely to persist in parts of southern, central and eastern Sahara. There is a low to moderate risk that adults and perhaps a few small groups or swarmlets could move from northern Mali and Niger into these areas during periods of warm southerly winds.*

**Morocco**

• **Situation**

During the second week of December, isolated solitarious mature adults were seen in the southern part of the Western Sahara near Aousserd (2233N/1419W), Bir Gandouz (2136N/1628W) and Tichla (2137N/1453W). Small-scale breeding occurred near Aousserd and isolated solitarious hoppers of all instars were present. A few maturing adults were seen further north near Agadir (3030N/0940W).

• **Forecast**

*Small-scale breeding in the southern part of the Western Sahara will cause locust numbers to increase slightly.*

**Libyan Arab Jamahiriya**

• **Situation**

No reports were received during December.

• **Forecast**

*A few solitarious adults could persist near Ghat. 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, control operations continued in the summer breeding areas of the Northern, River Nile and northwestern Khartoum States against groups of immature and mature adults at densities up to 1,200 adults/ha and a few late instar hopper groups in the Baiyuda Desert until the 19th. Locust infestations declined along the Atbara River where only a few solitarious adults persisted.

In the winter breeding areas, additional groups of immature and mature adults from the Baiyuda Desert were seen in the remote northeast and south of the Egyptian border from Wadi Diib to some 200 km to the west in the Nubian Desert and on the central Red Sea coast where they quickly matured and laid eggs. A few very small low to medium density groups and swarms laid eggs throughout the month. Hatching commenced at mid-month in W. Oko north of Tomala (2002N/3551E), in the Nubian Desert 70 km west of W. Diib, and on the coast between Suakin (1906N/3719E) and Port Sudan (1938N/3713E). During the last week of the month, hatching occurred in W. Diib. Small hopper bands formed in these areas at densities of up to 100 hoppers/$m^2$. Scattered first to third instar hoppers were also seen on the central coast. In the Tokar Delta, small-scale breeding occurred in early December and hoppers formed small groups during the last week of the month. Scattered immature and mature solitarious adults were also seen on the northern coast near Fodukwan (2145N/3644E) during the last week. Control teams treated 5,072 ha during December, of which 3,350 ha were by air.

• **Forecast**

*Locust numbers will decline in the Baiyuda Desert. Hatching is expected to continue in the northeast and on the Red Sea coast during early January, which is likely to cause hopper groups and bands to form. Fledgling should commence in late January and adults could form small groups and perhaps a few swarms. If further rains fall, another generation of egg laying could commence during the second half of February.*

**Eritrea**

• **Situation**

No reports were received during December.

• **Forecast**

*Small-scale breeding will occur in areas that receive rainfall on the Red Sea coastal plains between Massawa and the Sudanese border, causing locust numbers to increase slightly but remain below threatening levels.*

**Ethiopia**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**Djibouti**

• **Situation**

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

• **Forecast**

*No significant developments are likely.*

**Somalia**

• **Situation**

No reports were received during December.

• **Forecast**

*Low numbers of adults are likely to appear in the northwest on the coast and breed on a small scale in areas that receive rainfall.*

**Egypt**

• **Situation**

In mid-December, solitarious adults were seen copulating at three places in the Allaqi area southeast of Garf Husein (2317N/3252E). Scattered second and third instar solitarious and *transiens* hoppers were seen at one place on the 29th. No locusts were seen elsewhere on the Red Sea coast between Shalatyn (2308N/3535E) and the Sudanese border, between Abu Simbel (2219N/3138E) and Tushka (2247N/3126E), in the Western Desert near Sh. Oweinat (2219N/2845E), and on the northwest coast of the Mediterranean near Salum (3131N/2509E).

• **Forecast**

*Small-scale breeding will continue in coastal and subcoastal areas in the southeast, causing locust numbers to increase slightly between Shalatyn and the Sudanese border, and in the Allaqi area.*

**Saudi Arabia**

• **Situation**

It was confirmed that groups of immature gregarious adults arrived on the northern coast at Umm Lajj (2501N/3716E) on 30 November and probably dispersed along the coast to the south. In December, low numbers of adults were maturing near Mecca at Al Shameya (2149N/3932E). Groups of mature adults laid eggs on the coast near Lith (2008N/4016E), and solitarious immature adults were seen near Qunfidah (1909N/4107E) and Jizan (1656N/4233E).

• **Forecast**

*Small-scale breeding will cause locust numbers to increase slightly along parts of the Red Sea coast between Umm Lajj and Jizan. There is a moderate risk that small groups of hoppers and adults could form near Lith.*

**Yemen**

• **Situation**

During December, scattered solitarious adults were present on the central Red Sea coastal plains between Zabid (1410N/4318E) and Bajil (1458N/4314E) and on the northern plains between Al Zuhrah (1541N/4300E) and the Saudi Arabian border. On the northern coast, all instars of scattered solitarious, *transiens* and gregarious hoppers formed a few small groups and bands while mature adults formed a few groups between Al Zuhrah and Suq Abs (1600N/4312E) during the third decade. Ground control teams treated 1,050 ha on 21-26 December.

• **Forecast**

*Small-scale breeding will continue on the Red Sea coast, causing locust numbers to increase gradually and form small groups and perhaps a few hopper bands. All efforts should be made to monitor the situation on a regular basis.*

**Oman**

• **Situation**

No locusts were seen during surveys carried out in the Musandam Peninsula during December.

• **Forecast**

*Low numbers of adults may be present and could persist on the Batinah coast and in adjacent areas that received good rainfall from Cyclone Phet in June.*

**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 southern coast near Bander-e Lengheh (2634N/5452E) and Jask (2540N/5746E) in December.

• **Forecast**

*By the end of the forecast period, low numbers of adults are likely to appear on the southeastern coastal plains and breed on a small scale if rainfall occurs.*

**Pakistan**

• **Situation**

During the first half of December, residual populations of scattered immature and mature adults at densities up to 2,500 locusts/ha persisted in previously infested areas along the Indian border south of Rahimyar Khan (2822N/7020E) in Ghotki district and in parts of Bahawalpur district in Cholistan. Ground teams treated 600 ha of small groups of adults. Scattered immature and mature solitarious adults were seen west of Karachi near Uthal (2548N/6637E). No locusts were seen near Kharan (2832N/6526E) during the first week of the month.

• Forecast

*Locust numbers will decline along the Indian border as residual populations move west towards the spring breeding areas of Baluchistan. Consequently, low numbers of adults are likely to appear in coastal and interior areas of Baluchistan and breed on a small scale with the onset of the spring rains.*

**India**

• **Situation**

No locusts were seen during surveys in Rajasthan in December.

• **Forecast**

*Scattered infestations may persist in parts of Jaisalmer District but locust numbers will gradually decline as adults move towards the west. 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 site.** FAO DLIS has created a Google site (https://sites.google.com/site/faodlis) for national locust information officers to share problems, solutions and tips in using new technologies (eLocust2, eLocust2Mapper, RAMSES, remote sensing) and to make available the latest files for downloading. The site replaces the FAODLIS Google group, which will no longer be maintained. Interested users should contact Keith Cressman (keith.cressman@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 (www.fao.org/ag/locusts) are:

- **Desert Locust situation updates.** Archives Section – Briefs
- **Desert Locust risk map update.** Archives Section – Risk maps

**2011 events.** The following activities are scheduled or planned:

- **SWAC.** 27th session, Islamabad, Pakistan (25-27 Jan)
- **EMPRES/WR.** Desert Locust Information Officer workshop, Bamako, Mali (8-10 Feb)
- **DLCC.** 40th session, Cairo, Egypt (6-10 Mar)
- **SWAC.** Desert Locust joint survey in the spring breeding areas of Pakistan and Iran (1 Apr - 4 May)
- **CRC/SWAC.** Desert Locust Information Officer workshop, Cairo, Egypt (April or May)

## Glossary of terms

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

**NON-GREGARIOUS ADULTS AND HOPPERS**

ISOLATED (FEW)

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

SCATTERED (SOME, LOW NUMBERS)

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

GROUP

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

**ADULT SWARM AND HOPPER BAND SIZES**

VERY SMALL

- swarm: less than 1 $km^2$ • 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**

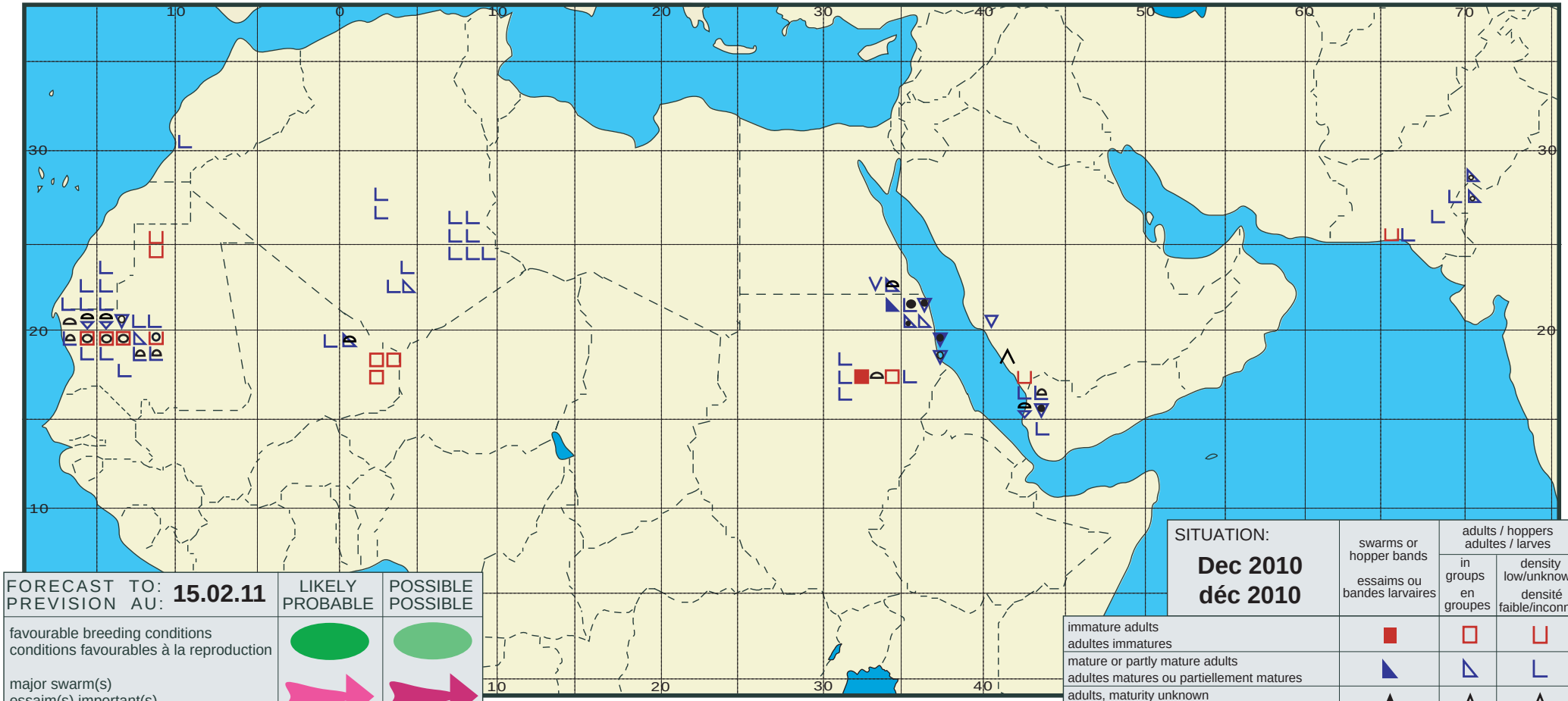
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

**EASTERN**

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

# Desert Locust Summary
# Criquet pèlerin - Situation résumée

**387**




| FORECAST TO: / PREVISION AU: **15.02.11** | LIKELY / PROBABLE | POSSIBLE / POSSIBLE |
|---|---|---|
| favourable breeding conditions<br>conditions favourables à la reproduction | | |
| major swarm(s)<br>essaim(s) important(s) | | |
| minor swarm(s)<br>essaim(s) limité(s) | | |
| non swarming adults<br>adultes non essaimant | | |

| SITUATION: **Dec 2010 déc 2010** | swarms or hopper bands<br>essaims ou bandes larvaires | adults / hoppers adultes / larves: in groups en groupes | adults / hoppers adultes / larves: density low/unknown densité faible/inconnue |
|---|---|---|---|
| immature adults<br>adultes immatures | ■ | □ | ⊔ |
| mature or partly mature adults<br>adultes matures ou partiellement matures | ◣ | ◺ | L |
| adults, maturity unknown<br>adultes, maturité inconnue | ▲ | △ | ∧ |
| egg laying or eggs<br>pontes ou œufs | ▼ | ▽ | ∨ |
| hoppers<br>larves | ● | ○ | ◡ |
| hoppers & adults (combined symbol example)<br>larves et adultes (exemple symboles combinés) | ◘ | ◙ | ◒ |