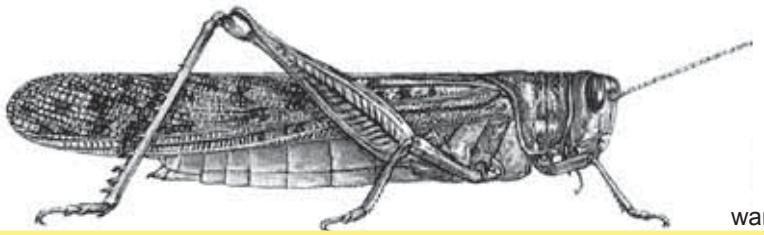

warning level: **CAUTION**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations

No. 460

(2.2.2017)

General Situation during January 2017
Forecast until mid-March 2017

A Desert Locust outbreak developed on the Red Sea coast of Saudi Arabia in early January. Ground and aerial control operations were carried out against hopper bands and adult groups in order to prevent another generation of breeding and the spread of infestations to the northern coast and to spring breeding areas in the interior. In the Western Region, limited control operations were conducted against declining infestations in southern Morocco and northwest Mauritania. As temperatures warm up, adults and groups are likely to move to spring breeding areas in Northwest Africa.

Western Region. Locust activity appeared to decline in **Mauritania** during January perhaps due to low temperatures. Nevertheless, breeding continued in the northwest where a few small hopper groups formed. As vegetation dried out in adjacent areas of Western Sahara in southern **Morocco**, a few adult groups formed and were seen moving south at the end of the month. Limited control operations were carried out in both countries. As temperatures warm up, adults and groups are likely to move to the spring breeding areas along the southern side of the Atlas Mountains in Morocco and lay eggs. This may be supplemented by infestations that are probably present within a relatively large area of green vegetation in inaccessible parts of central **Western Sahara**. Breeding may also occur in northern Mauritania. Elsewhere, small-scale breeding continued in a few places in northern **Niger**.

Central Region. An outbreak developed on the Red Sea coast of **Saudi Arabia** by early January as a result of good rains from last July to mid-September that allowed two generations of breeding to occur. A third generation of breeding is likely in February on the coast between Lith and Jizan where ground and aerial control operations treated 4,200 ha of hopper groups and bands in January. By the end of the month, immature adults were forming groups and there is a possibility that small swarms could form and move north along the coast or eventually to spring breeding areas in the interior. Hopper groups and at least one band formed from local breeding on the northern coast of **Eritrea** and control operations were carried out. The breeding extended to adjacent coastal areas in **Sudan** where a hopper band was treated. Immature adult groups are likely to form along the border from late February onwards. The situation remains unknown in **Yemen** where surveys could not be carried out.

Eastern Region. No locusts were reported and the situation remained calm in the region during January. Good rains that fell in southeast **Iran** and on the coast of Baluchistan, **Pakistan** will allow conditions to become favourable for spring breeding, which should commence 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 are available on the Internet.
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Weather & Ecological Conditions in January 2017

Although little rain fell for a third consecutive month in January, breeding conditions remained favourable in parts of Northwest Africa and along both sides of the Red Sea. Heavy rains fell in northern Oman and southeast Iran.

In the **Western Region**, very little rain fell during January in West and Northwest Africa except for light to moderate showers in parts of the northern Sahara in Algeria. Light rains may have also fallen in the Hoggar Mountains in southeast Algeria. Vegetation started to dry out in the extreme southern part of Morocco and Western Sahara but ecological conditions remained favourable for breeding in southwest Adrar of Mauritania, in northwest Tiris Zemmour and in adjacent areas of Western Sahara where there was a large swath of vegetation nearly 300 km long between Bir Anzarane and Mijek north to Guelta Zemmour. Green vegetation was also present along Wadi As Saquia Al Hamra and on the southern side of the Atlas Mountains of Morocco in the Draa, Ziz and Ghris valleys. In the northern Sahel of West Africa, green vegetation persisted in some wadis of the Adrar des Iforas in northern Mali and in a few places of Tamesna in northern Niger.

In the **Central Region**, light rains fell in winter breeding areas along the Red Sea coast in Sudan and Saudi Arabia at times during January. Consequently, breeding conditions remained favourable between Port Sudan and Karora, extending to Mehimet in Eritrea and, in Saudi Arabia, between Lith and Qunfidah as well as further south towards Jizan and on the northern coast near Umm Lajj. Breeding conditions were less favourable on the Red Sea coast of Yemen, Egypt and the Akbanazouf Plain in Eritrea where vegetation was drying out. During the last week of the month, moderate to heavy showers fell in northern Oman from Musandam to Sharqiya, causing flash floods. Many areas received more rainfall in two days than the long-term average for the entire month.

In the **Eastern Region**, good rains fell in spring breeding areas along the southeastern coast of Iran from Jask to the Pakistan border during the second and third decades of January. Some of these rains extended to the Jaz Murian Basin in the interior and along the Baluchistan coast to Omara in southwest Pakistan. Consequently, breeding conditions are expected to improve in these areas.

Area Treated

Eritrea	276 ha (January)
Mauritania	185 ha (January)
Morocco	126 ha (January)
Saudi Arabia	4,242 ha (January)
Sudan	100 ha (January)

WESTERN REGION

Desert Locust Situation and Forecast

(see also the summary on page 1)

Mauritania

• **Situation**

During January, locust activity declined in the northwest and northern regions of Inchiri, Dakhlet Nouadhibou, Adrar and Tiris Zemmour. This may be partially due to low temperatures that also slowed down locust maturation. Small-scale breeding continued between Akjoujt (1945N/1421W) and Oujeft (2003N/1301W) where scattered solitarious and *transiens* hoppers and maturing adults as well as a few groups of immature and mature *transiens* adults at densities of up to 3,600 adults/ha were present. Low numbers of immature solitarious adults were present in western Inchiri and Dakhlet Nouadhibou between Tijirat (1929N/1557W) and the Moroccan border, including one small immature adult group, and in Tiris Zemmour between Zouerate (2244N/1221W) and Bir Moghrein (2510N/1135W). Ground teams treated 185 ha in January.

• **Forecast**

Scattered adults and a few adult groups are likely to persist and mature in the northwest and north. This is likely to be supplemented by a limited number of adult groups from adjacent areas of southern Morocco and Western Sahara. As temperatures warm up, another generation of breeding is expected to occur in areas where conditions remain favourable that could eventually lead to the formation of small hopper groups.

Mali

• **Situation**

No locust activity was reported during January.

• **Forecast**

Low numbers of adults may be present and will persist in parts of the Adrar des Iforas.

Niger

• **Situation**

During January, small-scale breeding continued in a few places on the Tamesna Plains south of In Abangharit (1754N/0559E) and also west of Arlit (1843N/0721E) where low numbers of solitarious hoppers and immature and mature solitarious adults were present.

• **Forecast**

Low numbers of adults are likely to persist in a few places of Tamesna and may be present in the Air Mountains.

Chad

• **Situation**

No locust activity was reported during January.

• **Forecast**

No significant developments are likely.

Senegal

• **Situation**

No reports were received in 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, no locusts were seen northwest of Beni Abbes (3011N/0214W), in the central Sahara near Adrar (2753N/0017W) and in the southern Sahara to the west of Tamanrasset (2250N/0528E).

• **Forecast**

Low numbers of adults are likely to be present and will persist in parts of the western and central Sahara. As temperatures warm up, they may be supplemented by additional adults and perhaps a few small groups appearing from adjacent areas of northern Mauritania. Small-scale breeding will occur in areas that receive rainfall.

Morocco

• **Situation**

During the first week of January, a group of late instar hoppers at densities up to 13 hoppers/m^2 was present in the extreme south near Bir Gandouz (2136N/1628W). Thereafter, immature solitarious and *transiens* adults including a few groups at densities of up to 5,200 adults/ha were seen west and north of Bir Gandouz near the Atlantic coast. On 22–25 January, two immature adult groups were seen south of Bir Gandouz flying towards Mauritania. Ground teams treated 126 ha up to 10 January.

• **Forecast**

As vegetation dries out in the southern part of Western Sahara, a few small adult groups are likely to form that could move into adjacent areas of Mauritania or move northwards during periods of warm southerly winds to reach the Draa Valley where they would mature and lay eggs as temperatures increase. This could be supplemented by adults that are probably present in central Western Sahara between Bir Anzarane, Mijek and Guelta Zemmour. Scattered adults are likely to be present along the southern side of the Atlas Mountains where they will breed on a small scale at the end of the forecast period.

Libya

• **Situation**

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

• **Forecast**

Low numbers of adults may appear in the southwest and breed on a small scale at the end of the forecast period if rainfall occurs.

Tunisia

• **Situation**

No locust activity was reported during January.

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During January, small-scale breeding continued on the Red Sea coast where solitarious hoppers of mixed instars, fledglings and adults were present in a few places of Tokar Delta (1827N/3741E) and on the southern plains near Aiterba (1753N/3819E). On 12 January, a very small second instar hopper band was reported northeast of Karora (1745N/3820E) near the border with Eritrea that started to fledge by the end of the month when ground teams treated 100 ha. No locusts were seen elsewhere along the coast or in

subcoastal areas of the northeast except for immature solitarious adults at one place west of Wadi Diib to the northwest of Tomala (2002N/3551E). In the Nile Valley, adult groups were copulating at a few places southwest of Abu Hamed (1932N/3320E).

• **Forecast**

If conditions remain favourable, another generation of small-scale breeding will cause locust numbers to increase slightly on the Red Sea coastal plains, mainly between Suakin and Karora. There is a high risk that a few small groups may appear from Eritrea from late February onwards. Small-scale hatching is likely to occur during February in the Nile Valley between Abu Hamed and Merowe.

Eritrea

• **Situation**

During January, breeding occurred on the northern coastal plains of the Red Sea north of Mehimet (1723N/3833E) to the Sudanese border where adults were seen copulating at one location on the 1st and first and second instar hoppers, groups and at least one band were present during the remainder of the month. Ground teams treated 276 ha. No locusts were seen further south on the Akbanazouf Plain (1555N/3910E) where there was an outbreak in December.

• **Forecast**

Hopper groups and bands will continue to form on the northern coast near the Sudanese border with fledging starting by mid-February, leading to the formation of small immature groups.

Ethiopia

• **Situation**

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

• **Forecast**

Low numbers of adults may appear along the railway area between Dire Dawa and Ayasha.

Djibouti

• **Situation**

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

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

On 10 January, there was an unconfirmed report from locals of hopper infestations on the northwest coast between Bulhar (1023N/4425E) and Abdigeed (1031N/4403E).

• **Forecast**

Locust numbers are expected to increase slightly on the northwest coast from small-scale breeding that may be in progress and will continue during the forecast period. As vegetation dries out, there is a low possibility of a few hopper and adult groups.

Egypt

• **Situation**

During January, no locusts were seen during surveys on the Red Sea coast between the Sudanese border and Berenice (2359N/3524E), in subcoastal areas near El Sheikh El Shazly (2412N/3438E), and near Lake Nasser in the Abu Simbel (2219N/3138E), Tushka (2247N/3126E) and northeast Garf Husein (2317N/3252E) areas.

• **Forecast**

If rainfall occurs on the Red Sea coast south of Berenice, small-scale breeding will take place and cause locust numbers to increase slightly.

Saudi Arabia

• **Situation**

During January, second-generation hoppers and adults were present on the Red Sea coast near Lith (2008N/4016E), Qunfidah (1909N/4107E) and Jizan (1656N/4233E). Hoppers of all instars began forming groups and bands from the second week onwards while adults started forming immature groups during the last week. Control operations treated 4,242 ha during January of which 2,700 ha were by air.

• **Forecast**

Second-generation adults will continue to form an increasing number of groups and probably a few small swarms on the Red Sea coast between Lith and Jizan. If conditions remain favourable, a third generation of breeding may occur in these areas with early hatching commencing in February. There is a risk that some adult groups will move north along the coast. Once temperatures warm up in the interior, adult groups and perhaps a few small swarms could appear in the spring breeding areas between Dawasir, Gassim and Tabuk.

Yemen

• **Situation**

The situation remained unclear during January because of a lack of surveys in winter breeding areas along the Red Sea and Gulf of Aden coastal plains.

• **Forecast**

Another generation of breeding is likely to be underway along the Red Sea coast that should cause locust numbers to increase further and allow the formation of groups and perhaps a few small bands. Small-scale breeding may be in progress on the southern coastal plains near Aden.

Oman

• **Situation**

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

• **Forecast**

Low numbers of adults are likely to appear in areas of recent rainfall in the north and breed on a small-scale.

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

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

During January, no locusts were seen in the Jaz Murian Basin of the interior east of Ghale Ganj (2731N/5752E) and near Bampur (2711N/6028E).

• **Forecast**

Low numbers of adults are expected to appear in areas of recent rainfall in the Jaz Murian Basin and on the southeastern coastal plains, and breed on a small scale, causing a slight increase in locust numbers.

Pakistan

• **Situation**

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

• **Forecast**

Low numbers of adults may start to appear in coastal areas of Baluchistan at the end of the forecast period.

India

• **Situation**

No locusts were seen during January 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.

Locust tools and resources. FAO has developed a number of tools that National locust information officers and other interested individuals can use for Desert Locust early warning and management:

- **MODIS.** Vegetation imagery every 16 days (http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/.Regional/.MODIS/index.html)
- **MODIS.** Daily rainfall imagery in real time (http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/index.html)
- **RFE.** Rainfall estimates every day, decade and month (http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/index.html)
- **Greenness maps.** Dynamic maps of green vegetation evolution every decade (http://iridl.ldeo.columbia.edu/maproom/Food_Security/Locusts/Regional/greenness.html)

- **eLocust3 training videos.** A set of 15 introductory training videos are available on YouTube: https://www.youtube.com/playlist?list=PLf7Fc-oGpFHEdv1jAPaF02TCfpcnYoFQT
- **RAMSESv4 training videos.** A set of basic training videos are available on YouTube: https://www.youtube.com/playlist?list=PLf7Fc-oGpFHGyzXqE22j8-mPDhhGNq5So
- **RAMSESv4 and eLocust3 updates.** Updates can be downloaded from https://sites.google.com/site/rv4elocust3updates/home
- **FAOLOCUST Twitter.** The very latest updates are posted on Twitter (http://www.twitter.com/faolocust)
- **FAOLocust Facebook.** A social means of information exchange using Facebook (http://www.facebook.com/faolocust)
- **Slideshare.** Locust presentations and photos available for viewing and download (http://www.slideshare.net/faolocust)
- **eLERT.** A dynamic and interactive online database of resources for locust emergencies (http://sites.google.com/site/elertsite)

New information on Locust Watch. Recent additions to the web site (www.fao.org/ag/locusts) are:

- **Saudi Arabia outbreak.** Archives – Outbreaks 2016
- **Desert Locust situation update.** Archives – Briefs 2017
- **WMO/FAO Weather and Desert Locusts booklet.** Publications – Documents

2017 events. The following activities are scheduled or planned:

- **EMPRES/WR.** 15th Liaison Officer meeting and 12th Consultative Committee, Ouagadougou, Burkina Faso (30 January – 4 February)
- **CRC.** 50th anniversary and 30th session, Muscat, Oman (19–24 February)
- **CLCPRO.** Desert Locust Information Officer workshop, Algiers, Algeria (19–23 March)
- **CRC/SWAC.** Desert Locust Information Officer workshop, Egypt (May, tbc)

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 AREAS

- July - September/October
  (Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border)

WINTER RAINS AND BREEDING AREAS

- October - January/February
  (Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara)

SPRING RAINS AND BREEDING AREAS

- February - June/July
  (Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border)

RECESSION

- period without widespread and heavy infestations

by swarms.

REMISSION

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

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.

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.

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

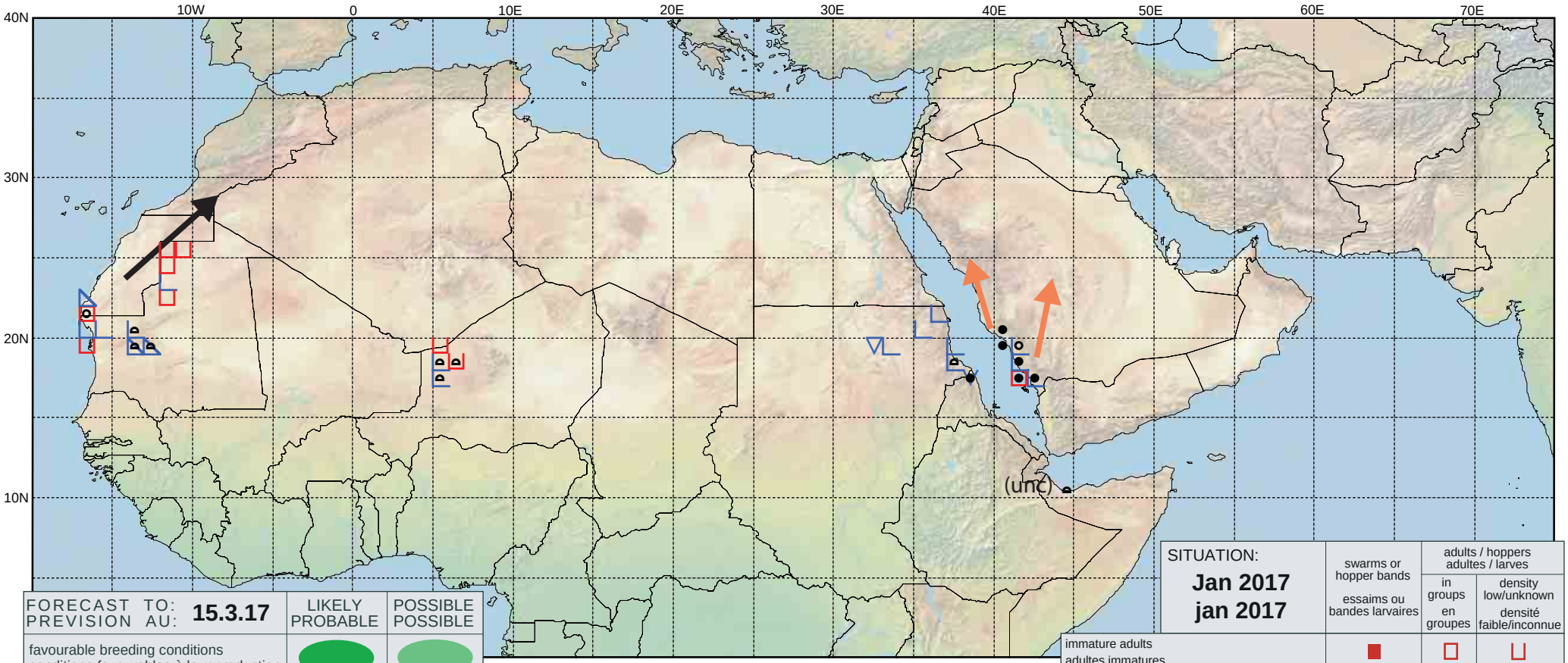
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

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

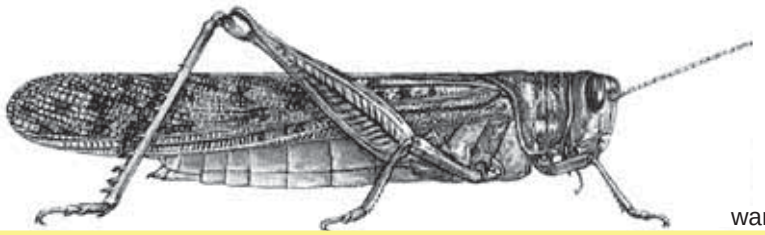
Desert Locust Summary
Criquet pèlerin - Situation résumée

460



FORECAST TO: / PREVISION AU: **15.3.17**	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **Jan 2017** / **jan 2017**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves: in groups en groupes	adults / hoppers adultes / larves: density low/unknown densité faible/inconnue
immature adults adultes immatures	■	□	⊔
mature or partly mature adults adultes matures ou partiellement matures	◣	◺	∟
adults, maturity unknown adultes, maturité inconnue	▲	△	∧
egg laying or eggs pontes ou œufs	▼	▽	∨
hoppers larves	●	○	◡
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)	◘	◙	⊟



warning level: **CAUTION**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 461**

(2.3.2017)

General Situation during February 2017 Forecast until mid-April 2017

The Desert Locust situation improved during February. Intensive control operations reduced infestations along the Red Sea coast in Saudi Arabia and locusts declined on the coast of Sudan as vegetation dried out. In Northwest Africa, limited control was undertaken against a few residual adult groups in northwest Mauritania. During the forecast period, adults will shift from winter to spring breeding areas. This may be most noticeable in Saudi Arabia where adult groups and perhaps a few small swarms could form on the coast and move inland. Small-scale breeding is likely to occur in northern Mauritania, along the southern side of the Atlas Mountains in Morocco and Algeria, in the Nile Valley of northern Sudan and in southeast Iran but locust numbers are expected to remain below threatening levels in all areas.

Western Region. The situation remained generally calm in the region during February. Limited control operations (227 ha) were carried out against a few remaining adult groups in northwest **Mauritania** while scattered adults persisted in the north. Small-scale breeding took place in parts of the Western Sahara in southern **Morocco** but locust numbers remained low. During the forecast period, small-scale breeding is likely to occur in northern Mauritania and along the southern side of the Atlas Mountains in Morocco and **Algeria**, causing locust numbers to increase slightly. In the northern Sahel, isolated solitarious adults were seen in southeast **Niger**.

Central Region. Ground and aerial control operations (4,243 ha) continued in **Saudi Arabia** against hopper groups, bands and a few adult groups on the central and southern Red Sea coast. By the end of the month, locust infestations had declined. As vegetation dried out, locust numbers declined on the Red Sea coast in **Sudan** where limited control (85 ha) was undertaken against groups of adults. The situation remained unclear in **Yemen** where surveys were not possible in winter breeding areas. During the forecast period, any remaining adults that escaped detection and control on the Red Sea coast in Saudi Arabia may form a few adult groups or perhaps a small swarm or two that are likely to move inland and breed during the spring in areas of recent rainfall. Limited breeding may occur near crops in the Nile Valley of northern Sudan. In the Horn of Africa, a few adult groups from January breeding may form on the northwest coast of **Somalia** and move into adjacent areas of eastern **Ethiopia**. Elsewhere, no locusts were reported in the region.

Eastern Region. No locusts were reported and the situation remained calm in the region during February. Small-scale breeding is likely to occur in southeast **Iran** and perhaps southwest **Pakistan** in areas where good rains fell during January and February. Consequently, locust numbers will increase slightly but remain below threatening levels.

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 are available on the Internet.
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Facebook: www.facebook.com/faolocust
Twitter: twitter.com/faolocust

No. 461

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in February 2017

Breeding conditions remained favourable on the Red Sea coast of Saudi Arabia but dried out on the coasts of Sudan and Eritrea. Good rains fell in parts of the spring breeding areas in the interior of Saudi Arabia, northern Oman and southeast Iran.

In the **Western Region**, no significant rain fell during February. Nevertheless, ecological conditions remained favourable for locust survival and breeding in southwest Adrar and northwest Tiris Zemmour of Mauritania. Vegetation began to dry out in parts of the adjacent areas of Western Sahara and southern Morocco. Green vegetation persisted along the southern side of the Atlas Mountains in the Draa, Ziz and Ghris valleys of Morocco. Ecological conditions improved in parts of the northern and central Sahara in Algeria. In the northern Sahel, small areas remained green in some wadis of the Adrar des Iforas in northern Mali and in the Air Mountains of northern Niger.

In the **Central Region**, very little rain fell in winter breeding areas along both sides of the Red Sea during February. Consequently, vegetation began drying out especially on the coast of Egypt, Sudan and Eritrea. In Saudi Arabia, breeding conditions remained favourable on the coast between Lith and Jizan, and light rains may have fallen at times during the second decade. Good rains fell in the spring breeding areas of the interior between Hail and Tabuk. In Yemen, breeding conditions were probably still favourable in some areas where vegetation remained green, and light rain fell at times during the second decade on the northern coast. In Oman, good rains fell in northern coastal and interior areas during the second and third decades of February that should allow breeding conditions to improve in some areas. In the Horn of Africa, very little rain except in parts of the Rift Valley in Ethiopia where good rains fell in Afar region.

In the **Eastern Region**, good rains fell in spring breeding areas along the southeastern coast of Iran between Jask and Bandar Abbas, extending inland to the Jaz Murian Basin during the first decade of February and again on the 26th. Vegetation was green on the southeast coast near Jask and Chabahar.

Area Treated

Mauritania	227 ha (February)
Saudi Arabia	4,243 ha (February)
Somalia	85 ha (January)
Sudan	85 ha (February)

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **Situation**

During the first decade of February, *transiens* adults formed a few small immature and mature groups at densities up to 4,500 adults/ha at five places in Dakhlet Nouadhibou and at one location in southwest Adrar south of Oujeft. Ground teams treated 227 ha. During the remainder of the month, isolated immature and mature solitarious adults persisted between Akjoujt (1945N/1421W) and Oujeft (2003N/1301W), north of Zouerate and near Bir Moghrein (2510N/1135W). A few solitarious hoppers were seen near Bir Moghrein.

• **Forecast**

Low numbers of adults are expected to persist and mature between Zouerate and Bir Moghrein and in southwest Adrar. Small-scale breeding is likely to be in progress and will continue during the forecast period in some areas, causing a slight increase in locust numbers. Once vegetation dries out, there is an increased risk of a few small groups forming.

Mali

• **Situation**

No locust activity was reported during February.

• **Forecast**

Low numbers of adults may be present and will persist in parts of the Adrar des Iforas.

Niger

• **Situation**

During February, isolated mature solitarious adults were seen at two places along the eastern edge of Termit Massif (1602N/1120E) in the southeast.

• **Forecast**

Low numbers of adults may be present in the Air Mountains.

Chad

• **Situation**

No locust activity was reported during February.

• **Forecast**

No significant developments are likely.

Senegal

• **Situation**

No locust activity was reported 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**

During February, no locusts were seen in the northwest near Bechar (3135N/0217W), in the west near Tindouf (2741N/0811W), in the central Sahara near Adrar (2753N/0017W) and in the southern Sahara near Tamanrasset (2250N/0528E).

• **Forecast**

Low numbers of adults are likely to appear south of the Atlas Mountains between Tindouf, Adrar and Illizi and breed on a small scale with hatching during the forecast period.

Morocco

• **Situation**

During February, isolated solitarious adults were maturing and copulating in the Western Sahara between Guelta Zemmur (2508N/1222W) and Oum Dreyga (2406N/1316W). Low numbers of fifth instar solitarious hoppers were seen, indicating that undetected egg-laying and hatching occurred in January. No locusts were seen in the extreme southwest near Bir Gandouz and the Mauritanian border.

• **Forecast**

Small-scale breeding will cause locust numbers to increase in the Western Sahara between Guelta Zemmur and Oum Dreyga. Small-scale breeding will also commence along the southern side of the Atlas Mountains.

Libya

• **Situation**

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

• **Forecast**

Low numbers of adults may appear in the southwest and breed on a small scale if rainfall occurs.

Tunisia

• **Situation**

No locust activity was reported during February.

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During February, scattered immature and mature solitairous adults were present on the Red Sea coast in the Tokar Delta (1827N/3741E) and near Aiterba (1753N/3819E) in the first three weeks of the month; no locusts were seen thereafter. Ground teams treated 85 ha including an immature adult group near Aiterba. In the northeast, scattered immature solitarious adults were present at one place northwest of Tomala (2002N/3551E). In the Nile Valley, mature solitarious adults were present at a few places near Abu Hamed (1932N/3320E).

• **Forecast**

Scattered adults may appear in the Nile Valley between Atbara and Dongola where small-scale breeding could occur near cropping areas.

Eritrea

• **Situation**

During the first decade of February, no locusts were seen on the central Red Sea coast near the Akbanazouf Plains (1555N/3910E) and on the northern coast between Mehimet (1723N/3833E) and the Sudanese border.

• **Forecast**

No significant developments are likely.

Ethiopia

• **Situation**

No reports were received in February.

• **Forecast**

Low numbers of adults and perhaps a few small groups may appear along the railway area between Dire Dawa and Ayasha, and in the Somali region near Jijiga.

Djibouti

• **Situation**

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

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

A late report indicated that a few small late instar hopper groups and bands were present on the northwest coast between Bulhar (1023N/4425E) and Lughaye (1041N/4356E) during January. Fledging occurred at one location and at least one immature adult group formed. Ground teams treated 85 ha using Green Muscle™.

In February, no locusts were seen during surveys carried out in Puntland between Gardo (0930N/4905E) and Garowe (0824N/4829E).

• **Forecast**

As vegetation dries out, a few adult groups may form on the northwest coast and move into the escarpment and towards the plateau.

Egypt

• **Situation**

During February, no locusts were seen during surveys on the Red Sea coast between the Sudanese border and Berenice (2359N/3524E), in subcoastal areas near El Sheikh El Shazly (2412N/3438E), and near Lake Nasser in the Abu Simbel (2219N/3138E) and Tushka (2247N/3126E) areas.

• **Forecast**

No significant developments are likely.

Saudi Arabia

• **Situation**

During February, mainly late instar hopper groups persisted on the Red Sea coast at a few places near Lith (2008N/4016E), Qunfidah (1909N/4107E) and north of Jizan (1656N/4233E) in the first half of the month while fifth instar hopper bands were present north of Jizan until the 19th. Fledging was underway and immature adults were present, some of which formed immature groups in a few areas while others were maturing. Control operations continued until 10 February, treating 4,243 ha of which 500 ha were by air. No locusts were seen on the northern coast between Jeddah (2130N/3910E) and Rabigh (2247N/3901E).

• **Forecast**

A limited number of adult groups and perhaps a few small swarms could form on the Red Sea coast between Lith and Jizan and move north and inland to the spring breeding areas between Dawasir, Gassim and Tabuk and lay eggs.

Yemen

• **Situation**

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

• **Forecast**

Small-scale breeding may be in progress on the Red Sea and southern coastal plains near Aden.

Oman

• **Situation**

During February, no locusts were seen during surveys carried out on the Musandam Peninsula, the Batinah coast, in the northern interior near Buraimi (2415N/5547E), Nizwa (2255N/5731E) and the Wahiba Sands and in the south between Thumrait (1736N/5401E) and the Yemen border.

• **Forecast**

Low numbers of adults are likely to appear in areas of recent rainfall in coastal and interior areas of the north and breed on a small scale.

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

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

During February, no locusts were seen on the southeast coastal plains near Jask (2540N/5746E) and Chabahar (2517N/6036E).

• **Forecast**

Low numbers of adults are expected to appear in areas of recent rainfall in the Jaz Murian Basin and on the southeastern coastal plains, and breed on a small scale, causing a slight increase in locust numbers.

Pakistan

• **Situation**

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

• **Forecast**

Low numbers of adults are likely to appear in coastal areas of Baluchistan and breed on a small scale in areas that receive rainfall.

India

• **Situation**

No locusts were seen during February 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.

Locust tools and resources. FAO has developed a number of tools that National locust information officers and other interested individuals can use for Desert Locust early warning and management:

- **MODIS.** Vegetation imagery every 16 days (http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/.Regional/.MODIS/index.html)
- **MODIS.** Daily rainfall imagery in real time (http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/index.html)
- **RFE.** Rainfall estimates every day, decade and month (http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/index.html)
- **Greenness maps.** Dynamic maps of green vegetation evolution every decade (http://iridl.ldeo.columbia.edu/maproom/Food_Security/Locusts/Regional/greenness.html)
- **eLocust3 training videos.** A set of 15 introductory training videos are available on YouTube: https://www.youtube.com/playlist?list=PLf7Fc-oGpFHEdv1jAPaF02TCfpcnYoFQT
- **RAMSESv4 training videos.** A set of basic training videos are available on YouTube: https://www.youtube.com/playlist?list=PLf7Fc-oGpFHGyzXqE22j8-mPDhhGNq5So
- **RAMSESv4 and eLocust3 updates.** Updates can be downloaded from https://sites.google.com/site/rv4elocust3updates/home
- **FAOLOCUST Twitter.** The very latest updates are posted on Twitter (http://www.twitter.com/faolocust)
- **FAOLocust Facebook.** A social means of information exchange using Facebook (http://www.facebook.com/faolocust)
- **Slideshare.** Locust presentations and photos available for viewing and download (http://www.slideshare.net/faolocust)
- **eLERT.** A dynamic and interactive online database of resources for locust emergencies (http://sites.google.com/site/elertsite)

New information on Locust Watch. Recent additions to the web site (www.fao.org/ag/locusts) are:

- **Eritrea, Saudi Arabia, Sudan and Yemen outbreaks.** Archives – Outbreaks 2016
- **WMO/FAO Weather and Desert Locusts booklet.** Publications – Documents

2017 events. The following activities are scheduled or planned:

- **CLCPRO.** Desert Locust Information Officer workshop, Oran, Algeria (19–23 March)
- **CLCPRO/CRC.** Interregional training on Pesticide Stock Management System (PSMS) database, Agadir, Morocco (27–31 March)
- **CRC/SWAC.** Desert Locust Information Officer workshop, Egypt (7–11 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 AREAS

- July - September/October
  (Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border)

WINTER RAINS AND BREEDING AREAS

- October - January/February
  (Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara)

SPRING RAINS AND BREEDING AREAS

- February - June/July
  (Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border)

RECESSION

- period without widespread and heavy infestations by swarms.

REMISSION

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

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.

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.

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

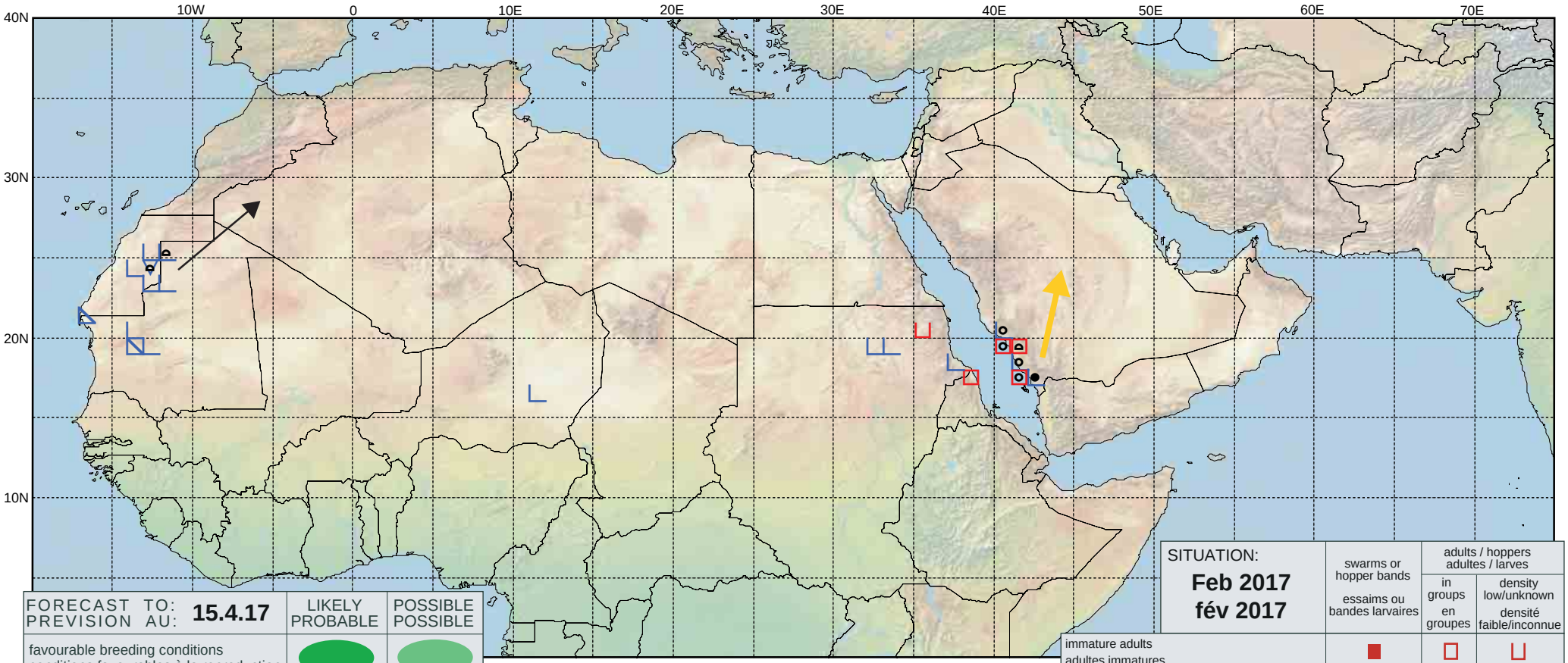
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

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

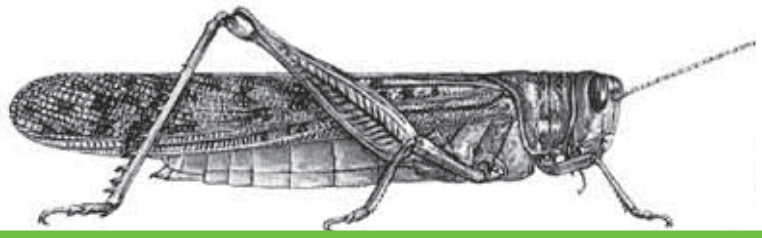
Desert Locust Summary
Criquet pèlerin - Situation résumée

461



FORECAST TO: / PREVISION AU: **15.4.17**	LIKELY / PROBABLE	POSSIBLE / POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **Feb 2017 / fév 2017**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves: in groups en groupes	adults / hoppers adultes / larves: density low/unknown densité faible/inconnue
immature adults adultes immatures	■	□	⊔
mature or partly mature adults adultes matures ou partiellement matures	◣	◺	∟
adults, maturity unknown adultes, maturité inconnue	▲	△	∧
egg laying or eggs pontes ou œufs	▼	▽	∨
hoppers larves	●	○	⌓
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)	◘	◙	⌓



warning level: **CALM**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 462**

(3.4.2017)

General Situation during March 2017
Forecast until mid-May 2017

The Desert Locust situation improved during March and became calm in all countries. Low numbers of locusts were present in a few countries and limited ground control operations were carried out in Morocco. Small-scale breeding is expected to occur during the spring in the interior of Saudi Arabia, Yemen and southeast Iran where good rains fell in March. Although this will cause locust numbers to increase slightly, they should remain below threatening levels. Spring breeding will also occur in Northwest Africa if more rain falls along the southern side of the Atlas Mountains. Regular surveys should be conducted throughout the spring to monitor the situation and prepare for the summer breeding period.

Western Region. The situation remained calm in the region during March. Limited control operations (20 ha) were carried out against high densities of adults, some of which were copulating, in the northern portion of the Western Sahara in southern **Morocco**. Low numbers of adults continued to mature in the central Western Sahara, and in northwest and northern **Mauritania**. Isolated adults were present near irrigated farms in the central Sahara of **Algeria**. If more rains fall, limited breeding may occur in the aforementioned areas as well as along the southern side of the Atlas Mountains in Morocco and Algeria. A few small groups could form in northern Western Sahara as vegetation dries out. No locusts were reported elsewhere in the region.

Central Region. The locust situation improved in **Saudi Arabia** as a result of previous control operations, and no locusts were seen in March during intensive surveys. Similarly, locust numbers declined in **Sudan** and **Yemen** where only scattered adults remained in a few places along the Red Sea coast, and scattered adults were present in southeast **Egypt**. Ecological conditions are expected to improve in the interior of Saudi Arabia and Yemen where widespread, good rains fell after mid-March. Consequently, one generation of breeding could occur, causing locust numbers to increase slightly in both countries. Smaller-scale breeding may also occur in coastal and interior areas of northern **Oman**.

Eastern Region. No locusts were reported and the situation remained calm in the region during March. However, good rains fell in coastal and interior areas of southeast **Iran** that are likely to allow one generation of small-scale breeding to occur during the forecast period, causing locust numbers to increase slightly.

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 are available on the Internet.
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Weather & Ecological Conditions in March 2017

Good rains fell in the spring breeding areas of Saudi Arabia, Yemen and Iran. Green vegetation persisted in parts of Northwest Africa. Vegetation dried out in winter breeding areas along both sides of the Red Sea.

In the **Western Region**, very little rain fell during March. In Algeria, light rain fell in the central Sahara near In Salah and Adrar while heavier rain fell further north near El Golea. Although no significant rain fell in the spring breeding areas along the southern side of the Atlas Mountains, vegetation remained green in the Draa, Ziz and Ghris valleys of Morocco, and near Bechar and Tindouf in Algeria. Vegetation was also green near irrigated farms in the Adrar area of the central Sahara in Algeria but dry in the southern Sahara near Tamanrasset. Annual vegetation continued to dry out in the central portion of the Western Sahara but remained green further north in Wadi Sakia El Hamra. In Mauritania, green vegetation persisted in the north near Bir Moghrein and Zouerate and in southwest Adrar. In northern Mali, vegetation was green in a few wadis in the Adrar des Iforas of northern Mali and in parts of the Air Mountains as well as on the Tamesna Plains between Agadez and Tegguidda in Niger.

In the **Central Region**, good rains fell in the spring breeding areas of the interior of Saudi Arabia and Yemen during March. In Saudi Arabia, the rains were mainly concentrated in the east as well as south of Riyadh to the Yemen border, including Wadi Dawasir. Less rain fell in the Gassim-Hail area. In Yemen, widespread rains fell in Ramlat Sabatyn between Marib and Wadi Hadhramaut, extending north to the Saudi Arabian border and the edge of the Empty Quarter, including the plateau between Minwakh, Thamud and Hazam. In the winter breeding areas, vegetation dried out along the coastal plains on both sides of the Red Sea, except on the northern coast of Yemen and adjacent southern areas in Saudi Arabia. Vegetation was dry on the coastal plains near Aden in southern Yemen. During the last decade, good rains fell on the southern Red Sea coast in Eritrea near Assab, in the railway area of eastern Ethiopia and on the Somali plateau between Jijiga and the escarpment in northern Somalia. In Oman, good rains also fell in coastal (northern Batinah) and interior areas (Buraimi, Dhahera, Sharqiya) as well as on the Musandam Peninsula.

In the **Eastern Region**, good rains fell during the second half of March in spring breeding areas along the southeastern coast of Iran between Jask and Bandar Abbas, as well as inland in the Jaz Murian Basin for the second consecutive month. The rains extended further east along the coastal plains to Chabahar. Consequently, vegetation was becoming green and breeding conditions were improving. Dry conditions prevailed elsewhere in the region.

Area Treated

Morocco 20 ha (March)

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During March, low numbers of mature solitarious adults persisted in the north near Bir Moghrein (2510N/1135W) and Zouerate (2244N/1221W), and in southwest Adrar between Akjoujt (1945N/1421W) and Oujeft (2003N/1301W). A few immature solitarious adults were also seen in Adrar and to a lesser extent in the northwest near Nouadhibou (2056N/1702W).

• **FORECAST**

Low numbers of adults are expected to persist between Zouerate and Bir Moghrein and in southwest Adrar. Small-scale breeding is likely to be in progress and will continue during the forecast period in some areas, causing a slight increase in locust numbers.

Mali

• **SITUATION**

No locust activity was reported during March.

• **FORECAST**

Low numbers of 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**

Low numbers of adults may be present in the Air Mountains and west of Agadez.

Chad

• **Situation**

No locust activity was reported during March.

• **Forecast**

No significant developments are likely.

Senegal

• **Situation**

No reports received.

• **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, isolated mature solitarious adults were present in a few places in the central Sahara near irrigated farms in the Adrar (2753N/0017W) area, and a few adults were seen copulating at mid-month. No locusts were seen in the northwest near Bechar (3135N/0217W), in the west near Tindouf (2741N/0811W) and in the southern Sahara near Tamanrasset (2250N/0528E).

• **Forecast**

Local breeding will cause locust numbers to increase slightly near Adrar where hatching will occur early in the forecast period and fledging could start by mid-May.

Morocco

• **Situation**

During March, solitarious adults continued to mature in the Western Sahara between Guelta Zemmur (2508N/1222W) and Oum Dreyga (2406N/1316W), and near Smara (2644N/1140W). In addition, similar infestations were detected to the north in W. Sakia El Hamra where densities reached 1,500 adults/ha during the first decade but declined after ground teams treated 20 ha. Adults were seen copulating at two places east of Haouza (2707N/1112W).

• **Forecast**

Small-scale breeding will cause locust numbers to increase slightly in the northern Western Sahara, and adults may form a few small groups as vegetation dries out. Small-scale breeding will also occur along the southern side of the Atlas Mountains in any areas that receive rainfall.

Libya

• **Situation**

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

• **Forecast**

Low numbers of adults may appear in the southwest and breed on a small scale if rainfall occurs.

Tunisia

• **Situation**

No locust activity was reported during March.

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During March, isolated mature solitarious adults persisted at three places in the Tokar Delta on the Red Sea coast and a few mature solitarious adults were seen on the southern plains near Karora (1745N/3820E) and the Eritrean border.

• **Forecast**

Scattered adults may appear in the Nile Valley between Atbara and Dongola where small-scale breeding could occur near cropping areas.

Eritrea

• **Situation**

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

• **Forecast**

No significant developments are likely.

Ethiopia

• **Situation**

A late report indicated that no surveys were conducted and no locusts were reported in February. No reports were received in March.

• **Forecast**

Low numbers of adults may appear along the railway area between Dire Dawa and Ayasha, and in the Somali region near Jijiga and breed on a small scale in areas of recent rainfall.

Djibouti

• **Situation**

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

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

During March, no locusts were seen during surveys carried out in Sanaag and Bari regions of the northeast.

• **Forecast**

No significant developments are likely.

Egypt

• **Situation**

During March, scattered mature solitarious adults were seen at one location near the southeast coastal plains of the Red Sea in Wadi Diib to the southwest of Abu Ramad (2224N/3624E). No locusts were seen during surveys elsewhere on the Red Sea coast between the Sudanese border and Shalatyn (2308N/3535E) and near Lake Nasser in the Abu Simbel (2219N/3138E), Tushka (2247N/3126E) and Allaqi areas.

• **Forecast**

No significant developments are likely.

Saudi Arabia

• **Situation**

During March, no locusts were seen during surveys carried out in winter breeding areas along nearly the entire Red Sea coastal plains between Jizan (1656N/4233E) and Al Wajh (2615N/3627E), and in spring breeding areas of the interior between Wadi Dawasir (2028N/4747E) and Hail (2731N/4141E) as well as in the east near Al Hofuf (2519N/4937E).

• **Forecast**

Low numbers of adults may be present in parts of the interior where limited breeding could occur in areas of recent rainfall near Dawasir and perhaps in the Gassim area.

Yemen

• **Situation**

During March, low numbers of immature and mature solitarious adults were present on the central Red Sea coastal plains near Bajil (1458N/4314E) and on the northern coast between Al Zuhrah (1541N/4300E) and Midi (1619N/4248E). On the southern coast, immature adults were seen at one location near Lahij (1303N/4453E).

• **Forecast**

Low numbers of adults are likely to persist on the northern coast of the Red Sea and perhaps to a lesser extent on the Aden coastal plains. Scattered adults may appear in the interior where small-scale breeding could occur in areas of recent rainfall between Marib, Ataq, Al Abr, Sayun and the plateau south of Hazar, causing locust numbers to increase.

Oman

• **Situation**

In March, no locusts were seen during surveys carried out on the Musandam Peninsula and in the northern interior near Buraimi (2415N/5547E).

• **Forecast**

Low numbers of adults are likely to appear in areas of recent rainfall on the northern Batinah coast and in the interior regions of Buraimi, Dhahera and Sharqiya.

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

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

During March, no locusts were seen on the southeast coastal plains near Jask (2540N/5746E) and in the Jaz Murian Basin east of Ghale Ganj (2731N/5752E).

• **Forecast**

Small-scale breeding is expected to occur in areas of recent rainfall on the southeast coast between Minab and Chabahar, and in the Jaz Murian Basin, causing locust numbers to increase slightly.

Pakistan

• **Situation**

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

• **Forecast**

Low numbers of adults are likely to appear in coastal areas of Baluchistan and breed on a small scale in areas that receive rainfall.

India

• **Situation**

No locusts were seen during March 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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- **Eritrea, Saudi Arabia, Sudan and Yemen outbreaks.** Archives – Outbreaks 2016
- **WMO/FAO Weather and Desert Locusts booklet.** Publications – Documents

2017 events. The following activities are scheduled or planned:

- **CRC/SWAC.** Desert Locust Information Officer workshop, Egypt (7–11 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 AREAS

- July - September/October
  (Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border)

WINTER RAINS AND BREEDING AREAS

- October - January/February
  (Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara)

SPRING RAINS AND BREEDING AREAS

- February - June/July
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RECESSION

- period without widespread and heavy infestations by swarms.

REMISSION

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

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.

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.

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.

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  http://www.fao.org/ag/locusts
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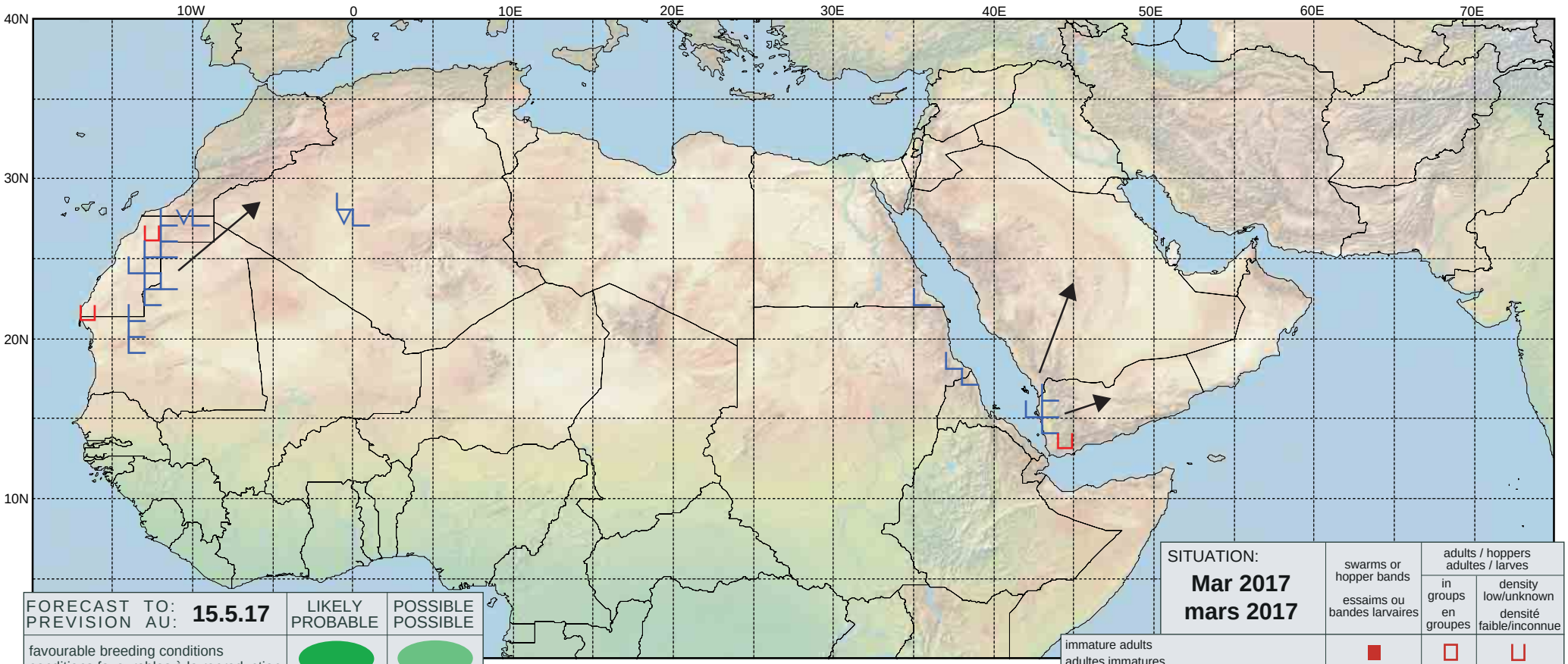
  https://sites.google.com/site/rv4elocust3updates/home
- **FAOLocust Twitter.** The very latest updates posted as tweets
  http://www.twitter.com/faolocust
- **FAOLocust Facebook.** Information exchange using social media
  http://www.facebook.com/faolocust
- **FAOLocust Slideshare.** Locust presentations and photos
  http://www.slideshare.net/faolocust
- **eLERT.** Online database of resources and technical specifications for locust emergencies
  http://sites.google.com/site/elertsite

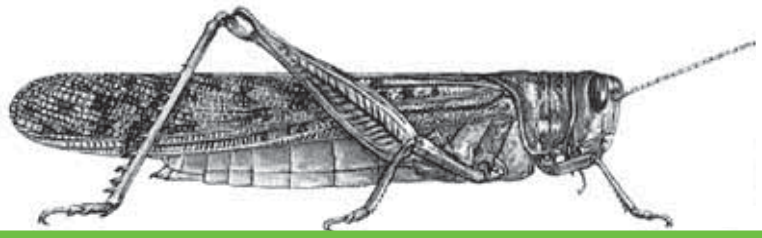
Desert Locust Summary
Criquet pèlerin - Situation résumée

462



FORECAST TO: / PREVISION AU: **15.5.17**	LIKELY / PROBABLE	POSSIBLE / POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **Mar 2017 mars 2017**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves	
		in groups en groupes	density low/unknown densité faible/inconnue
immature adults adultes immatures	■	□	⊔
mature or partly mature adults adultes matures ou partiellement matures	◣	◺	∟
adults, maturity unknown adultes, maturité inconnue	▲	△	∧
egg laying or eggs pontes ou œufs	▼	▽	∨
hoppers larves	●	○	⌓
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)	◘	◙	⊟



warning level: **CALM**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations

No. 463

(3.5.2017)

General Situation during April 2017
Forecast until mid-June 2017

The Desert Locust situation was calm during April due to poor rainfall and ecological conditions throughout most of the spring breeding areas in northwest Africa and the Arabian Peninsula. Low numbers of solitarious adults were present in Mauritania, Morocco, Algeria, Egypt and Iran. The situation continued to remain unclear in Yemen where surveys could not be conducted. During the forecast period, small-scale breeding could occur in parts of the interior in Saudi Arabia and Yemen, and in a few places in northeast Morocco, central Algeria and southeast Iran. Although this may cause locust numbers to increase slightly, they will remain below threatening levels and no significant developments are likely.

Western Region. The situation remained calm in the region during April. Low numbers of adults were present in parts of northern **Mauritania**, Western Sahara and northeast **Morocco**, and in central **Algeria**. Limited breeding occurred near irrigated farms in the central Sahara of Algeria where small-scale ground control operations were undertaken. A lack of rainfall and poor ecological conditions will severely reduce spring breeding this year. Consequently, no significant developments are likely. In Mauritania, low numbers of adults will gradually move south towards summer breeding areas in the southeast.

Central Region. The locust situation remained calm as no locusts were reported in the region during April except for isolated adults in southeast **Egypt**. Nevertheless, ecological conditions were favourable in parts of the interior of **Saudi Arabia** and **Yemen** where small-scale breeding could occur during the forecast period and cause locust numbers to increase slightly. Both countries should stay alert because the situation continues to remain unclear in Yemen as surveys cannot be carried out. Elsewhere, no significant developments are likely.

Eastern Region. Scattered adults were present in southeast **Iran** where small-scale breeding is likely to occur during the forecast period. No locusts were present in adjacent areas of southwest **Pakistan** where conditions remained dry and unfavourable for breeding. No significant developments are likely.

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 are available on the Internet.
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Internet: www.fao.org/ag/locusts
Facebook: www.facebook.com/faolocust
Twitter: twitter.com/faolocust

Weather & Ecological Conditions in April 2017

Good rains fell in parts of the Central Region during April but ecological conditions were dry in most areas except for parts of the spring breeding areas in northwest Morocco, Saudi Arabia and southeast Iran.

In the **Western Region**, no significant rain fell in Desert Locust breeding areas during April for the second consecutive month. Consequently, ecological conditions were mainly dry and unfavourable for breeding except for a few limited areas in W. Sakia El Hamra in northern Western Sahara and in northeast Morocco near Bouarfa, in the central Sahara of Algeria between Adrar and In Salah, and in northern Mauritania south of Bir Moghrein and in the northwest near Nouadhibou. During the second decade, light rains may have fallen at times in northern Mali (southwest of Aguelhoc) and Niger (Tamesna and Air), and in southern Algeria (west of Tamanrasset) where ecological conditions may permit the survival of low numbers of adults.

In the **Central Region**, good rains fell at times during the last two decades of April in a few places on the Red Sea coast between Assab, Eritrea and Shalatyn, Egypt as well as near Jeddah and on the Tihama in Yemen. Some showers also fell in the Red Sea Hills of Sudan, in eastern Ethiopia near Dire Dawa and Jijiga, and on the Somali plateau and escarpment east of Hargeisa. Nevertheless, ecological conditions continued to dry out in the winter breeding areas along both sides of the Red Sea but remained green in a few places along the northwest coast in northern Somalia. In spring breeding areas, rains fell at times in northern Saudi Arabia near Al Jawf, in central interior areas near Gassim and in the south near Wadi Dawasir and Najran, causing ecological conditions to be favourable for breeding. Ecological conditions were also likely to be favourable for breeding in the interior of Yemen between Marib and Thamud where good rains fell during March.

In the **Eastern Region**, very little rain fell during April except in the Jaz Murian Basin of southeast Iran. Ecological conditions were favourable for small-scale breeding in southeast Iran along parts of the coast between Chabahar and Jask, and in the Jaz Murian Basin of the interior. On the contrary, breeding conditions were not favourable in adjacent areas of Baluchistan in western Pakistan.

Area Treated

Algeria	32 ha (April)

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During April, low numbers of mature solitarious adults persisted in the north between Zouerate (2244N/1221W) and Bir Moghrein (2510N/1135W). No locusts were seen between Nouakchott (1809N/1558W) and Zouerate and in the northwest near Nouadhibou (2056N/1702W).

• **FORECAST**

Low numbers of adults present between Zouerate and Bir Moghrein will gradually move south towards the summer breeding areas.

Mali

• **SITUATION**

No locust activity was reported during April.

• **FORECAST**

Low numbers of 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 April.

• **FORECAST**

Low numbers of adults may be present in the Air Mountains and west of Agadez.

Chad

• **SITUATION**

No locust activity was reported during April.

• **FORECAST**

No significant developments are likely.

Senegal

• **SITUATION**

No reports received.

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

During April, small-scale breeding occurred near irrigated farms in the central Sahara south of Adrar (2753N/0017W) and at one place west of In Salah (2712N/0229E) where adults were copulating and laying eggs. Ground teams treated 32 ha of second to fourth instar solitarious hoppers at densities of 10–20 hoppers/m^2 and mature adults. No locusts were seen near in the northwest near Bechar (3135N/0217W), in the west near Tindouf (2741N/0811W) and in the south between In Salah and Tamanrasset (2250N/0528E).

• **Forecast**

Local breeding will cause locust numbers to increase slightly near Adrar irrigated farms where a few very small groups could form.

Morocco

• **Situation**

During April, isolated immature and mature solitarious adults persisted in the northern Western Sahara between Boucraa (2621N/1250W) and Haouza (2707N/1112W), and scattered immature solitarious adults were present in the northeast near Bouarfa (3232N/0159W).

• **Forecast**

If further rains fall, small-scale breeding may cause locust numbers to increase slightly in the northern Western Sahara; otherwise, locust numbers will decline and no significant developments are expected. In the northeast, limited breeding may occur near Bouarfa as adults become mature.

Libya

• **Situation**

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

• **Forecast**

Isolated adults may be present in the southwest but breeding is unlikely and no significant developments are expected.

Tunisia

• **Situation**

No locust activity was reported during April.

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

No reports received.

• **Forecast**

Scattered adults may appear in the Nile Valley between Atbara and Dongola where small-scale breeding could occur near cropping areas.

Eritrea

• **Situation**

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

• **Forecast**

No significant developments are likely.

Ethiopia

• **Situation**

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

• **Forecast**

Isolated adults may be present in areas of recent rainfall near Dire Dawa and Jijiga where small-scale breeding could occur if more rains fall.

Djibouti

• **Situation**

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

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

During April, no locusts were seen during surveys carried out on the coastal plains, escarpment and plateau of the northwest between Hargeisa (0931N/4402E), Boroma (0956N/4313E), Silil (1058N/4326E) and Lughaye (1041N/4356E) on 19–24 April. In the northeast, no locusts were seen between Garowe (0824N/4829E) and Gardo (0930N/4905E) on 18–21 April.

• **Forecast**

No significant developments are likely.

Egypt

• **Situation**

During April, isolated mature solitarious adults persisted at one location near the southeast coastal

plains of the Red Sea in Wadi Diib to the southwest of Abu Ramad (2224N/3624E). No locusts were seen during surveys elsewhere on the Red Sea coast between the Sudanese border and Shalatyn (2308N/3535E).

• **Forecast**

No significant developments are likely.

Saudi Arabia

• **Situation**

During April, no locusts were seen during surveys carried out in winter breeding areas along the Red Sea coast near Jizan (1656N/4233E) and between Masturah (2309N/3851E) and Yenbo (2405N/3802E). Similarly, no locusts were in the spring breeding areas of the interior south of Medinah (2430N/3935E), near Wadi Dawasir (2028N/4747E), Najran (1729N/4408E), Tabuk (2823N/3635E), southwest of Gassim (2621N/4358E) and Riyadh (2439N/4642E), and in the east near Al Hofuf (2519N/4937E).

• **Forecast**

Low numbers of adults may be present near Gassim, Wadi Dawasir and Najran where small-scale breeding could occur.

Yemen

• **Situation**

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

• **Forecast**

Low numbers of adults are likely to be present along parts of the Red Sea and Gulf of Aden coastal plains. Small-scale breeding may cause locust numbers to increase slightly in the interior between Marib, Ataq, Al Abr, Sayun and the plateau south of Hazar where good rains fell in March.

Oman

• **Situation**

During April, no locusts were seen during surveys carried out on the Musandam Peninsula and in the northern interior near Buraimi (2415N/5547E).

• **Forecast**

Low numbers of adults may be present in a few places on the northern Batinah coast and in the interior regions of Buraimi, Dhahera and Sharqiya. Breeding is unlikely to occur unless further rains fall.

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

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

During April, scattered mature solitarious adults were present on the southeast coastal plains between Chabahar (2517N/6036E) and Jask (2540N/5746E) and in the Jaz Murian Basin between Ghale Ganj (2731N/5752E) and Bampur (2711N/6028E).

• **Forecast**

Small-scale breeding is likely to occur on the southeast coast between Minab and Chabahar, and in the Jaz Murian Basin, causing locust numbers to increase slightly.

Pakistan

• **Situation**

No locusts were seen during April in coastal and interior areas of Baluchistan.

• **Forecast**

No significant developments are likely.

India

• **Situation**

No locusts were seen during April in Rajasthan and Gujarat.

• **Forecast**

No significant developments are likely.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

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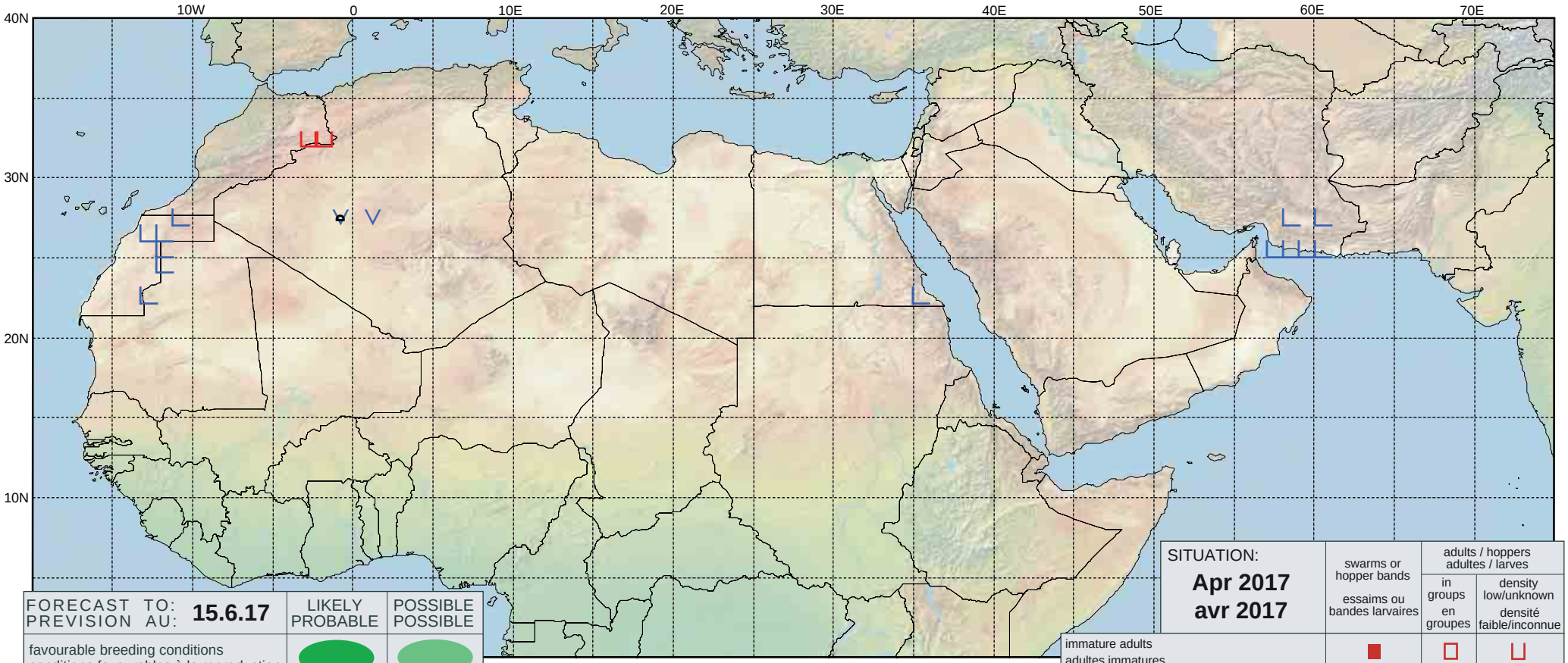
  http://sites.google.com/site/elertsite

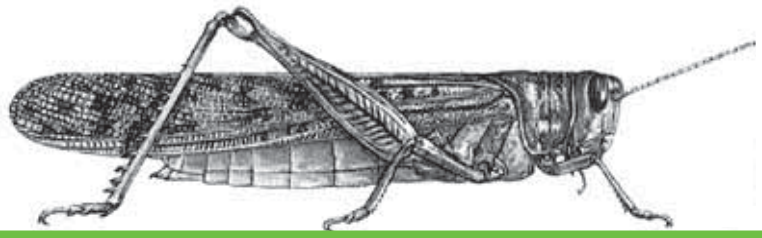
Desert Locust Summary
Criquet pèlerin - Situation résumée

463



FORECAST TO: / PREVISION AU: **15.6.17**	LIKELY / PROBABLE	POSSIBLE / POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **Apr 2017 avr 2017**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves	
		in groups en groupes	density low/unknown densité faible/inconnue
immature adults adultes immatures			
mature or partly mature adults adultes matures ou partiellement matures			
adults, maturity unknown adultes, maturité inconnue			
egg laying or eggs pontes ou œufs			
hoppers larves			
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)			



warning level: **CALM**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations

No. 464

(2.6.2017)

General Situation during May 2017
Forecast until mid-July 2017

The Desert Locust situation continued to remain calm during May. Preventive control measures were undertaken in Morocco and Algeria against a few small hopper groups. Unusual rains fell along both sides of the Red Sea, good rains fell in the Horn of Africa and the interior of Yemen, and early pre-season rains occurred in some of the summer breeding areas in the Sahel of West Africa and along the Indo-Pakistan border. During the forecast period, summer breeding will commence on a small scale in the northern Sahel between Mauritania and western Eritrea and along the Indo-Pakistan border. Breeding may also occur in the interior of Yemen and there is a potential and unusual risk of limited breeding on the Red Sea coast in Yemen, Saudi Arabia and Eritrea.

Western Region. The situation remained calm in the region during May. Small hopper groups were treated in the spring breeding areas south of the Atlas Mountains in **Morocco** (443 ha) and **Algeria** (267 ha) as part of preventive control. Early rains fell in parts of northern Mali and Niger. During the forecast period, seasonal rains are expected to commence in the summer breeding areas of southern **Mauritania**, northern **Mali** and **Niger** and central **Chad**. Consequently, initially low numbers of locusts are likely to breed on a small-scale in those areas that receive rainfall. Regular surveys should commence and continue throughout the summer.

Central Region. The locust situation remained calm as no locusts were reported in the region during May. Good rains fell in the spring and summer breeding areas in the interior of **Yemen** and early rains fell in parts of the summer breeding areas in North Kordofan and in the east of **Sudan**. Small-scale breeding is likely to occur in both countries during the forecast period, causing locust numbers to increase slightly. Good rains also fell on the plateau in northern **Somalia** and eastern **Ethiopia** where there is a low risk of scattered adults and limited breeding. Unusually good rains fell in some Red Sea coastal areas during May at a time when rain normally does not occur. The rains may be particularly important in **Saudi Arabia** (Qunfidah–Jizan), Yemen and **Eritrea** where follow up surveys should be conducted to monitor the situation.

Eastern Region. Isolated adults persisted during May in southeast **Iran** where small-scale breeding was in progress in one area of the interior. Pre-monsoon rains fell along both sides of the **Indo-Pakistan** border where small-scale breeding is likely to commence in July with the onset of the monsoon rains, causing a slight increase in locust numbers.

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 are available on the Internet.
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No. 464

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in May 2017

Unusually good rains fell along both sides of the Red Sea. Early rains fell in parts of the summer breeding areas in the Sahel of West Africa, in the interior of Yemen, the Horn of Africa, and on along the Indo-Pakistan border.

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) moved progressively northwards during May and reached the southern edge of the Desert Locust breeding area in the northern Sahel of West Africa. By the end of the month, the ITCZ had reached Nioro, Gourma and Menaka in Mali and Abalak in Niger. In Mali, its position was about 150km further north than normal. This caused some above-normal rains in the Sahel, mainly between Menaka and Abalak. Light showers fell at times in parts of the Adrar des Iforas in northern Mali, extending to southern Algeria, and in the southern part of Tamesna and the Air Mountains in Niger and, to a lesser extent, in the extreme southeast of Mauritania. Dry vegetation prevailed in the summer breeding areas of the northern Sahel except in a few localities in wadis and near oases in central Mauritania and northern Mali and Niger. In Northwest Africa, light rain fell in the Adrar area of the central Sahara in Algeria. Annual vegetation continued to dry out in the spring breeding areas south of the Atlas Mountains but remained green near irrigated farms in the central Sahara of Algeria.

In the **Central Region**, unusually good rains fell at times during the first two decades of May in some places on the Red Sea coast from Massawa, Eritrea to Halaib, Egypt and from the southern Tihama in Yemen to nearly Qunfidah, Saudi Arabia. Nevertheless, vegetation was mainly dry in most areas. Good rains fell in the spring and summer breeding areas of the interior in Yemen along the edge of Ramlat Sabatyn between Marib and Ataq, in Wadi Hadhramaut and in some places along the plateau north and east of Hadhramaut. Some flooding occurred in Yemen. In Sudan, early rains fell in North Kordofan between Sodiri and the Nile Valley as well as east of the Nile to the Red Sea Hills. In the Horn of Africa, good rains fell on the escarpment and plateau in northern Somalia, extending to eastern Ethiopia. As a result of these rains, annual vegetation is likely to become green and breeding conditions will improve.

In the **Eastern Region**, light rains fell in parts of southeast Iran and southwest Pakistan at times during May but vegetation remained mostly dry. Good pre-monsoon rains fell along both sides of the Indo-Pakistan border in Nara and Cholistan, Pakistan and in West Rajasthan, India. The annual southwestern monsoon wind flow became established over the Horn of Africa and the Arabian Sea by mid-month, causing the monsoon to arrive in Kerala, southern India on 30 May. During June, it will move progressively north and should reach Rajasthan by the end of June and Cholistan, Pakistan by mid-July, which is about normal.

Area Treated

Algeria	37 ha (April, revised)
	267 ha (1–29 May)
Morocco	443 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 adults are likely to start appearing in the summer breeding areas of the south by the end of June and small-scale breeding will occur in areas that receive rainfall.

Mali

• **SITUATION**

No locust activity was reported during May.

• **FORECAST**

Low numbers of adults may be present and will persist in parts of the Adrar des Iforas and Tamesna where small-scale breeding will commence with the summer rains.

Niger

• **SITUATION**

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

• **Forecast**

Low numbers of adults may be present in the Air Mountains and west of Agadez. Small-scale breeding will commence on the Tamesna Plains and in central pasture areas with the summer rains.

Chad

• **Situation**

No locust activity was reported during May.

• **Forecast**

Low numbers of adults may start to appear at the end of the forecast period in areas of the northern Sahel that receive rainfall.

Senegal

• **Situation**

No reports received.

• **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, mature solitarious adults were present in the central Sahara near irrigated farms in the Adrar (2753N/0017W) valley, between Adrar and In Salah (2712N/0229E), and near In Salah, where egg-laying occurred until mid-month. Mainly second instar solitarious and *transiens* hoppers as well as a few third to fifth instar hoppers were present at densities up to 20 hoppers/m^2 and a few small hopper groups formed east of In Salah. The infestations originated from egg-laying that occurred primarily during April with subsequent hatching from the last decade of April onwards. Ground teams treated 267 ha on 1–29 May.

• **Forecast**

Small groups of adults are likely to form near Adrar and In Salah early in the forecast period but as vegetation dries out, locust numbers will decline and adults are expected to move south towards summer breeding areas in the southern Sahara and northern Sahel.

Morocco

• **Situation**

During May, second to fifth instar solitarious and *transiens* hoppers were seen south of the Atlas Mountains in the Fask (2859N/0950W) area near Guelmim (2859N/1003W) where they were forming a few small hopper groups. Fledging occurred and at least one immature adult group formed. The infestations are likely to have originated from adults that moved north from W. Sakia El Hamra to Fask where they laid eggs from late March onwards that hatched during April and early May. Ground teams treated 443 ha.

• **Forecast**

As vegetation dries out further, locust infestations will decline in the Fask area but there is a risk that a few very small adult groups could form and move towards summer breeding areas in the northern Sahel.

Libya

• **Situation**

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

• **Forecast**

No significant developments are likely.

Tunisia

• **Situation**

No locust activity was reported during May.

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

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

• **Forecast**

Low numbers of adults are likely to appear and breed on a small scale in areas of pre-seasonal rains in North Kordofan and east of the Nile Valley.

Eritrea

• **Situation**

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

• **Forecast**

Low numbers of adults may appear in areas of recent rainfall in both the western lowlands as well as on the Red Sea coastal plains between Massawa and Mehimet.

Ethiopia

• **Situation**

No reports were received during May.

• **Forecast**

Isolated adults may be present in areas of recent rainfall near Dire Dawa and Jijiga where small-scale breeding could occur.

Djibouti

• **Situation**

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

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

During May, no locusts were seen during surveys carried out in the northeast between Las Anod (0828N/4721E) and Bosaso (1118N/4910E). In the northwest, there were unconfirmed reports of hopper groups on the northwest coast south of Zeylac (1121N/4328E) and of hopper groups and solitarious adults on the plateau near Hargeisa (0931N/4402E).

• **Forecast**

No significant developments are likely.

Egypt

• **Situation**

During May, no locusts were seen during surveys in the Lake Nasser area near Abu Simbel (2219N/3138E) and Tushka (2247N/3126E).

• **Forecast**

No significant developments are likely.

Saudi Arabia

• **Situation**

During May, no locusts were seen during surveys carried out in winter breeding areas along the northern Red Sea coast north of Yenbo (2405N/3802E), and in the spring breeding areas of the interior near Medinah (2430N/3935E), Bisha (2000N/4236E), Wadi Dawasir (2028N/4747E), in the east near Al Hofuf (2519N/4937E), between Hail (2731N/4141E) and Tabuk (2823N/3635E), and between Gassim (2621N/4358E) and Riyadh (2439N/4642E).

• **Forecast**

Low numbers of adults may appear in areas of recent rainfall in the southwest interior near Najran and on the southern coastal plains of the Red Sea between Qunfidah and Jizan where small-scale breeding may occur in areas that continue to receive rainfall.

Yemen

• **Situation**

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

• **Forecast**

Low numbers of adults are likely to be present and breeding in the interior on the edge of Ramlat Sabatyn between Marib and Ataq, in Wadi Hadhramaut and perhaps on the plateau and in the wadis of the north and east between Thamud and Hat where good rains fell recently.

Oman

• **Situation**

During May, no locusts were seen during surveys carried out on the Musandam Peninsula, Madha and in the northern interior of Dhahirah near Buraimi (2415N/5547E).

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

During May, isolated mature solitarious adults persisted on the southeast coastal plains near Chabahar (2517N/6036E) and in the Jaz Murian Basin east of Ghale Ganj (2731N/5752E). Some adults were seen copulating in the Jaz Murian Basin on the 10th.

• **Forecast**

Limited hatching may occur by early June in the Jaz Murian Basin; however, no significant developments are likely.

Pakistan

• **Situation**

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

• **Forecast**

Low numbers of adults are likely to appear in parts of Tharparkar, Nara and Cholistan. Small-scale breeding will occur in areas of recent rainfall and in places that receive monsoon rains.

India

• **SITUATION**

No locusts were seen during May in Rajasthan and Gujarat.

• **FORECAST**

Low numbers of adults are likely to appear in parts of Rajasthan and Gujarat. Small-scale breeding will occur in areas of recent rainfall and in places that receive 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.

New information on Locust Watch. Recent additions to the web site (www.fao.org/ag/locusts) are:

- **WMO/FAO Weather and Desert Locusts booklet.** Publications – Documents
- **CRC/SWAC Desert Locust Information Officers workshop.** Publications – Reports 2017
- **SWAC Iran/Pakistan Joint Survey results.** Publications – Reports 2017

2017 events. The following activities are scheduled or planned:

- **CLCPRO.** Extraordinary session, Bamako (3–6 July)
- **SWAC.** Desert Locust Information Officer workshop, Tehran (December) [tbc]

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 AREAS

- July - September/October
  (Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border)

WINTER RAINS AND BREEDING AREAS

- October - January/February
  (Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara)

SPRING RAINS AND BREEDING AREAS

- February - June/July
  (Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border)

RECESSION

- period without widespread and heavy infestations by swarms.

REMISSION

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

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.

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.

Useful tools and resources

- **FAO Locust Watch.** Information, maps, activities, publications, archives, FAQs, links
  http://www.fao.org/ag/locusts
- **IRI RFE.** Rainfall estimates every day, decade and month
  http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/index.html
- **IRI Greenness maps.** Dynamic maps of green vegetation evolution every decade
  http://iridl.ldeo.columbia.edu/maproom/Food_Security/Locusts/Regional/greenness.html
- **IRI MODIS.** Vegetation imagery every 16 days
  http://iridl.ldeo.columbia.edu/maproom/Food_Security/Locusts/Regional/MODIS/index.html
- **Windy.** Real time rainfall, winds and temperatures for locust migration
  http://www.windy.com
- **eLocust3 training videos.** A set of 15 introductory training videos are available on YouTube
  https://www.youtube.com/playlist?list=PLf7Fc-oGpFHEdv1jAPaF02TCfpcnYoFQT
- **RAMSESv4 training videos.** A set of basic training videos are available on YouTube
  https://www.youtube.com/playlist?list=PLf7Fc-oGpFHGyzXqE22j8-mPDhhGNq5So
- **RAMSESv4 and eLocust3.** Installer, updates, videos, inventory and support
  https://sites.google.com/site/rv4elocust3updates/home
- **FAOLocust Twitter.** The very latest updates posted as tweets
  http://www.twitter.com/faolocust
- **FAOLocust Facebook.** Information exchange using social media
  http://www.facebook.com/faolocust
- **FAOLocust Slideshare.** Locust presentations and photos
  http://www.slideshare.net/faolocust
- **eLERT.** Online database of resources and technical specifications for locust emergencies
  http://sites.google.com/site/elertsite

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

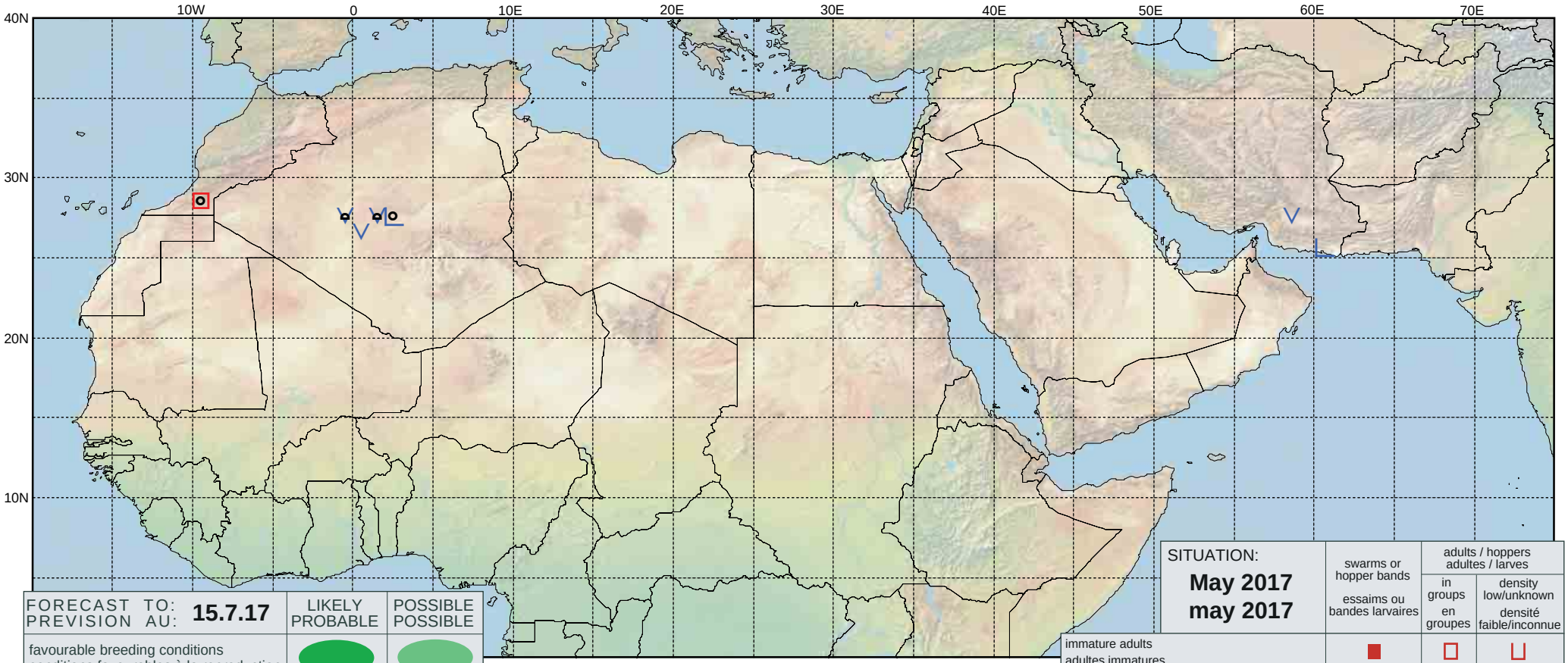
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

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

Desert Locust Summary
Criquet pèlerin - Situation résumée

464



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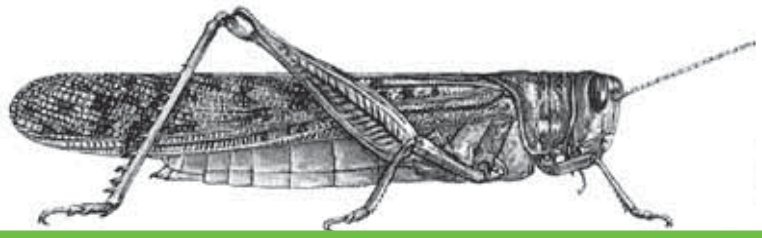
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **May 2017** / **may 2017**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves	
		in groups en groupes	density low/unknown densité faible/inconnue
immature adults adultes immatures			
mature or partly mature adults adultes matures ou partiellement matures			
adults, maturity unknown adultes, maturité inconnue			
egg laying or eggs pontes ou œufs			
hoppers larves			
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)			



warning level: **CALM**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 465**

(4.7.2017)

General Situation during June 2017
Forecast until mid-August 2017

The Desert Locust situation continued to remain calm during June. Preventive control operations were undertaken in Algeria and Iran where small-scale breeding had occurred. Elsewhere, only low numbers of locusts were present in the interior of Sudan. However, unusually early and good rains fell during June throughout most of the summer breeding areas in the northern Sahel of West Africa and Sudan as well as along both sides of the Indo-Pakistan border. This will cause ecological conditions to become favourable for breeding earlier than normal and could allow for two generations of summer breeding this year, especially as the current seasonal forecasts are suggesting above-average rains from July to September in parts of the Sahel. During the forecast period, locust numbers will increase slightly in all summer breeding areas where surveys should commence and continue on a regular basis.

Western Region. The situation remained calm in the region during June. Limited preventive control operations continued in **Algeria** (70 ha) against adults near irrigated agricultural areas in the central Sahara. Elsewhere, no locusts were reported. Unusually good rains fell in June throughout the northern Sahel and in parts of the Sahara. As this is earlier than normal, summer breeding is likely to commence early this year in the northern Sahel between **Mauritania** and **Chad**. If good rains continue until October, there may be a possibility for two generations of breeding to occur this summer. During the forecast period, small-scale egg-laying and hatching are expected to take place in southern and central Mauritania, northern **Mali** and **Niger**, central and eastern Chad and perhaps southern Algeria.

Central Region. The locust situation remained calm as no locusts were reported in the region during June except for low numbers of solitarious adults in the interior of **Sudan**. Nevertheless, good rains fell throughout most of the summer breeding areas in the interior of Sudan where small-scale egg-laying and hatching are expected to take place during the forecast period. Unusually good rains fell along the Red Sea coast in **Eritrea** and **Yemen** where small-scale breeding could occur on an exceptional basis. Small-scale breeding may also occur in areas of recent rainfall in eastern **Ethiopia** and the interior of **Yemen**.

Eastern Region. Control operations (5,500 ha) were carried out against hoppers and adults in the Jaz Murian Basin of southeastern **Iran** during June. Good pre-monsoon rains fell in summer breeding areas along both sides of the **Indo-Pakistan** border in early June followed by the onset of the monsoon at the end of the month. This will allow ecological conditions to become favourable for small-scale breeding that is expected to occur during the forecast period, causing locust numbers to increase slightly.

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No. 465

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in June 2017

Unusual rains fell earlier and further north than usual in the summer breeding areas of the Sahel in West Africa and Sudan. Pre-monsoon and monsoon rains fell along the Indo-Pakistan border. Consequently, ecological conditions are likely to allow summer breeding to commence earlier than usual this year in both areas.

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) moved progressively northwards during June. Its average position was substantially further north than usual by some 125–350 km from central Mali to eastern Chad during the first two decades, reaching Aguelhoc (Mali), In Abangharit (Niger) and Iriba (Chad). In Mauritania, the ITCZ was some 50–150 km further north than usual during the second decade only, reaching Kiffa, Aioun El Atrous and Oualata but occasionally reached Tiris-Zemmour. Consequently, above-average and early rains fell in many areas of the northern Sahel, especially between the Adrar des Iforas in Mali and the Air Mountains in Niger, including the Tamesna Plains in between as well as in parts of the summer breeding areas in central and southern Mauritania (Nema received 100 mm since May) and in Chad between Ati and Abeche. This will cause ecological conditions to become favourable for breeding earlier than normal in all countries. In addition, unusual light to heavy rains fell during the first two decades over the central Sahara from the Hoggar Mountains in Algeria (up to 50 mm) to Tibesti in northwest Chad, extending to southern Libya and the Djado Plateau in northeast Niger during the first decade. Flooding occurred in some areas and runoff from these rains could cause conditions to become favourable for breeding, especially in southern Algeria where vegetation was already green west of Tamanrasset.

In the **Central Region**, the Inter-Tropical Convergence Zone (ITCZ) moved progressively northwards during June over Sudan, reaching Hamrat Esh Sheikh, North Kordofan and nearly Khartoum, which is some 75–200 km further north than usual. Consequently, above-average and early rains fell in North Kordofan and ecological conditions were already becoming favourable for summer breeding. During the second decade, unusual rains fell in Red Sea coastal and foothill areas of Eritrea between Mehimet and Ibb, and on the Tihama of Yemen where good rains had also occurred in May. These rains and runoff may cause ecological conditions to become favourable for breeding. Good rains fell in southwest Saudi Arabia near Najran and in the eastern interior of Yemen from Wadi Hadhramaut to Thumrait, Oman. In the Horn of Africa, light to moderate rains fell in parts of eastern Ethiopia and the plateau of northern Somalia, especially between Ayasha and Jijiga, Ethiopia. Ecological conditions are likely to be favourable for small-scale breeding in most of these areas.

In the **Eastern Region**, the southwest monsoon continued its northward movement over India during June and arrived in Gujarat and Rajasthan by the end of the month. It also reached adjacent areas of Pakistan from Tharparkar to Cholistan, which is about two weeks earlier than normal. Consequently, above-average rains fell along both sides of the Indo-Pakistan border during the third decade of June. These rains as well as good pre-monsoon rains that fell for a second consecutive month in early June will cause ecological conditions to become favourable for breeding in both countries. In Iran, no rain fell in the southeast during June, however vegetation remained green in the Jaz Murian Basin near Halil River.

Area Treated

Algeria	8 ha (30–31 May)
	70 ha (June)
Iran	5,500 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**

Small-scale breeding may have already commenced in the two Hodhs and will extend to other areas of the south, causing locust numbers to increase slightly during the forecast period.

Mali

• **Situation**

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

• **Forecast**

Small-scale breeding may have already commenced in the Adrar des Iforas, Timetrine and Tamesna and will continue during the forecast period, causing locust numbers to increase slightly.

Niger

• **Situation**

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

• **Forecast**

Small-scale breeding may have already commenced in the Tamesna and perhaps Air Mountains, and will extend to central pasture areas during the forecast period, causing locust numbers to increase slightly.

Chad

• **Situation**

No locust activity was reported during June.

• **Forecast**

Small-scale breeding will occur in central and eastern areas, causing locust numbers to increase slightly.

Senegal

• **Situation**

No reports received.

• **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, mature solitarious adults persisted near irrigated farms in the Adrar (2753N/0017W) valley of the central Sahara. Ground teams treated 70 ha on 1–18 June. Scattered mature solitarious adults were present west of Tamanrasset (2250N/0528E).

• **Forecast**

Small-scale breeding is likely to occur in some areas of runoff in the south from recent rains in the Hoggar Mountains, causing locust numbers to increase slightly.

Morocco

• **Situation**

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

• **Forecast**

No significant developments are likely.

Libya

• **Situation**

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

• **Forecast**

Low numbers of locust may be present and breeding on a small scale in areas of recent rainfall in the extreme southwest near Ghat and along the Niger border.

Tunisia

• **Situation**

No locust activity was reported during June.

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During June, scattered solitarious adults were maturing in the north along the Nile Valley between Dongola (1910N/3027E) and Merowe (1830N/3149E), and in the east near Derudeb (1731N/3607E) and Kassala (1527N/3623E). No locusts were seen in North Kordofan, White Nile, Khartoum and River Nile states.

• **Forecast**

Small-scale breeding will cause locust numbers to increase slightly between West Darfur and the Red Sea Hills.

Eritrea

• **Situation**

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

• **Forecast**

Low numbers of adults may appear and breed in areas of recent rainfall and runoff on the Red Sea coastal plains between Mehimet and Ibb. If more rains fall, low numbers of adults will appear and breed on a small scale in the western lowlands.

Ethiopia

• **Situation**

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

• **Forecast**

Isolated adults may be present in areas of recent rainfall between Ayasha and Jijiga where small-scale breeding could occur.

Djibouti

• **Situation**

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

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

No reports received.

• **Forecast**

Isolated adults may be present in areas of recent rainfall on the escarpment and plateau near Boroma where small-scale breeding could occur.

Egypt

• **Situation**

During June, no locusts were seen during surveys in the Lake Nasser area near Abu Simbel (2219N/3138E) and Tushka (2247N/3126E).

• **Forecast**

No significant developments are likely.

Saudi Arabia

• **Situation**

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

• **Forecast**

Low numbers of adults may be present in areas that received recent rainfall in the southwest interior near Najran and May rainfall on the southern coastal plains of the Red Sea between Qunfidah and Jizan.

Yemen

• **Situation**

No reports received.

• **Forecast**

Low numbers of adults are likely to be present and breeding in the interior on the edge of Ramlat Sabatyn between Marib and Ataq, in Wadi Hadhramaut and perhaps on the plateau and in the wadis of the north and east between Thamud and Hat where good rains fell recently.

Oman

• **Situation**

During June, no locusts were seen during surveys carried out on the Musandam Peninsula, Madha and in the northern interior near Buraimi (2415N/5547E), Nizwa (2255N/5731E) and Adam (2223N/5731E).

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

During June, isolated solitarious hoppers of all instars mixed with isolated and scattered immature and mature solitarious adults were present in the Jaz Murian Basin east of Ghale Ganj (2731N/5752E). Adults were seen copulating at one place on the 27th. Ground teams undertook control at seven locations, treating 5,500 ha.

• **Forecast**

Although a few small adult groups may form in the Jaz Murian Basin, locust numbers will decline due to control operations and unfavourable conditions.

Pakistan

• **Situation**

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

• **Forecast**

Low numbers of adults will appear in parts of Tharparkar, Nara and Cholistan and breed on a small scale, causing locust numbers to increase slightly.

India

• **Situation**

No locusts were seen during June in Rajasthan and Gujarat.

• **Forecast**

Low numbers of adults will appear in parts of Rajasthan and Gujarat and breed on a small scale, causing locust numbers to increase slightly.

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). Reports received by the first two days of the new month will be included in the FAO Desert Locust Bulletin for the current month; otherwise, they will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

New information on Locust Watch. Recent additions to the web site (www.fao.org/ag/locusts) are:

- **WMO/FAO Weather and Desert Locusts booklet.** Publications – Documents
- **CRC/SWAC Desert Locust Information Officers workshop.** Publications – Reports 2017
- **SWAC Iran/Pakistan Joint Survey results.** Publications – Reports 2017

RAMSES training videos. New training videos are available on YouTube for Rv4.1 users – see Useful tools and resources section of this bulletin.

2017 events. The following activities are scheduled or planned:

- **CLCPRO.** Extraordinary session and 12th Executive Committee meeting, Bamako (3–6 July)
- **CRC.** 5th Regional aerial training course, Moshi, Tanzania (17–21 July)
- **CLCPRO.** 16th EMPRES liaison officers meeting and 13th Steering Committee meeting, Agadir, Morocco (1–9 December)
- **SWAC.** Desert Locust Information Officer workshop, Tehran (December) [tbc]

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 AREAS

- July–September/October
  (Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border)

WINTER RAINS AND BREEDING AREAS

- October–January/February
  (Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara)

SPRING RAINS AND BREEDING AREAS

- February–June/July
  (Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border)

RECESSION

- period without widespread and heavy infestations by swarms.

REMISSION

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

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.

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.

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.

Useful tools and resources

FAO Locust Watch. Information, maps, activities, publications, archives, FAQs, links
http://www.fao.org/ag/locusts
IRI RFE. Rainfall estimates every day, decade and month
http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/index.html
IRI Greenness maps. Dynamic maps of green vegetation evolution every decade
http://iridl.ldeo.columbia.edu/maproom/Food_Security/Locusts/Regional/greenness.html
IRI MODIS. Vegetation imagery every 16 days
http://iridl.ldeo.columbia.edu/maproom/Food_Security/Locusts/Regional/MODIS/index.html
Windy. Real time rainfall, winds and temperatures for locust migration
http://www.windy.com
eLocust3 training videos. A set of 15 introductory training videos are available on YouTube
https://www.youtube.com/playlist?list=PLf7Fc-oGpFHEdv1jAPaF02TCfpcnYoFQT
RAMSESv4 training videos. A set of basic training videos are available on YouTube
https://www.youtube.com/playlist?list=PLf7Fc-oGpFHGyzXqE22j8-mPDhhGNq5So
RAMSESv4 and eLocust3. Installer, updates, videos, inventory and support
https://sites.google.com/site/rv4elocust3updates/home
FAOLocust Twitter. The very latest updates posted as tweets
http://www.twitter.com/faolocust
FAOLocust Facebook. Information exchange using social media
http://www.facebook.com/faolocust
FAOLocust Slideshare. Locust presentations and photos
http://www.slideshare.net/faolocust
eLERT. Online database of resources and technical specifications for locust emergencies
http://sites.google.com/site/elertsite

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: Benin, Burkino Faso, Cameroon, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Nigeria, Sierre Leone and Togo.

CENTRAL

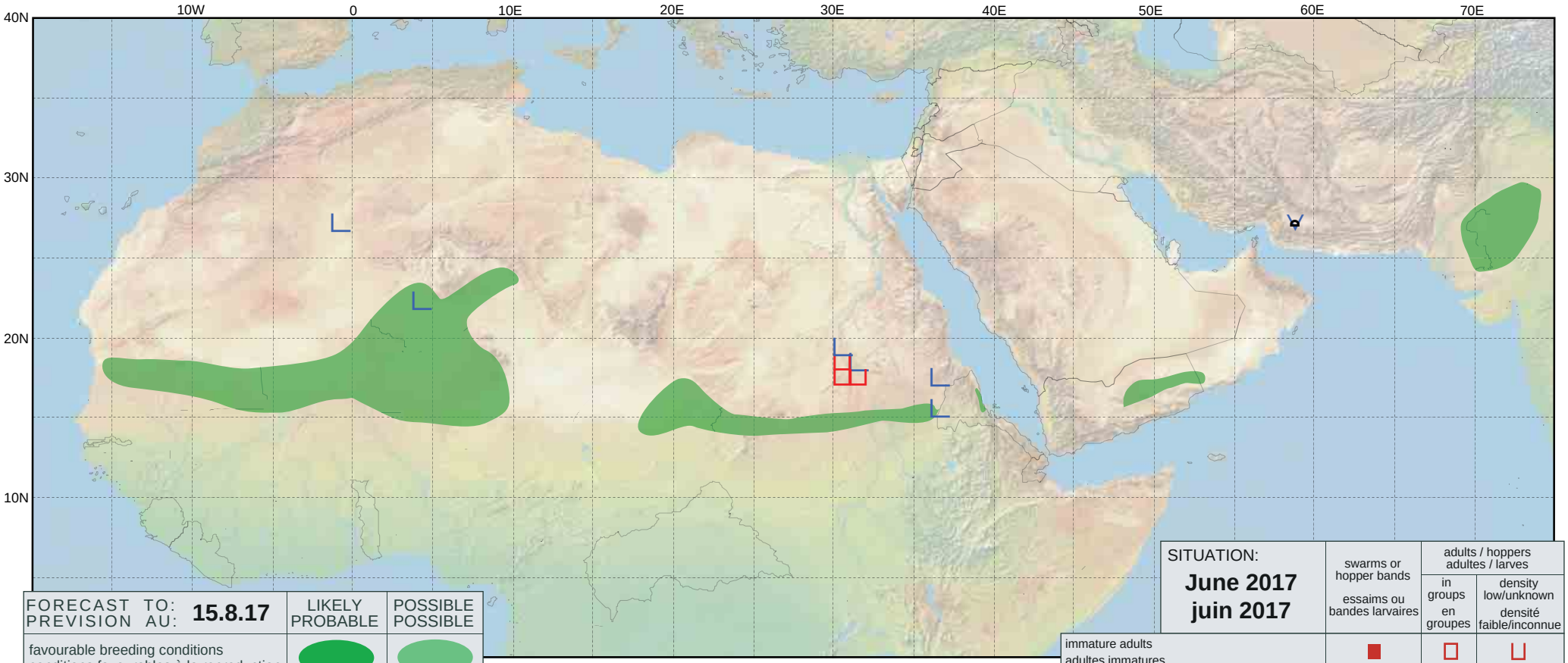
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

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

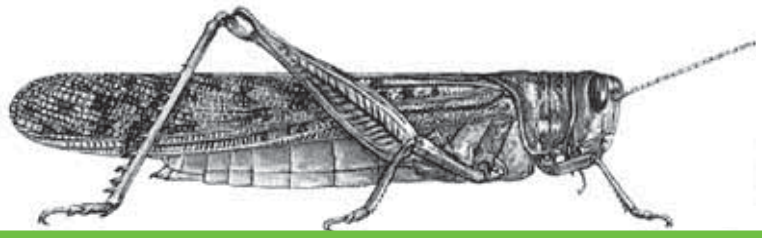
Desert Locust Summary
Criquet pèlerin - Situation résumée

465



FORECAST TO: / PREVISION AU: **15.8.17**	LIKELY / PROBABLE	POSSIBLE / POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **June 2017 / juin 2017**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves	
		in groups en groupes	density low/unknown densité faible/inconnue
immature adults adultes immatures	■	□	⊔
mature or partly mature adults adultes matures ou partiellement matures	◣	◺	L
adults, maturity unknown adultes, maturité inconnue	▲	△	Λ
egg laying or eggs pontes ou œufs	▼	▽	V
hoppers larves	●	○	◡
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)	◘	◙	⊎



warning level: **CALM**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 466**

(1.8.2017)

General Situation during July 2017
Forecast until mid-September 2017

The Desert Locust situation continued to remain calm during July. Control operations were undertaken in Iran and, to a lesser extent, in Algeria where small-scale breeding had occurred. Low numbers of adults appeared in the summer breeding areas of Mauritania, Sudan and along both sides of the Indo-Pakistan border. Good rains fell in all summer breeding areas of the Sahel in West Africa and Sudan, in the interior of Yemen and along the Indo-Pakistan border. Consequently, small-scale breeding is expected to occur in all of these areas during the forecast period, causing locust numbers to increase slightly. Regular surveys should be conducted in all areas wherever possible.

Western Region. The situation remained calm during July. Scattered mature solitarious adults mixed with solitarious hoppers of all instars were present in a few places in the Central Sahara of **Algeria** where 3 ha were treated. Isolated mature solitarious adults appeared in the summer breeding areas of southeastern **Mauritania** as well as in central areas which is somewhat unusual. For the second consecutive month, good rains fell throughout the northern Sahel of West Africa because the Inter-Tropical Convergence Zone (ITCZ) was much further north than normal. Consequently, small-scale breeding will cause locust numbers to increase slightly between **Mauritania** and **Chad** during the forecast period.

Central Region. The locust situation remained calm in the region during July. Low numbers of solitarious adults were present in the interior of **Sudan** where good rains fell and small-scale breeding is expected to cause locust numbers to increase slightly during the forecast period. Good rains also fell in the interior of **Yemen** but surveys could not confirm the situation due to prevailing insecurity. Nevertheless, adults are probably present and small-scale breeding is likely to occur, which will cause a further increase in locust numbers.

Eastern Region. Control operations continued during the first decade of July in southeast **Iran** where 8,500 ha of hoppers and adults were treated in the Jaz Murian Basin. Although above-normal monsoon rains fell in the summer breeding areas along both sides of the **Indo-Pakistan** border, only isolated adults have been seen in a few places in both countries. Nevertheless, locust numbers are expected to increase slightly as a result of small-scale breeding 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 are available on the Internet.
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No. 466

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in July 2017

For the second consecutive month, seasonal rains fell further north than usual in the Sahel of West Africa where ecological conditions were favourable for breeding. Widespread rains fell in the summer breeding areas in the interior of Yemen. Above-normal monsoon rains fell along both sides of the Indo-Pakistan border.

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) continued to move northwards over the summer breeding areas in the northern Sahel during July. Similar to last month, its average position between Mauritania and Chad was substantially further north than usual by some 125–350 km during the first two decades, reaching southwest Adrar in central Mauritania, Taoudenni in northwest Mali, southern Algeria, Dirkou in Niger, and Fada in Chad. Consequently, widespread low to moderate rains fell throughout all summer breeding areas in the northern Sahel and conditions were favourable for breeding.

In the **Central Region**, the Inter-Tropical Convergence Zone (ITCZ) continued to move northwards over the interior of Sudan during July, reaching Abu Uruq in North Kordofan during the second decade, which is normal for this time of year. Consequently, good rains fell in the summer breeding areas between Darfur and Kassala where ecological conditions were favourable for breeding. In Eritrea, good rains fell in the western lowlands that should allow breeding conditions to improve. In Yemen, good rains fell on the Red Sea coast south of Hodeidah during the first decade while additional rain fell in these areas during the second decade and extended over a widespread portion of the interior between Marib, Ataq, and Wadi Hadhramaut as well as on the southern coast near Lahij. Flooding was reported in some places. As a result of these rains and those in June, ecological conditions are likely to be favourable for breeding in the interior and parts of the coast. Elsewhere in the region, mainly dry conditions prevailed.

In the **Eastern Region**, good monsoon rains continued to fall in the summer breeding areas along both sides of the Indo-Pakistan border in Rajasthan, India and from Tharparkar to Cholistan in Pakistan. The rains were heaviest and most widespread during the second and third decades. Cumulative seasonal rainfall in Rajasthan was up to 400% above normal in some areas. In Iran, very little rain fell in the southeast during July, however small areas of vegetation remained green in the Jaz Murian Basin near Halil River from runoff.

Area Treated

Algeria	3 ha (July)
Iran	8,500 ha (July)

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During July, isolated mature solitarious adults appeared in the summer breeding areas of the southeast between Aioun El Atrous (1639N/0936W) and Oualata (1717N/0701W), and in the centre between Aguilal Faye (1827N/1444W) and Tidjikja (1833N/1126W). No locusts were seen elsewhere during surveys.

• **FORECAST**

Small-scale breeding will cause locust numbers to increase in southern and central areas.

Mali

• **SITUATION**

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

• **FORECAST**

Low numbers of adults are likely to be present and breeding on a small scale in parts of the Adrar des Iforas, Timetrine, Tilemsi Valley and Tamesna. This will cause locust numbers to increase during the forecast period.

Niger

• **SITUATION**

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

• **Forecast**

Low numbers of adults are likely to be present and breeding on a small scale over a large portion of the Tamesna Plains and the central pasture zone as well as in parts of the Air Mountains. This will cause locust numbers to increase during the forecast period.

Chad

• **Situation**

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

• **Forecast**

Small-scale breeding will cause locust numbers to increase in central and eastern areas.

Senegal

• **Situation**

No locust activity was reported during July.

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

During July, scattered mature solitarious adults persisted at a few places near irrigated farms in the Adrar (2753N/0017W) valley of the central Sahara. Scattered mature solitarious adults mixed with solitarious hoppers of all instars were present between Reggane (2643N/0010E) and In Salah (2712N/0229E). Ground teams treated 3 ha. No locusts were seen west of Tamanrasset (2250N/0528E).

• **Forecast**

Small-scale breeding is likely to occur in the south between Tamanrasset and the Mali/Niger border, causing locust numbers to increase slightly.

Morocco

• **Situation**

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

• **Forecast**

No significant developments are likely.

Libya

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Tunisia

• **Situation**

No locust activity was reported during July.

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During July, low numbers of immature and mature solitarious adults were present in the Nile Valley near Dongola (1910N/3027E), Karima (1832N/3148E), Abu Hamed (1932N/3320E), Atbara (1742N/3400E) and Shendi (1641N/3322E). Similar populations were also present in the summer breeding areas of North Kordofan near Sodiri (1423N/2906E) and Umm Saiyala (1426N/3112E), and in the east near Derudeb (1731N/3607E). Adults were seen laying eggs at one place near Karima on the 11th.

• **Forecast**

Small-scale breeding will cause locust numbers to increase slightly between West Darfur and the Red Sea Hills, and to a lesser extent in the Nile Valley.

Eritrea

• **Situation**

No reports received.

• **Forecast**

Low numbers of adults may be present in areas of previous rainfall on the Red Sea coastal plains between Mehimet and Ibb. Similar populations are likely to be present in the western lowlands where small-scale breeding is expected to cause locust numbers to increase slightly.

Ethiopia

• **Situation**

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

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

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

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Egypt

• **Situation**

During July, no locusts were seen during surveys in the Lake Nasser area near Abu Simbel (2219N/3138E) and Tushka (2247N/3126E).

• **Forecast**

No significant developments are likely.

Saudi Arabia

• **Situation**

During July, no locusts were seen during surveys carried out on the southern coastal plains of the Red Sea near Jizan (1656N/4233E) and in the interior near farms on the northern edge of the Empty Quarter south of Al Hofuf (2523N/4935E).

• **Forecast**

No significant developments are likely.

Yemen

• **Situation**

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

• **Forecast**

Low numbers of adults are likely to be present and breeding in the interior on the edge of Ramlat Sabatyn between Marib and Ataq, and in Wadi Hadhramaut where good rains fell recently. Similar populations may be present on the southern coastal plains of the Red Sea and on the southern coast near Lahij.

Oman

• **Situation**

During July, no locusts were seen during surveys carried out in the northern interior near Buraimi (2415N/5547E), Nizwa (2255N/5731E) and Adam (2223N/5731E).

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

During July, isolated solitarious hoppers of all instars mixed with isolated and scattered immature and mature solitarious adults persisted in the Jaz Murian Basin east of Ghale Ganj (2731N/5752E) where ground teams treated 8,500 ha in the first decade. Isolated mature solitarious adults were seen on the southeast coast at Ramin (2515N/6049E) near Chabahar (2517N/6036E). No locusts were seen on the coast near Jask (2540N/5746E).

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

During July, isolated mature solitarious adults were seen at a few places in Lasbela west of Karachi (2450N/6702E) and in Cholistan near the Indian border and Islamgarh (2751N/7048E).

• **Forecast**

Small-scale breeding will cause locust numbers to increase slightly in parts of Tharparkar, Nara and Cholistan as well as in the Lasbela area.

India

• **Situation**

During July, isolated solitarious mature adults were seen at two places in Rajasthan near Bikaner (2801N/7322E) and Phalodi (2706N/7222E).

• **Forecast**

Small-scale breeding will cause locust numbers to increase slightly in parts of 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). Reports received by the first two days of the new month will be included in the FAO Desert Locust Bulletin for the current month; otherwise, they 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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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 AREAS

- July–September/October
  (Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border)

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- February–June/July
  (Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border)

RECESSION

- period without widespread and heavy infestations by swarms.

REMISSION

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

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.

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.

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: Benin, Burkino Faso, Cameroon, Cape Verde,

Useful tools and resources

FAO Locust Watch. Information, maps, activities, publications, archives, FAQs, links
http://www.fao.org/ag/locusts
IRI RFE. Rainfall estimates every day, decade and month
http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/index.html
IRI Greenness maps. Dynamic maps of green vegetation evolution every decade
http://iridl.ldeo.columbia.edu/maproom/Food_Security/Locusts/Regional/greenness.html
IRI MODIS. Vegetation imagery every 16 days
http://iridl.ldeo.columbia.edu/maproom/Food_Security/Locusts/Regional/MODIS/index.html
Windy. Real time rainfall, winds and temperatures for locust migration
http://www.windy.com
eLocust3 training videos. A set of 15 introductory training videos are available on YouTube
https://www.youtube.com/playlist?list=PLf7Fc-oGpFHEdv1jAPaF02TCfpcnYoFQT
RAMSESv4 training videos. A set of basic training videos are available on YouTube
https://www.youtube.com/playlist?list=PLf7Fc-oGpFHGyzXqE22j8-mPDhhGNq5So
RAMSESv4 and eLocust3. Installer, updates, videos, inventory and support
https://sites.google.com/site/rv4elocust3updates/home
FAOLocust Twitter. The very latest updates posted as tweets
http://www.twitter.com/faolocust
FAOLocust Facebook. Information exchange using social media
http://www.facebook.com/faolocust
FAOLocust Slideshare. Locust presentations and photos
http://www.slideshare.net/faolocust
eLERT. Online database of resources and technical specifications for locust emergencies
http://sites.google.com/site/elertsite

Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Nigeria, Sierre Leone and Togo.

CENTRAL

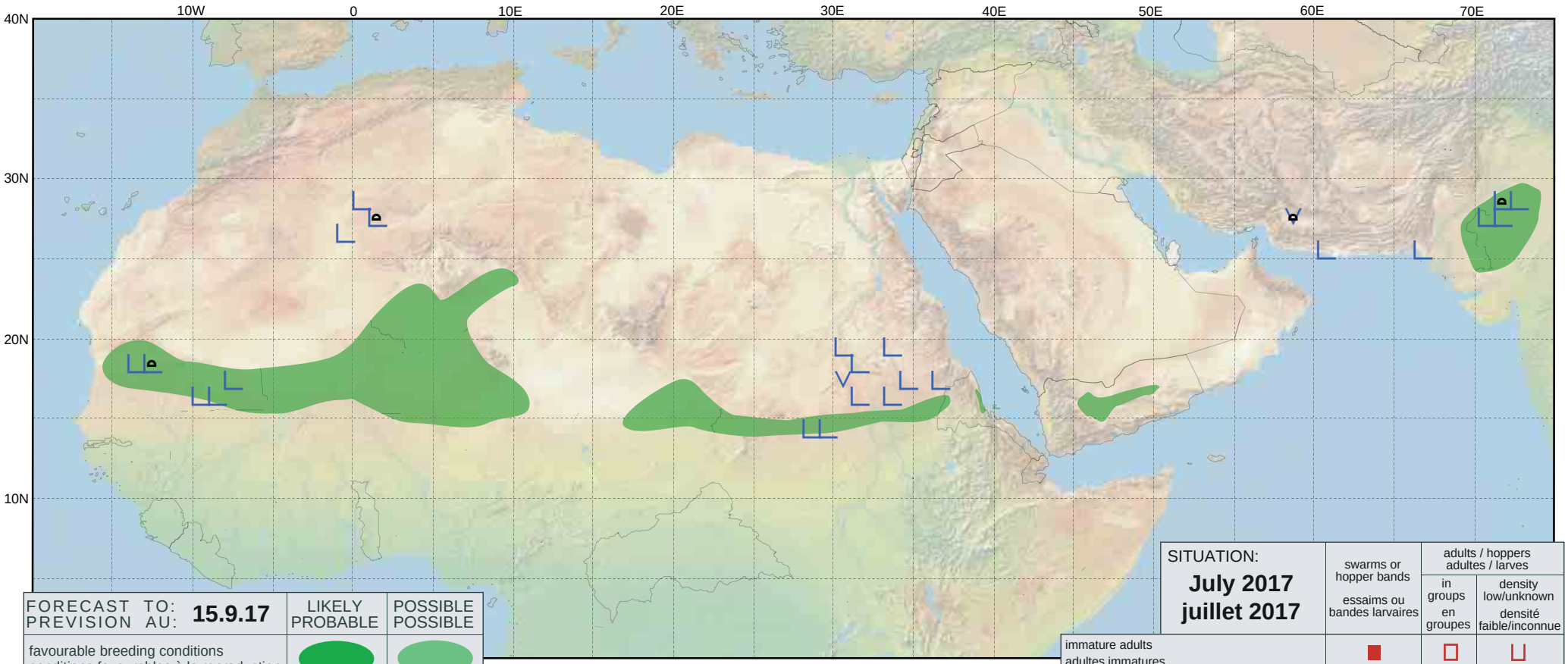
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

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

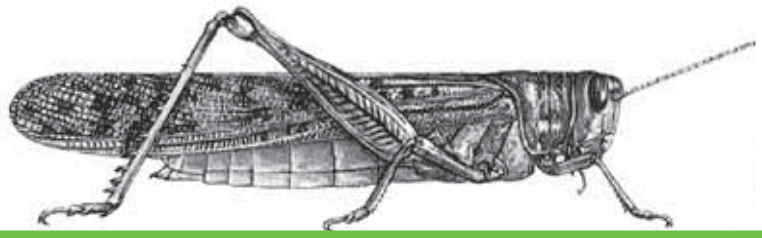
Desert Locust Summary
Criquet pèlerin - Situation résumée

466



FORECAST TO: / PREVISION AU: **15.9.17**	LIKELY / PROBABLE	POSSIBLE / POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **July 2017 / juillet 2017**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves in groups en groupes	 density low/unknown densité faible/inconnue
immature adults adultes immatures			
mature or partly mature adults adultes matures ou partiellement matures			
adults, maturity unknown adultes, maturité inconnue			
egg laying or eggs pontes ou œufs			
hoppers larves			
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)			



warning level: **CALM**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 467**

(1.9.2017)

General Situation during August 2017 Forecast until mid-October 2017

The Desert Locust situation continued to remain calm during August. Despite good rainfall and favourable breeding conditions, only low numbers of solitarious locusts were present in the summer breeding areas of the northern Sahel in West Africa and Sudan, in the interior of Yemen and along both sides of the Indo-Pakistan border. Nevertheless, locust numbers are expected to increase slightly during the forecast period as breeding continues. Once vegetation starts to dry out at the end of the summer, locusts may concentrate and perhaps form a few very small groups in some places.

Western Region. The situation remained calm during August. Low numbers of adults were present in some of the summer breeding areas of the northern Sahel in **Mauritania** and **Niger**. No surveys were conducted in **Mali** and **Chad**. Despite good rains and ecological conditions, only limited breeding was detected in Niger and near irrigated farms in the central Sahara of **Algeria** but is likely to be in progress elsewhere. Small-scale breeding will continue during the forecast period, causing locust numbers to increase slightly from Mauritania to Chad. Once vegetation starts to dry out, locusts could concentrate and form a few very small groups, for example in western Mauritania.

Central Region. The locust situation remained calm in the region during August. Low numbers of solitarious adults continued to be present in the interior of **Sudan** where good rains fell and small-scale breeding is expected to cause locust numbers to increase slightly during the forecast period. Good rains also fell in the interior of **Yemen** where limited breeding was detected and there were unconfirmed reports of locust groups. This could not be confirmed by surveys because of prevailing insecurity. Locusts may also be present in areas of recent rainfall on the Red Sea coast of Yemen. Once vegetation starts to dry out, there is a low risk that locusts could concentrate and perhaps form a few small groups, for example in Sudan and Yemen.

Eastern Region. The locust situation remained calm in the region during August. Only low numbers of locusts were present in the summer breeding areas along the **Indo-Pakistan** border where very little rain fell compared to July. Nevertheless, ecological conditions remained favourable for breeding that could cause a slight increase in locust numbers but no significant developments are likely. Isolated adults were present at a few places on the southeast coast of **Iran**.

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 are available on the Internet.
Telephone: +39 06 570 52420 (7 days/week, 24 hr)
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Facebook: www.facebook.com/faolocust
Twitter: twitter.com/faolocust

No. 467

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in August 2017

Ecological conditions were favourable for breeding in the Sahel of West Africa and Sudan as a result of a third consecutive month of good rains. Monsoon rains declined along both sides of the Indo-Pakistan border but breeding conditions remained favourable. Good rains fell in the interior of Yemen and along parts of the Red Sea coast.

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) continued to move northwards over the summer breeding areas in the northern Sahel during the first decade of August when it was located more than 300 km further north than usual, reaching just south of Tamanrasset in southern Algeria. Thereafter, it retreated south to its near-normal position over central Mauritania (north of Tidjikja), northern Mali (Aguelhoc), Niger (In Abangharit) and Chad (Fada) during the second decade. Consequently, good rains fell throughout the summer breeding areas of the northern Sahel for the third consecutive month and conditions were favourable for breeding. The rainfall also extended into southern Algeria where breeding conditions improved.

In the **Central Region**, the Inter-Tropical Convergence Zone (ITCZ) continued to move northwards over the interior of Sudan during the first decade of August, reaching Ed Debba in the northern Nile Valley, and then retreated southwards thereafter. Its position was nearly normal for this time of year. Consequently, good rains fell throughout the summer breeding areas from Darfur to the Red Sea Hills in Sudan and in the western lowlands of Eritrea where conditions remained favourable for breeding. Good rains also fell in the interior of Yemen in Marib, Shabwah and Hadhramaut areas as well as along the Red Sea coast, causing ecological conditions to favourable for breeding in some areas.

In the **Eastern Region**, rainfall associated with the seasonal monsoon declined along both sides of the Indo-Pakistan border where only some showers fell in eastern Rajasthan, India. Nevertheless, ecological conditions were favourable for breeding in Rajasthan, especially in the western portion as a result of 50% higher than normal cumulative rainfall this season. Breeding conditions were also favourable in adjacent areas of Pakistan from Tharparkar to Cholistan. Heavy rains and flooding occurred at the end of the month near Karachi and in Sind, Pakistan.

Area Treated

No control operations were reported during August.

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During August, isolated immature and mature solitarious adults were present in the summer breeding areas north of Aioun El Atrous (1639N/0936W) while mature adults were seen in the centre between Aguilal Faye (1827N/1444W) and Tidjikja (1833N/1126W). No locusts were observed elsewhere during surveys.

• **FORECAST**

Small-scale breeding will cause locust numbers to increase in southern and central areas. Once vegetation begins to dry out, locusts may increase in number and concentrate in western areas where there is a low risk of a few very small groups forming.

Mali

• **SITUATION**

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

• **FORECAST**

Low numbers of adults are likely to be present and breeding on a small scale in parts of the Adrar des Iforas, Timetrine, Tilemsi Valley and Tamesna. This will cause locust numbers to increase during the forecast period.

Niger

• **SITUATION**

During August, isolated immature and mature solitarious adults were present in the southeastern Air Mountains and on the central Tamesna Plains near In Abangharit (1754N/0559E). Small-scale breeding occurred in the Air east of Timia (1809N/0846E) where isolated second to fifth instar solitarious hoppers were present. Limited egg-laying was observed in the Tamesna on the 14th.

• **Forecast**

Small-scale breeding will continue on the Tamesna Plains and in the Air Mountains, causing locust numbers to increase slightly during the forecast period. Limited breeding may also be in progress in the central pasture zone.

Chad

• **Situation**

No reports received.

• **Forecast**

Low numbers of adults are almost certainly present in central and eastern areas where small-scale breeding is likely to be in progress and will continue during the forecast period, causing locust numbers to increase slightly.

Senegal

• **Situation**

No locust activity was 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, isolated mature solitarious adults mixed with a few second and third instar solitarious hoppers were present near an irrigated farm in the Adrar (2753N/0017W) valley of the central Sahara. Some adults were seen copulating at the end of the month. No locusts were seen west of Tamanrasset (2250N/0528E).

• **Forecast**

Small-scale breeding will continue in the Adrar Valley, and is likely to occur in the south between Tamanrasset and the Mali/Niger border, causing locust numbers to increase slightly.

Morocco

• **Situation**

No locust activity was reported during August.

• **Forecast**

No significant developments are likely.

Libya

• **Situation**

A late report indicated no locust activity during July. No reports were received in August.

• **Forecast**

No significant developments are likely.

Tunisia

• **Situation**

No locust activity was reported during August.

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During August, isolated immature and mature solitarious adults were present in the Nile Valley near Dongola (1910N/3027E), Ed Debba (1803N/3057E), Abu Hamed (1932N/3320E) and Atbara (1742N/3400E). Similar populations were also present in the summer breeding areas of North Kordofan southeast of Abu Uruq (1554N/3027E), in White Nile northwest of Ed Dueim (1400N/3220E), and in the Baiyuda Desert. Small-scale breeding occurred near Ed Debba where scattered third instar solitarious hoppers were observed. No locusts were seen west of the Red Sea Hills and near Kassala (1527N/3623E).

• **Forecast**

Small-scale breeding will cause locust numbers to increase slightly between West Darfur and the Red Sea Hills, and to a lesser extent in the Nile Valley.

Eritrea

• **Situation**

A late report indicated that low numbers of immature and mature solitarious adults were present on the Red Sea coast near Sheib (1551N/3903E) in July. A few adults were seen copulating at the end of the month.

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

• **Forecast**

Low numbers of adults are likely to be present and breeding on a small scale in the western lowlands as well as on the central Red Sea coast near Sheib. Consequently, locust numbers are expected to increase slightly during the forecast period in both areas.

Ethiopia

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

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

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

A late report indicated that no surveys were carried out and no locusts were reported during July. No reports were received in August.

• **Forecast**

No significant developments are likely.

Egypt

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Saudi Arabia

• **Situation**

During August, no locusts were seen during surveys carried out on the southern coastal plains of the Red Sea to the north of Jizan (1656N/4233E).

• **Forecast**

No significant developments are likely.

Yemen

• **Situation**

During August, immature and mature solitarious adults were present in Wadi Hadhramaut east of Sayun (1559N/4844E) and on the plateau to the north where some adults were copulating. Isolated immature solitarious adults were present west of Am Rija (1302N/4434E) on the Aden coast. There were confirmed and unconfirmed reports of low numbers of solitarious adults and perhaps a few small groups in wadis between Marib (1527N/4519E) and Bayhan (1452N/4545E) but this could not be followed up due to insecurity.

• **Forecast**

Small-scale breeding is expected to continue in the interior on the edge of Ramlat Sabatyn between Marib and Ataq, in Wadi Hadhramaut and on the plateau to the north, causing locust numbers to increase. Similar populations may be present and breeding on the Red Sea coastal plains in areas of recent rainfall.

Oman

• **Situation**

During August, no locusts were seen by surveys carried out in the Musandam Peninsula and in the northern interior of Dakhiliya near Nizwa (2255N/5731E) and Adam (2223N/5731E).

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

During August, isolated mature solitarious adults persisted in a few places on the southeast coast near Chabahar (2517N/6036E). No locusts were seen on the coast near Jask (2540N/5746E).

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

During August, isolated mature solitarious adults persisted in a few places of Lasbela west of Karachi (2450N/6702E) and in Cholistan near the Indian border south of Rahimyar Khan (2822N/7020E) and Islamgarh (2751N/7048E).

• **Forecast**

Small-scale breeding will cause locust numbers to increase slightly in parts of Tharparkar, Nara and Cholistan as well as in the Lasbela area.

India

• **Situation**

During August, isolated mature solitarious adults were present at a few places in Rajasthan to the west of Bikaner (2801N/7322E).

• **Forecast**

Small-scale breeding will cause locust numbers to increase slightly in parts of Rajasthan and Gujarat.

Afghanistan

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- **CLCPRO.** Regional training in survey techniques for newly recruited scouts, Akjoujt, Mauritania (2 October – 5 November)
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VERY LARGE

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RAINFALL

LIGHT

- 1–20 mm of rainfall.

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RAMSESv4 training videos. A set of basic training videos are available on YouTube
https://www.youtube.com/playlist?list=PLf7Fc-oGpFHGyzXqE22j8-mPDhhGNq5So
RAMSESv4 and eLocust3. Installer, updates, videos, inventory and support
https://sites.google.com/site/rv4elocust3updates/home
FAOLocust Twitter. The very latest updates posted as tweets
http://www.twitter.com/faolocust
FAOLocust Facebook. Information exchange using social media
http://www.facebook.com/faolocust
FAOLocust Slideshare. Locust presentations and photos
http://www.slideshare.net/faolocust
eLERT. Online database of resources and technical specifications for locust emergencies
http://sites.google.com/site/elertsite

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: Benin, Burkino Faso, Cameroon, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Nigeria, Sierre Leone and Togo.

CENTRAL

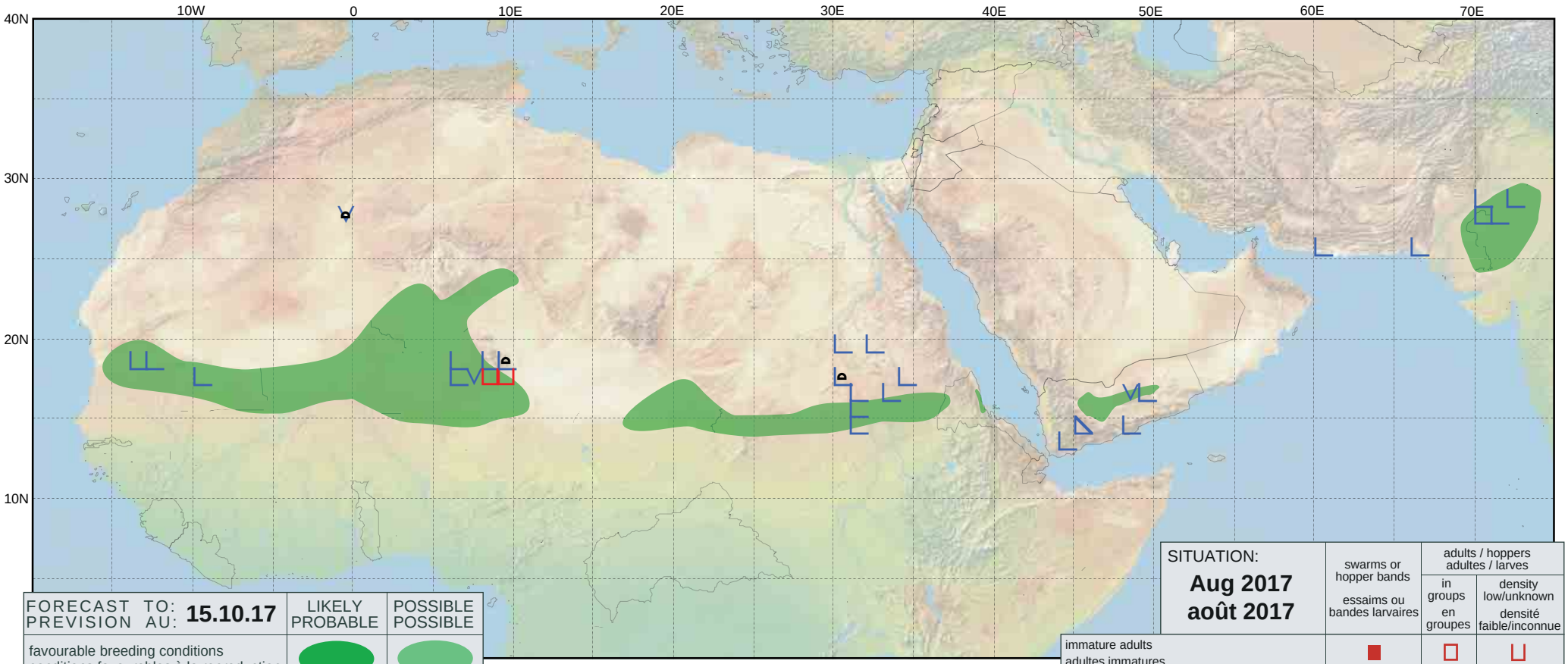
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

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

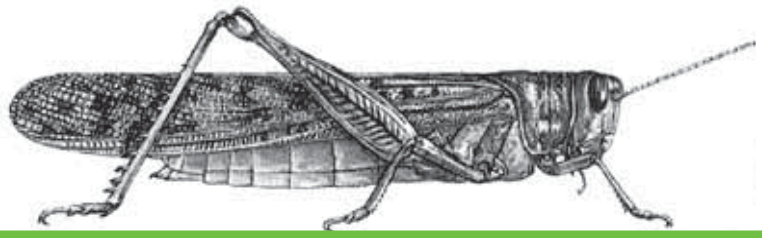
Desert Locust Summary
Criquet pèlerin - Situation résumée

467



FORECAST TO: / PREVISION AU: **15.10.17**	LIKELY / PROBABLE	POSSIBLE / POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **Aug 2017 août 2017**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves	
		in groups en groupes	density low/unknown densité faible/inconnue
immature adults adultes immatures			
mature or partly mature adults adultes matures ou partiellement matures			
adults, maturity unknown adultes, maturité inconnue			
egg laying or eggs pontes ou œufs			
hoppers larves			
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)			



warning level: **CALM**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 468**

(3.10.2017)

General Situation during September 2017 Forecast until mid-November 2017

The Desert Locust situation continued to remain calm during September. Despite good rainfall and favourable breeding conditions, very few locusts were detected during surveys in the summer breeding areas of the northern Sahel in West Africa and Sudan, and along both sides of the Indo-Pakistan border. In Mauritania, low numbers of adults shifted from the south to the west where small-scale breeding will increase during the forecast period that could extend to areas in Western Sahara where good rains fell after mid-September. Low numbers of adults will move from the interior of Sudan to the winter breeding areas on the Red Sea coast in Sudan where small-scale breeding will occur there as well as on the coasts of Yemen, Saudi Arabia, Eritrea and perhaps southeast Egypt during the forecast period.

Western Region. The situation remained calm during September. Small-scale breeding occurred in northern **Niger**, western **Mauritania** and near irrigated farms in the central Sahara of **Algeria** where preventive control operations treated 34 ha. Isolated adults were seen at more places in western Mauritania compared to August, suggesting that adults were leaving the summer breeding areas in the south of the country as vegetation started to dry out. No locusts were seen in western **Mali**, and surveys were not undertaken in **Chad**. During the forecast period, locust numbers will decline further in the summer breeding areas of the northern Sahel. As vegetation dries out, low numbers of adults are likely to concentrate in western Mauritania and extend to the **Western Sahara** where good rains fell in the second half of September. Small-scale breeding is likely to occur in both areas as well as in parts of southern Algeria. Smaller populations may persist in parts of northern Mali and Niger that remain green.

Central Region. The locust situation remained calm in the region during September where very few locusts were reported. Only low numbers of solitarious adults persisted in the interior of **Sudan** where it appears that very little breeding occurred this summer despite good rainfall. During the forecast period, low numbers of adults will move from the interior of Sudan to the winter breeding areas along the Red Sea coast in Sudan and breed on a small scale in any areas that receive rainfall. Similar breeding will occur on the Red Sea coast in **Yemen** where good rains fell throughout September, and to a lesser extent on the Red Sea coast in **Saudi Arabia** and **Eritrea**, and perhaps southeast **Egypt**. Low numbers of adults may also appear on the Gulf of Aden coastal plains in southern Yemen and northwest **Somalia** and breed on a small scale.

Eastern Region. The locust situation continued to remain calm in the region during September. Only low numbers of locusts persisted in the summer breeding areas of **Pakistan** near the border with India. No locusts were seen during regular surveys in **India**. As the monsoon had completely withdrawn from both countries by the end of September, no significant developments are expected during the forecast period. In southeast **Iran**, scattered mature adults were copulating at one location in the interior but no significant developments are likely.

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 are available on the Internet.
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Facebook: www.facebook.com/faolocust
Twitter: twitter.com/faolocust

Weather & Ecological Conditions in September 2017

Rainfall declined and vegetation started to dry out in the summer breeding areas of the northern Sahel in West Africa and Sudan with the retreat of the ITCZ. A similar situation occurred along the Indo-Pakistan border with the withdrawal of the monsoon. Good rains fell in winter breeding areas along the Red Sea coastal plains in Yemen. Good rains also fell in Western Sahara and in parts of northwest and northern Mauritania.

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) started to retreat southward over the northern Sahel in West Africa during September. Its mean position was nearly normal for this time of year. As a result, good rains continued to fall in the summer breeding areas in southern Mauritania, northern Mali and Niger, and central and eastern Chad. However, the rainfall declined as the month progressed and very little rain fell during the last decade. Nevertheless, vegetation was mainly green but was starting to dry out in some places. During the last decade of the month, light rain fell in southern Algeria between Tamanrasset and the Mali border, and in parts of northwest and northern Mauritania. In Morocco, heavier rains fell in the Western Sahara during a few days in the second half of September. Vegetation remained green in Algeria near Tamanrasset and in the Adrar Valley.

In the **Central Region**, the Inter-Tropical Convergence Zone (ITCZ) was located slightly further south than normal over the interior of Sudan during September. By the end of the month, it began retreating southwards. Consequently, good rains fell mainly during the first two decades. Vegetation remained green in most areas but was starting to dry out at the end of the month. In the winter breeding areas, good rains fell along the Red Sea coastal plains in Yemen throughout the entire month, and light to moderate rains fell at times on the coast in Saudi Arabia near Qunfidah and Jizan. Rain also fell in the highlands of Eritrea that could runoff onto the central Red Sea coast. Despite the rains, vegetation remained dry on the Saudi Arabian coast. On the contrary, ecological conditions are likely to be favourable for breeding on the Tihama in Yemen. In the Horn of Africa, good rains fell in eastern Ethiopia and on the plateau in northern Somalia.

In the **Eastern Region**, rainfall associated with the seasonal monsoon was nearly absent along both sides of the Indo-Pakistan border during September except for light rains in northern Rajasthan, India and parts of neighbouring Cholistan, Pakistan during the second decade. Vegetation was drying out in India but remained mostly green in Pakistan. By the end of the month, the monsoon had withdrawn entirely from Rajasthan. This year's monsoon rainfall was above average in central and southern Rajasthan and Gujarat but below long-term means in northern Rajasthan and along the Pakistani border.

Area Treated

Algeria	34 ha (Sep)

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During September, there was an increase of locust activity in the west where isolated mature scattered adults were seen at more places in the Aguilal Faye (1827N/1444W) area while adults declined in the summer breeding areas north of Aioun El Atrous (1639N/0936W). Small-scale breeding occurred at a few places between Aguilal Faye and Tidjikja (1833N/1126W) where isolated first and second instar solitarious hoppers were present. No locusts were observed elsewhere during surveys.

• **FORECAST**

Small-scale breeding will continue in Trarza and Tagant, causing locust numbers to increase slightly and there may be a slight risk of a few small groups forming. Initial fledging will commence in about mid-October. Low numbers of adults may appear in Inchiri and southwest Adrar and breed on a small scale in areas of recent rainfall or that receive more rain during the forecast period.

Mali

• **SITUATION**

During September, no locusts were seen during surveys carried out in the west between Nara

(1510N/0717W) and Kayes (1426N/1128W).

• **Forecast**

Low numbers of adults are likely to be present and breeding on a small scale in parts of the Adrar des Iforas, Timetrine, Tilemsi Valley and Tamesna.

Niger

• **Situation**

During September, small-scale breeding occurred in at least one area of Tamesna south of In Abangharit (1754N/0559E) where isolated solitarious hoppers of all instars mixed immature and mature solitarious adults were seen during limited surveys undertaken at the end of the month.

• **Forecast**

Small-scale breeding that is almost certainly in progress in other areas of Tamesna and in the Air Mountains will cause locust numbers to increase slightly during the forecast period. Limited breeding may also be in progress in the central pasture zone. As vegetation dries out, there may be a slight risk of a few small groups forming.

Chad

• **Situation**

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

• **Forecast**

Low numbers of adults are almost certainly present in central and eastern areas where small-scale breeding will decline as vegetation dries out during the forecast period.

Senegal

• **Situation**

No locust activity was 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**

During September, scattered mature solitarious adults, of which some were copulating, mixed with second to fifth instar solitarious hoppers persisted near irrigated farms in the Adrar (2753N/0017W) valley of the central Sahara. Ground teams treated 34 ha. No locusts were seen west of Tamanrasset (2250N/0528E).

• **Forecast**

Small-scale breeding will continue in the Adrar Valley, and is likely to occur in the south between Tamanrasset and the Mali/Niger border, causing locust numbers to increase slightly.

Morocco

• **Situation**

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

• **Forecast**

Low numbers of adults may appear in areas of recent rainfall in the Western Sahara and breed on a small scale.

Libya

• **Situation**

A late report indicated no locust activity during August. Reports of locusts in the east near Jalu (2902N/2134E) in mid-September were African Migratory Locust and not Desert Locust.

• **Forecast**

No significant developments are likely.

Tunisia

• **Situation**

No locust activity was reported during September.

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During September, isolated immature and mature solitarious adults persisted in the summer breeding areas of North Kordofan and White Nile, in the Baiyuda Desert and in a few places to the west of the Red Sea Hills. Locust numbers declined in cropping areas of the Nile Valley where they were only present near Abu Hamed (1932N/3320E) and Shendi (1641N/3322E).

• **Forecast**

As vegetation continues to dry out in the summer breeding areas, there is a very low risk that a few small groups could form. Low numbers of adults will move from the interior to the winter breeding areas along the Red Sea coast and breed on a small scale in any areas that receive rainfall.

Eritrea

• **Situation**

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

• **Forecast**

Small-scale breeding will occur in areas that receive rainfall or runoff on the central and northern Red Sea coast, causing locust numbers to increase slightly during the forecast period.

Ethiopia

• **Situation**

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

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No reports were received during September.

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

A late report indicated that no surveys were carried out and no locusts were reported during August. No reports were received in September.

• **Forecast**

Low numbers of adults may start to appear and breed on the northwest coast in any areas that receive rainfall. No significant developments are likely.

Egypt

• **Situation**

No locusts were seen near Lake Nasser in the Tushka (2247N/3126E) and Abu Simbel (2219N/3138E) areas during August and September. No locusts were seen on the Red Sea coast between Berenice (2359N/3524E) and the Sudanese border in September.

• **Forecast**

Low numbers of adults may start to appear and breed on the southeastern coastal plains of the Red Sea in any areas that receive rainfall. No significant developments are likely.

Saudi Arabia

• **Situation**

During September, no locusts were seen during surveys carried out on the Red Sea coast between Lith (2008N/4016E) and the Yemeni border.

• **Forecast**

Low numbers of adults may appear in winter breeding areas on the Red Sea coast and start to breed on a small scale in any areas that receive rainfall during the forecast period.

Yemen

• **Situation**

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

• **Forecast**

Locust numbers will decline in the interior as vegetation dries out. Any adults that are present are expected to move to the winter breeding areas along the Red Sea and Gulf of Aden coasts where small-scale breeding will occur in areas of recent rainfall, causing locust numbers to increase slightly.

Oman

• **Situation**

No locusts were seen during surveys carried out in the Musandam Peninsula, in the northern interior near Buraimi (2415N/5547E) and in the south near Thumrait (1736N/5401E) in September.

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

During September, scattered mature solitarious adults were seen copulating at one place in Jaz Murian northwest of Sowlan (2710N/5833E).

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

During September, isolated mature solitarious adults persisted in a few places of Lasbela west of Karachi (2450N/6702E) and in Cholistan near the Indian border south of Rahimyar Khan (2822N/7020E) and Islamgarh (2751N/7048E).

• **Forecast**

Locust activity will decline in the summer breeding areas along the Indo-Pakistan border as vegetation dries out. No significant developments are likely.

India

• **Situation**

During September, no locusts were seen during survey carried out 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). Reports received by the first two days of the new month will be included in the FAO Desert Locust Bulletin for the current month; otherwise, they will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

New information on Locust Watch. Recent additions to the web site (www.fao.org/ag/locusts) are:

- **WMO/FAO Weather and Desert Locusts booklet.** Publications – Documents
- **CRC/SWAC Desert Locust Information Officers workshop.** Publications – Reports 2017
- **SWAC Iran/Pakistan Joint Survey results.** Publications – Reports 2017

RAMSES training videos. New training videos are available on YouTube for Rv4.1 users – see Useful tools and resources section of this bulletin.

2017 events. The following activities are scheduled or planned:

- **CLCPRO.** Regional training in survey techniques for newly recruited scouts, Akjoujt, Mauritania (2 October – 5 November)
- **CLCPRO.** 16th EMPRES liaison officers meeting and 13th Steering Committee meeting, Agadir, Morocco (1–9 December)
- **SWAC.** Desert Locust Information Officer workshop, Tehran (December) [tbc]
- **CRC.** 10th Subregional training course on Desert Locust campaigns (December) [tbc]

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 AREAS

- July–September/October
  (Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border)

WINTER RAINS AND BREEDING AREAS

- October–January/February
  (Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara)

SPRING RAINS AND BREEDING AREAS

- February–June/July
  (Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border)

RECESSION

- period without widespread and heavy infestations by swarms.

REMISSION

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

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

Useful tools and resources

FAO Locust Watch. Information, maps, activities, publications, archives, FAQs, links
http://www.fao.org/ag/locusts
IRI RFE. Rainfall estimates every day, decade and month
http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/index.html
IRI Greenness maps. Dynamic maps of green vegetation evolution every decade
http://iridl.ldeo.columbia.edu/maproom/Food_Security/Locusts/Regional/greenness.html
IRI MODIS. Vegetation imagery every 16 days
http://iridl.ldeo.columbia.edu/maproom/Food_Security/Locusts/Regional/MODIS/index.html
Windy. Real time rainfall, winds and temperatures for locust migration
http://www.windy.com
eLocust3 training videos. A set of 15 introductory training videos are available on YouTube
https://www.youtube.com/playlist?list=PLf7Fc-oGpFHEdv1jAPaF02TCfpcnYoFQT
RAMSESv4 training videos. A set of basic training videos are available on YouTube
https://www.youtube.com/playlist?list=PLf7Fc-oGpFHGyzXqE22j8-mPDhhGNq5So
RAMSESv4 and eLocust3. Installer, updates, videos, inventory and support
https://sites.google.com/site/rv4elocust3updates/home
FAOLocust Twitter. The very latest updates posted as tweets
http://www.twitter.com/faolocust
FAOLocust Facebook. Information exchange using social media
http://www.facebook.com/faolocust
FAOLocust Slideshare. Locust presentations and photos
http://www.slideshare.net/faolocust
eLERT. Online database of resources and technical specifications for locust emergencies
http://sites.google.com/site/elertsite

bands or swarms. A major plague exists when two or more regions are affected simultaneously.

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.

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: Benin, Burkino Faso, Cameroon, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Nigeria, Sierre Leone and Togo.

CENTRAL

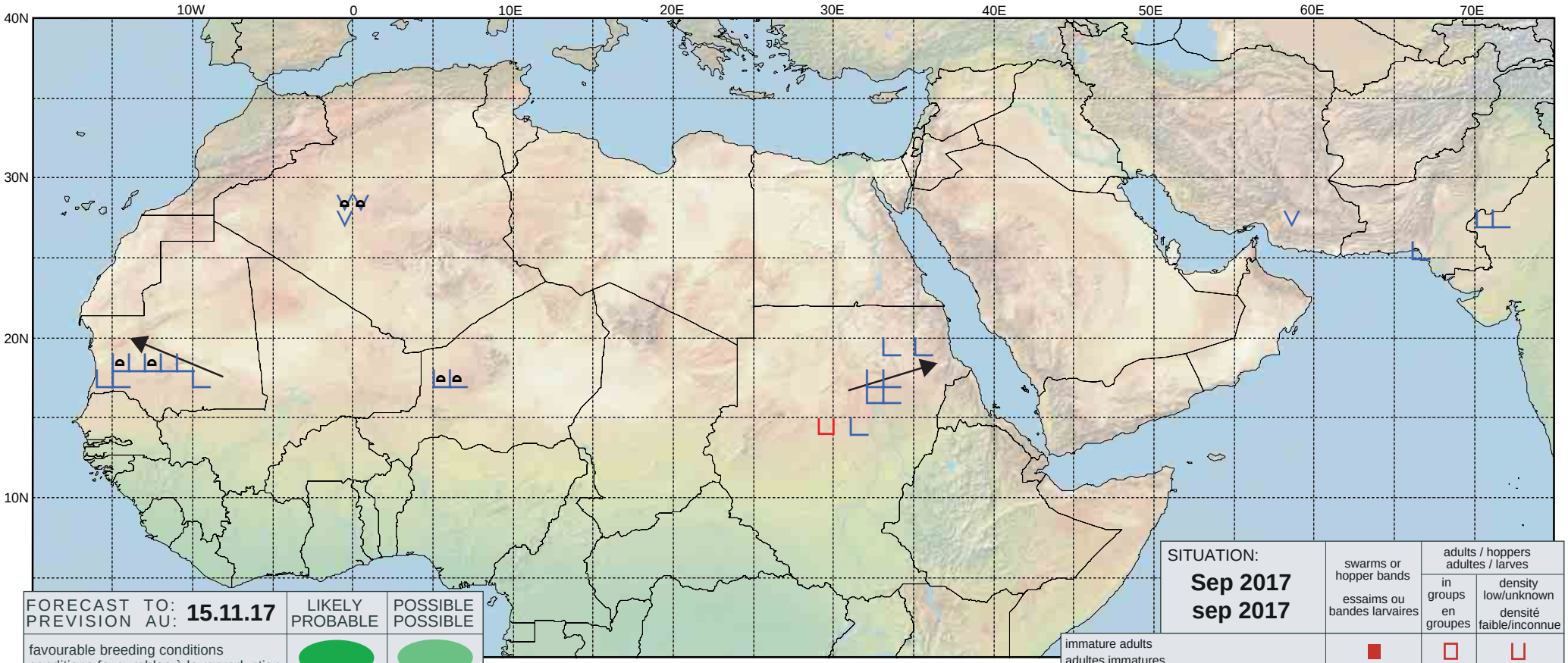
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

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

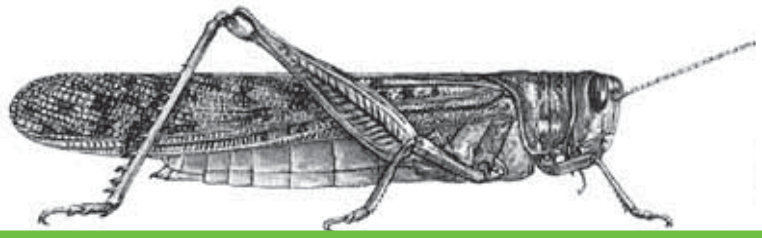
Desert Locust Summary
Criquet pèlerin - Situation résumée

468



FORECAST TO: / PREVISION AU: **15.11.17**	LIKELY / PROBABLE	POSSIBLE / POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **Sep 2017** **sep 2017**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves	
		in groups en groupes	density low/unknown densité faible/inconnue
immature adults adultes immatures			
mature or partly mature adults adultes matures ou partiellement matures			
adults, maturity unknown adultes, maturité inconnue			
egg laying or eggs pontes ou œufs			
hoppers larves			
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)			



warning level: **CALM**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 469**

(3.11.2017)

General Situation during October 2017 Forecast until mid-December 2017

The Desert Locust situation continued to remain calm during October. Seasonal rains ended in the summer breeding areas of the Sahel in West Africa and Sudan as well as along the Indo-Pakistan border. Consequently, vegetation was drying out and locust numbers were decreasing. Small-scale breeding continued in western Mauritania but locust numbers remained low. A second generation of breeding is thought to be underway in one area on the Red Sea coast in Eritrea where good rains have fallen since May. During the forecast period, small-scale breeding will cause locust numbers to increase slightly along both sides of the Red Sea as well as in western Mauritania, which could perhaps extend to southern areas of Western Sahara.

Western Region. The situation remained calm during October. Small-scale breeding continued in western **Mauritania** but locust numbers remained low. Limited breeding occurred on the Tamesna Plains in northern **Niger** and low numbers of adults were seen in southern **Algeria** near the border with **Mali**. During the forecast period, small-scale breeding will continue in western Mauritania and is likely to extend towards the northwest and into adjacent areas of the Western Sahara in southern **Morocco**, causing locust numbers to increase slightly.

Central Region. The locust situation remained calm in the region during October. Vegetation dried out and no locusts were seen in the summer breeding areas of the interior in **Sudan**. In the winter breeding areas, a second generation of breeding may be in progress in a relatively small area on the central coast of **Eritrea** where hoppers were starting to gregarize and ground teams treated 2 ha. Elsewhere, ecological conditions were favourable for breeding on the Tihama coast of **Yemen** and were improving in **Saudi Arabia** and Sudan. The situation remains unclear in Yemen due to prevailing insecurity that prevents field surveys. During the forecast period, small-scale breeding is expected to occur along both sides of the Red Sea, causing locust numbers to increase slightly. Regular surveys should be undertaken, especially in Eritrea.

Eastern Region. The locust situation continued to remain calm in the region during October. Only a few locusts remained in the summer breeding areas of **Pakistan** near the border with India. No locusts were seen during regular surveys in **India** or on the coastal plains in southeast **Iran**. No significant developments are likely 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 are available on the Internet.
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Twitter: twitter.com/faolocust

Weather & Ecological Conditions in October 2017

Vegetation continued to dry out in the summer breeding areas of the Sahel in West Africa and Sudan as well as along both sides of the Indo-Pakistan border. Breeding conditions were favourable on the central Red Sea coast in Eritrea due to good rains since May, and on the coast of Yemen.

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) had moved south of the summer breeding areas in the Sahel of West Africa by the end of the first decade of October. Consequently, no significant rain fell in these areas during the month and vegetation continued to dry out in most areas except in parts of Tamesna in northern Niger and in southern Algeria along the border with Mali. Light rain fell during the first decade in western Mauritania where conditions were already favourable for breeding. In Northwest Africa, good rains fell in northeast Morocco and adjacent areas of Algeria but this is likely to be of little significance to Desert Locust at this time of year.

In the **Central Region**, the Inter-Tropical Convergence Zone (ITCZ) had moved south of the summer breeding area in the interior of Sudan by the end of the first decade of October. Consequently, vegetation was drying out and ecological conditions were no longer favourable for breeding. In the winter breeding areas, light rains fell at mid-month on the central coast of the Red Sea in Eritrea and on the Tihama of Yemen where conditions were already favourable for breeding. At the end of the month, rains started to fall on the Sudanese coast near Suakin and Aiterba that should allow ecological conditions to improve for breeding. Vegetation was becoming green in the Tokar Delta of Sudan and on the Red Sea coastal plains of Saudi Arabia near Jizan and to a lesser extent near Lith and Qunfidah.

In the **Eastern Region**, no significant rain fell in the region during October. By the end of the month, ecological conditions were no longer favourable for breeding along both sides of the Indo-Pakistan border where vegetation was drying but remained green in a few places of Cholistan, Pakistan and in Rajasthan, India. Dry conditions prevailed on the southeast coastal plains of Iran.

Area Treated

Eritrea	2 ha (Oct)

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During October, isolated immature and mature adults persisted in parts of the summer breeding areas in the south between Aioun El Atrous (1639N/0936W) and Tamchekket (1714N/1040W) as well as in western areas between Nouakchott (1809N/1558W) and Tidjikja (1833N/1126W). A few adults extended northwards into Inchiri near Tasiast (2034N/1531W), and small-scale breeding occurred southwest of Oujeft (2003N/1301W), giving rise to isolated solitarious hoppers of all instars.

• **FORECAST**

Small-scale breeding will continue in parts of Trarza, Tagant and southwest Adrar, causing locust numbers to increase slightly. If rains fall, small-scale breeding will also occur in Inchiri.

Mali

• **SITUATION**

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

• **FORECAST**

Low numbers of adults are likely to persist in parts of the Adrar des Iforas.

Niger

• **SITUATION**

In early October, small-scale breeding continued on the Tamesna Plains where scattered solitarious hoppers of all instars mixed with low numbers of immature and mature solitarious adults were seen west of In Abangharit (1754N/0559E).

• **FORECAST**

Breeding will decline in Tamesna where there may be a slight risk of a few small groups forming as vegetation dries out. Low numbers of adults are likely to persist in parts of Tamesna with some moving to the Air Mountains.

Chad

• **Situation**

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

• **Forecast**

No significant developments are likely.

Senegal

• **Situation**

No locust activity was reported 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 immature solitarious adults were present in the extreme south along the border of Mali between Bordj Badji Mokhtar (2119N/0057E) and Timeiaouine (2026N/0148E). No locusts were seen in the Adrar Valley, near Tamanrasset (2250N/0528E) and in the south near the Niger border and In Guezzam (1937N/0552E)

• **Forecast**

Scattered adults may persist in the extreme south near the Mali border while others could remain near irrigated cropping areas in the Adrar Valley.

Morocco

• **Situation**

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

• **Forecast**

Low numbers of adults may appear in areas of September rainfall in the Western Sahara and breed on a small scale.

Libya

• **Situation**

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

• **Forecast**

No significant developments are likely.

Tunisia

• **Situation**

No locust activity was reported during October.

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During October, no locusts were seen during surveys in the River Nile State west of Ed Damer (1734N/3358E) in the Baiyuda Desert and southeast of Ed Damer along the Atbara River.

• **Forecast**

Low numbers of adults will appear in winter breeding areas along the Red Sea coast and breed on a small-scale between Suakin and the Eritrean border.

Eritrea

• **Situation**

In early October, scattered solitarious hoppers of all instars mixed with some *transiens* and gregarious hoppers and isolated immature solitarious adults were reported at five places on the central Red Sea coastal plains near Sheib (1551N/3903E) and the western edge of the Akbanazouf Plain (1555N/3910E). These infestations are a result of earlier good rains and runoff that allowed egg-laying to take place during the last decade of August with hatching in early September. This may represent second-generation breeding given that unusually good rains fell in May and June in the same area. Ground teams 2 ha of hopper groups. No locusts were seen elsewhere along the central and northern coast.

• **Forecast**

Another generation of breeding is likely to occur on the central Red Sea coast, causing locust numbers to increase during the forecast period with the possibility of small groups forming. Low numbers of adults may spread north along the coast.

Ethiopia

• **Situation**

No reports were received in October.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

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

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

No reports were received in October.

• **Forecast**

Low numbers of adults may appear and breed on the northwest coast in any areas that receive rainfall. No significant developments are likely.

Egypt

• **Situation**

During October, no locusts were seen near Lake Nasser in the Tushka (2247N/3126E) and Abu Simbel (2219N/3138E) areas as well as on the Red Sea coast between Berenice (2359N/3524E) and the Sudanese border.

• **Forecast**

Low numbers of adults may appear and breed on the southeastern coastal plains of the Red Sea in any areas that receive rainfall. No significant developments are likely.

Saudi Arabia

• **Situation**

During October, no locusts were seen during surveys carried out on the Red Sea coast between Thuwal (2215N/3906E) and the Yemeni border.

• **Forecast**

Low numbers of adults may appear in winter breeding areas on the Red Sea coast and breed on a small scale in any areas that receive rainfall during the forecast period.

Yemen

• **Situation**

No surveys could be carried out during October due to insecurity and no locusts were reported.

• **Forecast**

Low numbers of adults are likely to be present on the Red Sea coast where small-scale breeding is expected to occur during the forecast period, especially in areas that receive rainfall. This will cause locust numbers to increase slightly.

Oman

• **Situation**

During October, no locusts were seen during surveys carried out in a few places of the Musandam Peninsula, the Batinah coast, the northern interior between Buraimi (2415N/5547E) and Ibri (2314N/5630E), near Adam (2223N/5731E), and in the south near Thumrait (1736N/5401E).

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

No locusts were seen during surveys carried out in October on the southeast coast near Jask (2540N/5746E) and Chabahar (2517N/6036E).

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

During October, isolated mature solitarious adults persisted in Cholistan near the Indian border south of Bahawalpur (2924N/7147E) and near Islamgarh (2751N/7048E).

• **Forecast**

Locust activity will decline in the summer breeding areas along the Indo-Pakistan border as vegetation continues to dry out. No significant developments are likely.

India

• **Situation**

During October, no locusts were seen during survey carried out 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). Reports received by the first two days of the new month will be included in the FAO Desert Locust Bulletin for the current month; otherwise, they will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

New information on Locust Watch. Recent additions to the web site (www.fao.org/ag/locusts) are:

- **WMO/FAO Weather and Desert Locusts booklet.** Publications – Documents
- **CRC/SWAC Desert Locust Information Officers workshop.** Publications – Reports 2017
- **SWAC Iran/Pakistan Joint Survey results.** Publications – Reports 2017

RAMSES training videos. New training videos are available on YouTube for Rv4.1 users – see Useful tools and resources section of this bulletin.

2017–2018 events. The following activities are scheduled or planned:

- **CLCPRO.** Regional training in survey techniques for newly recruited scouts, Akjoujt, Mauritania (2 October – 5 November)
- **CLCPRO.** 16th EMPRES liaison officers meeting and 13th Steering Committee meeting, Agadir, Morocco (1–9 December)
- **CRC.** 10th Subregional training course on Desert Locust campaigns (December) [tbc]
- **SWAC.** Desert Locust Information Officer workshop, Tehran (15–17 January)

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 AREAS

- July–September/October
  (Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border)

WINTER RAINS AND BREEDING AREAS

- October–January/February
  (Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara)

SPRING RAINS AND BREEDING AREAS

- February–June/July
  (Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border)

RECESSION

- period without widespread and heavy infestations by swarms.

REMISSION

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

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.

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.

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.

Useful tools and resources

FAO Locust Watch. Information, maps, activities, publications, archives, FAQs, links
http://www.fao.org/ag/locusts
IRI RFE. Rainfall estimates every day, decade and month
http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/index.html
IRI Greenness maps. Dynamic maps of green vegetation evolution every decade
http://iridl.ldeo.columbia.edu/maproom/Food_Security/Locusts/Regional/greenness.html
IRI MODIS. Vegetation imagery every 16 days
http://iridl.ldeo.columbia.edu/maproom/Food_Security/Locusts/Regional/MODIS/index.html
Windy. Real time rainfall, winds and temperatures for locust migration
http://www.windy.com
eLocust3 training videos. A set of 15 introductory training videos are available on YouTube
https://www.youtube.com/playlist?list=PLf7Fc-oGpFHEdv1jAPaF02TCfpcnYoFQT
RAMSESv4 training videos. A set of basic training videos are available on YouTube
https://www.youtube.com/playlist?list=PLf7Fc-oGpFHGyzXqE22j8-mPDhhGNq5So
RAMSESv4 and eLocust3. Installer, updates, videos, inventory and support
https://sites.google.com/site/rv4elocust3updates/home
FAOLocust Twitter. The very latest updates posted as tweets
http://www.twitter.com/faolocust
FAOLocust Facebook. Information exchange using social media
http://www.facebook.com/faolocust
FAOLocust Slideshare. Locust presentations and photos
http://www.slideshare.net/faolocust
eLERT. Online database of resources and technical specifications for locust emergencies
http://sites.google.com/site/elertsite

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: Benin, Burkino Faso, Cameroon, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Nigeria, Sierre Leone and Togo.

CENTRAL

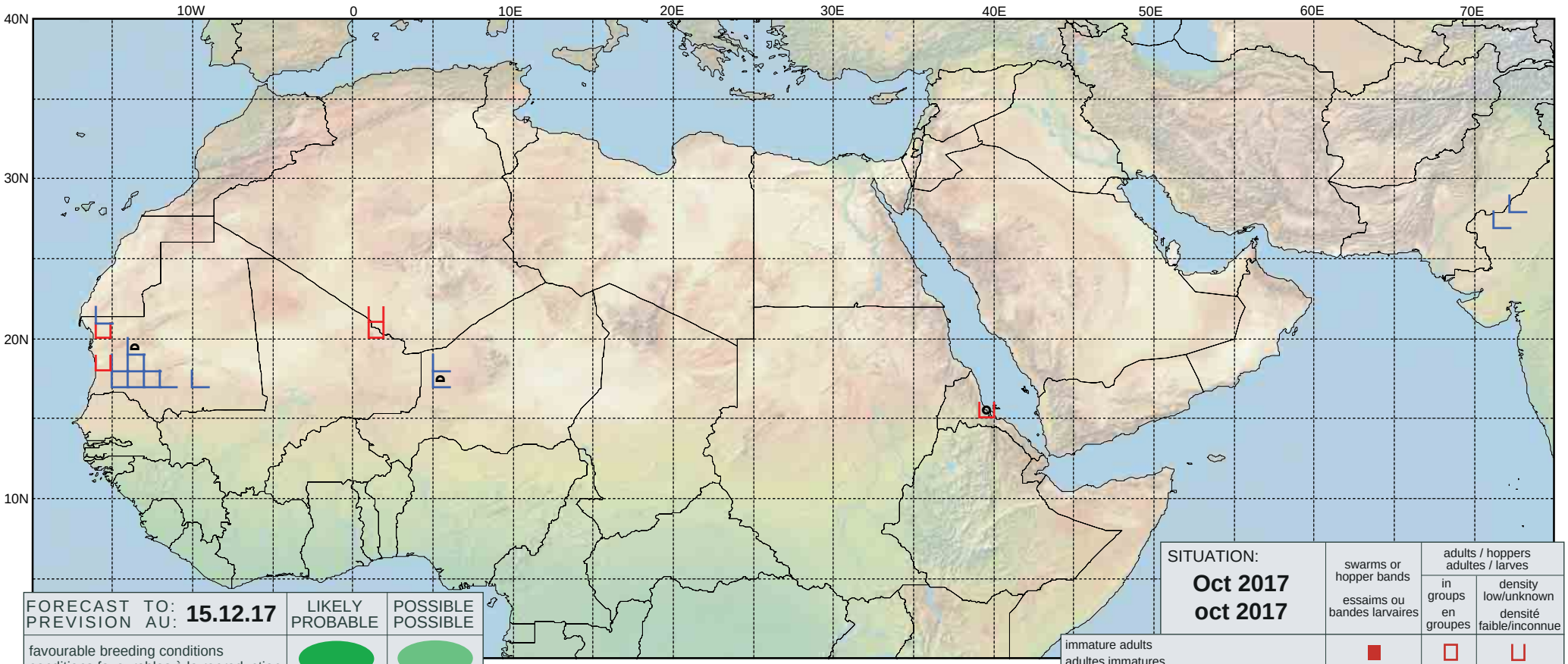
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

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

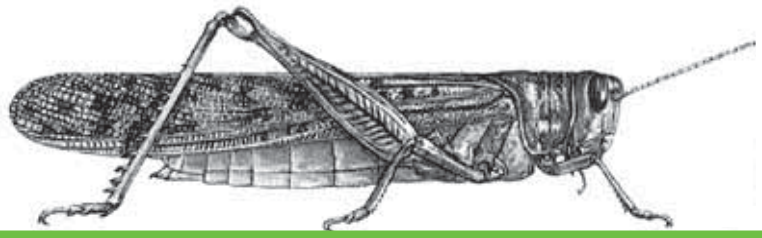
Desert Locust Summary
Criquet pèlerin - Situation résumée

469



FORECAST TO: / PREVISION AU: **15.12.17**	LIKELY / PROBABLE	POSSIBLE / POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **Oct 2017** **oct 2017**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves	
		in groups en groupes	density low/unknown densité faible/inconnue
immature adults adultes immatures			
mature or partly mature adults adultes matures ou partiellement matures			
adults, maturity unknown adultes, maturité inconnue			
egg laying or eggs pontes ou œufs			
hoppers larves			
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)			



warning level: **CALM**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 470**

(4.12.2017)

General Situation during November 2017 Forecast until mid-January 2018

The Desert Locust situation continued to remain calm during November. Only low numbers of solitarious adults were present in western Mauritania, northern Niger, Algeria, Chad, and on the Red Sea coastal plains in Sudan and Yemen. Small-scale breeding occurred in northwest Mauritania, northern Niger and Chad but locust numbers remained low. During the forecast period, small-scale breeding will occur in winter breeding areas along both sides of the Red Sea, especially in Saudi Arabia where good rains fell in November. Locust numbers will decline in the northern Sahel and scattered adults are likely to persist in northern Niger and in northwest Mauritania where small-scale breeding could occur if rains fall.

Western Region. The situation remained calm during November. Low numbers of solitarious adults were present in parts of **Algeria**, western **Mauritania** and started to appear in northern Mauritania. Small-scale breeding occurred in a few places of northwest Mauritania, northern **Niger** and eastern **Chad** but locust numbers remained low. No locusts were seen during surveys in **Morocco**. During the forecast period, small-scale breeding could occur if rains fall in northwest Mauritania and Western Sahara. Locust numbers will decline in the northern Sahel while low numbers are likely to persist in parts of northern **Mali** and Niger.

Central Region. The locust situation remained calm in the region during November. Low numbers of solitarious adults were present in a few places of the winter breeding areas along the Red Sea coast in **Sudan** and **Yemen**. During the forecast period, small-scale breeding is expected along both sides of the Red Sea, especially in **Saudi Arabia** where good rains fell during November and, to a lesser extent, in Sudan, **Eritrea** and Yemen. Small-scale breeding could also occur on the northwest coastal plains of **Somalia** if rains fall.

Eastern Region. The locust situation continued to remain calm in the region during November. No locusts were reported and no significant developments are likely 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 are available on the Internet.
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No. 470

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in November 2017

Good rains fell on the Red Sea coast in Saudi Arabia. Ecological conditions improved in some of the winter breeding areas along both sides of the Red Sea. Vegetation remained green in a few places of the northern Sahel and in Northwest Africa despite a lack of rainfall.

In the **Western Region**, no significant rain fell during November. Nevertheless, annual vegetation was green in some places at the base of the Hoggar Mountains in Algeria near Illizi, Djanet and Tamanrasset. Vegetation was also green in parts of the Adrar des Iforas in northern Mali, extending into adjacent areas of southern Algeria between Bir Bou Mokhtar and Tin Zaouatene, in northern Niger in the Air Mountains and on the northern Tamesna Plains, extending into southern Algeria, and in central and northeast Chad. In Mauritania, vegetation remained green in the west (Brakna and southwest Adrar) but was drying out in parts of Trarza and Tiris Zemmour except near Zouerate where it was green. In Morocco, vegetation was dry along the southern side of the Atlas Mountains but was becoming green in central areas of Western Sahara.

In the **Central Region**, good rains fell in the winter breeding areas along parts of the Red Sea coast of Saudi Arabia during November. During the first decade, rains fell on the coast between Qunfidah and Jizan. Heavier rains fell on the northern coast from Al Wajh to Jeddah on 19–21 November, causing floods in some places including Jeddah. Consequently, ecological conditions should improve and allow small-scale breeding. In Yemen, green vegetation persisted on the Red Sea coast but vegetation remained mostly dry on the southern coastal plains. Although little rainfall occurred, vegetation was becoming green in some places along the Red Sea coastal plains in Sudan and Eritrea but remained mostly dry in southeast Egypt.

In the **Eastern Region**, no significant rain fell in the region during November. Vegetation continued to dry out along both sides of the Indo-Pakistan border. Ecological conditions were dry and remained unfavourable for breeding along the southeastern coast of Iran.

Area Treated

No control operations were reported during November.

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During November, isolated immature and mature solitarious adults continued to be present in the west between Boutilimit (1732N/1441W) and Oujeft (2003N/1301W). Small-scale breeding occurred southwest of Oujeft where isolated second to fourth instar solitarious hoppers were present. During the last decade, isolated immature solitarious adults were seen further north in Tiris-Zemmour to the east of Zouerate (2244N/1221W). No locusts were present in the north towards Ghallaman (2410N/0952W) and in the southwest between Aleg (1703N/1355W) and N'Beika (1758N/1215W).

• **FORECAST**

Low numbers of adults are likely to persist in parts of Trarza, Inchiri, southwest Adrar and Tiris-Zemmour. There is a possibility for small-scale breeding if additional rainfall occurs.

Mali

• **SITUATION**

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

• **FORECAST**

Low numbers of adults may be present and could persist in parts of the Adrar des Iforas.

Niger

• **SITUATION**

During the first half of November, small-scale breeding occurred on the northern Tamesna Plains between Tazerzait Plateau (1832N/0449E) and the Algerian border where isolated mid to late instar solitarious hoppers were present mixed with isolated immature solitarious adults. Isolated mature adults were scattered throughout the Air Mountains and in central pasture areas to the north of Tasker (1507N/104140E). Small-scale breeding was detected

at a few places in both areas where isolated late instar hoppers were present.

• **Forecast**

Low numbers of adults are likely to persist in the Air Mountains and, to a lesser extent, in parts of Tamesna.

Chad

• **Situation**

During November, small-scale breeding occurred in the northeast near Kalait where isolated late instar solitarious hoppers were present at a few places. Isolated immature and mature solitarious adults were scattered throughout the Sahel between Mao and Fada at densities of 100–1,100 adults/ha.

• **Forecast**

Locust numbers will decline and no significant developments are likely.

Senegal

• **Situation**

No locust activity was reported during November.

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

During November, isolated mature solitarious adults were present in the Adrar Valley (2753N/0017W) of the central Sahara. In the extreme south, isolated immature adults were present near the Niger border and In Guezzam (1937N/0552E) as an extension of populations from adjacent areas in Niger. Isolated immature adults persisted near the Malian border between Bordj Badji Mokhtar (2119N/0057E) and Timeiaouine (2026N/0148E).

• **Forecast**

Scattered adults may persist in the extreme south near the Mali and Niger borders while others could remain near irrigated cropping areas in the Adrar Valley.

Morocco

• **Situation**

During November, no locusts were seen during surveys carried out south of the Atlas Mountains in the Guelmim (2859N/1003W) and Assa (2836N/0926W) areas, and in the central Western Sahara between Dakhla (2342N/1555W) and Bir Anzarane (2353N/1431W).

• **Forecast**

Low numbers of adults may appear in parts of the Western Sahara and breed on a small scale if rainfall occurs.

Libya

• **Situation**

No reports were received in November.

• **Forecast**

No significant developments are likely.

Tunisia

• **Situation**

No locust activity was reported during November.

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During November, no locusts were seen during surveys carried out in the winter breeding areas along the Red Sea coast between the borders of Eritrea and Egypt and in subcoastal areas of the northeast except for isolated mature solitarious adults at one place in the northeast in Wadi Oko near Tomala (2002N/3551E) and one place on the southern coast near Adobana (1810N/3816E). No locusts were seen west of the Red Sea Hills between Derudeb (1731N/3607E) and Sinkat (1855N/3648E).

• **Forecast**

Small-scale breeding will occur in areas of recent rainfall along the Red Sea coast and in subcoastal areas of the northeast, causing locust numbers to increase slightly.

Eritrea

• **Situation**

During November, no locusts were seen during surveys carried out on the central Red Sea coastal plains from Wekiro (1548N/3918E) to nearly Mersa Cuba (1616N/3911E).

• **Forecast**

Small-scale breeding is likely to occur in areas of recent rainfall on the central and northern Red Sea coastal plains.

Ethiopia

• **Situation**

No reports were received in November.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

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

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

No reports were received in November.

• **Forecast**

Low numbers of adults may appear and breed on a small scale on the northwest coast in any areas that receive rainfall. No significant developments are likely.

Egypt

• **Situation**

During November, no locusts were seen on the Red Sea coast between Abu Ramad (2224N/3624E) and Halaib (2213N/3638E), in subcoastal areas from Shalatyn (2308N/3535E) to nearly Marsa Alam (2504N/3454E), and in the Lake Nasser area near Tushka (2247N/3126E) and Abu Simbel (2219N/3138E).

• **Forecast**

Low numbers of adults may appear and breed on the southeastern coastal plains of the Red Sea in any areas that receive rainfall. No significant developments are likely.

Saudi Arabia

• **Situation**

During November, no locusts were seen during surveys carried out on the Red Sea coast between Thuwal (2215N/3906E) and the Yemeni border.

• **Forecast**

Low numbers of adults are likely to appear in winter breeding areas on the Red Sea coast and breed on a small scale in those areas that received rainfall in November.

Yemen

• **Situation**

During November, scattered immature and mature solitarious adults were seen during surveys carried out on the Red Sea coast from north of Zabid (1410N/4318E) to south of Midi (1619N/4248E). On the southern coast, no locusts were seen from Bir Ali (1401N/4820E) to west of Aden except for isolated immature solitarious adults at one place near Lahij (1303N/4453E).

• **Forecast**

Small-scale breeding will occur in areas of recent rainfall on the Tihama, causing locust numbers to increase slightly. If more rains fall, small-scale breeding may occur along parts of the southern coast.

Oman

• **Situation**

During November, no locusts were seen during surveys carried out in a few places of the Musandam Peninsula, the Batinah coast, the northern interior south of Ibri (2314N/5630E), and between Adam (2223N/5731E) and Ibra (2243N/5831E).

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

During November, no locusts were seen during surveys carried out on the southeast coast near Jask (2540N/5746E) and Chabahar (2517N/6036E).

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

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

• **Forecast**

No significant developments are likely.

India

• **Situation**

During November, no locusts were seen during survey carried out 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). Reports received by the first two days of the new month will be included in the FAO Desert Locust Bulletin for the current month; otherwise, they will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

New information on Locust Watch. Recent additions to the web site (www.fao.org/ag/locusts) are:

- **WMO/FAO Weather and Desert Locusts booklet.** Publications – Documents
- **CRC/SWAC Desert Locust Information Officers workshop.** Publications – Reports 2017
- **SWAC Iran/Pakistan Joint Survey results.** Publications – Reports 2017

RAMSES training videos. New training videos are available on YouTube for Rv4.1 users – see Useful tools and resources section of this bulletin.

2017–2018 events. The following activities are scheduled or planned:

- **CLCPRO.** 16th EMPRES liaison officers meeting and 13th Steering Committee meeting, Agadir, Morocco (4–8 December)
- **CRC.** 10th Subregional training course on Desert Locust campaigns (December) [tbc]
- **SWAC.** Desert Locust Information Officer workshop, Tehran (15–17 January)
- **CRC/SWAC.** Desert Locust Information Officer workshop, venue tbc (5–8 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 AREAS

- July–September/October
  (Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border)

WINTER RAINS AND BREEDING AREAS

- October–January/February
  (Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara)

SPRING RAINS AND BREEDING AREAS

- February–June/July
  (Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border)

RECESSION

- period without widespread and heavy infestations by swarms.

REMISSION

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

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.

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.

Useful tools and resources

FAO Locust Watch. Information, maps, activities, publications, archives, FAQs, links
http://www.fao.org/ag/locusts
IRI RFE. Rainfall estimates every day, decade and month
http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/index.html
IRI Greenness maps. Dynamic maps of green vegetation evolution every decade
http://iridl.ldeo.columbia.edu/maproom/Food_Security/Locusts/Regional/greenness.html
IRI MODIS. Vegetation imagery every 16 days
http://iridl.ldeo.columbia.edu/maproom/Food_Security/Locusts/Regional/MODIS/index.html
Windy. Real time rainfall, winds and temperatures for locust migration
http://www.windy.com
eLocust3 training videos. A set of 15 introductory training videos are available on YouTube
https://www.youtube.com/playlist?list=PLf7Fc-oGpFHEdv1jAPaF02TCfpcnYoFQT
RAMSESv4 training videos. A set of basic training videos are available on YouTube
https://www.youtube.com/playlist?list=PLf7Fc-oGpFHGyzXqE22j8-mPDhhGNq5So
RAMSESv4 and eLocust3. Installer, updates, videos, inventory and support
https://sites.google.com/site/rv4elocust3updates/home
FAOLocust Twitter. The very latest updates posted as tweets
http://www.twitter.com/faolocust
FAOLocust Facebook. Information exchange using social media
http://www.facebook.com/faolocust
FAOLocust Slideshare. Locust presentations and photos
http://www.slideshare.net/faolocust
eLERT. Online database of resources and technical specifications for locust emergencies
http://sites.google.com/site/elertsite

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: Benin, Burkino Faso, Cameroon, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Nigeria, Sierre Leone and Togo.

CENTRAL

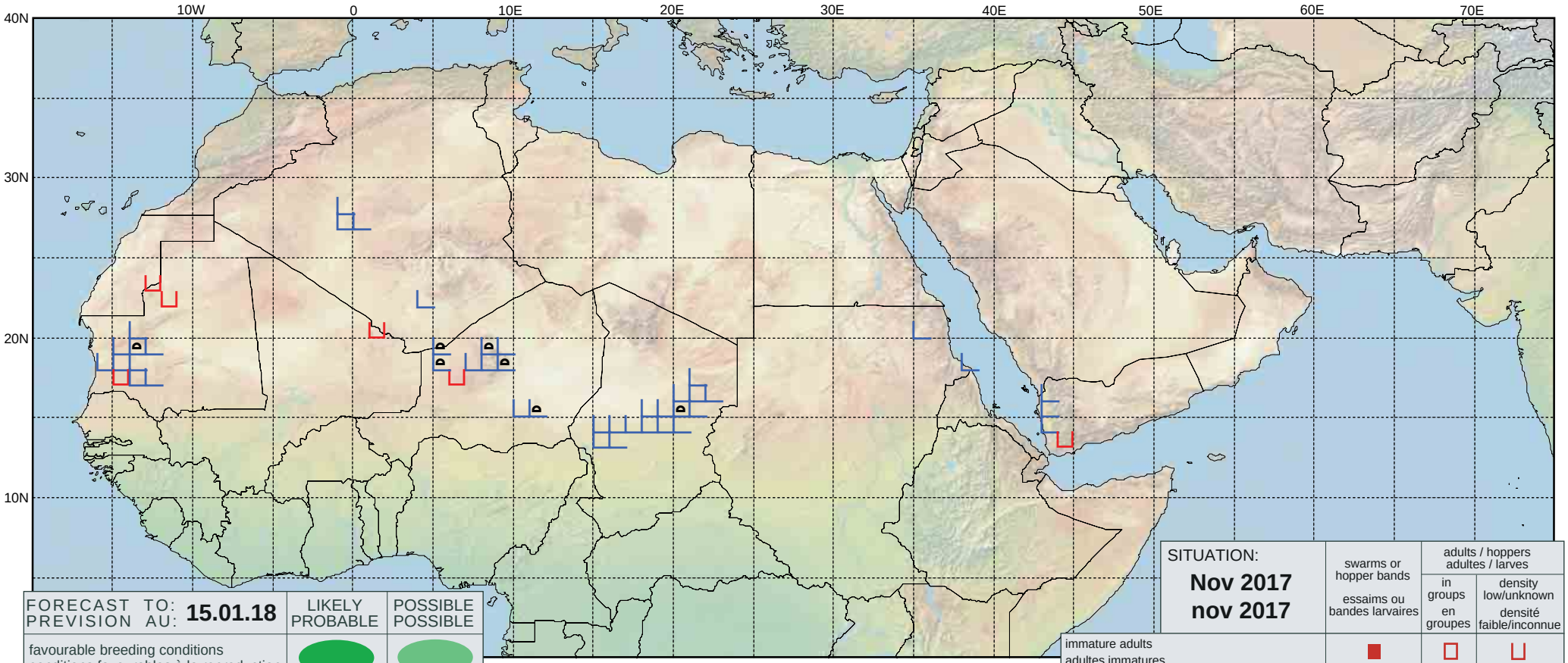
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

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

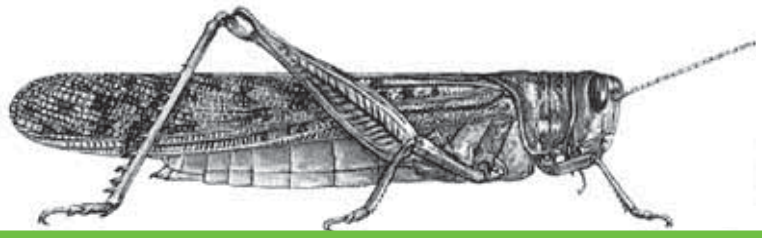
Desert Locust Summary
Criquet pèlerin - Situation résumée

470



FORECAST TO: / PREVISION AU: **15.01.18**	LIKELY / PROBABLE	POSSIBLE / POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **Nov 2017** **nov 2017**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves	
		in groups en groupes	density low/unknown densité faible/inconnue
immature adults adultes immatures			
mature or partly mature adults adultes matures ou partiellement matures			
adults, maturity unknown adultes, maturité inconnue			
egg laying or eggs pontes ou œufs			
hoppers larves			
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)			



warning level: **CALM**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 471**

(3.1.2018)

General Situation during December 2017 Forecast until mid-February 2018

The Desert Locust situation continued to remain calm during December. No significant rain fell and ecological conditions were dry in most areas except in parts of the winter breeding areas along both sides of the Red Sea and in few places of northwest and northern Mauritania. So far, localized breeding has only been detected in one place on the Sudanese coast and in northwest Mauritania where low numbers of solitarious adults were present. Elsewhere, isolated solitarious adults were present in Chad but numbers declined throughout the month. During the forecast period, small-scale breeding is expected to occur primarily on the Red Sea coast in Sudan as well as in areas that receive rainfall along both sides of the Red Sea and Gulf of Aden. However, locust numbers will remain low and no significant development are likely.

Western Region. The situation continued to remain calm during December. No significant rain fell and ecological conditions were mainly dry. Isolated solitarious adults were present in a few places northwest and northern **Mauritania**, in the central and southern Sahara of **Algeria** and in the northern Sahel in **Chad**. Small-scale breeding occurred in northwest Mauritania but locust numbers remained low. During the forecast period, the situation is expected to remain calm. Isolated adults are likely to persist in current areas and may also be present in a few places of the **Western Sahara** in Morocco, and in northern **Mali** and **Niger**.

Central Region. The situation continued to remain calm during December. Although no significant rainfall occurred, ecological conditions were favourable in a few places along both sides of the Red Sea to allow small-scale breeding. No locusts were present in the region except for isolated solitarious adults in a few places on the central and southern coast of the Red Sea in **Sudan**. Limited breeding was detected in one area. During the forecast period, the situation is likely to remain calm. Low numbers of adults are expected to be present in winter breeding areas along both sides of the Red Sea and Gulf of Aden in Sudan, **Eritrea**, **Saudi Arabia**, **Yemen** and perhaps southeast **Egypt** and northern **Somalia**. Based on seasonal precipitation forecasts, small-scale breeding is likely to occur on the Red Sea coast in Sudan and, to a lesser extent, in other places that receive rainfall along both sides of the Red Sea and Gulf of Aden. However, locust numbers will remain low.

Eastern Region. The locust situation continued to remain calm in the region during December. No locusts were reported and no significant developments are likely 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 are available on the Internet.
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Facebook: www.facebook.com/faolocust
Twitter: twitter.com/faolocust

No. 471

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in December 2017

No significant rain fell during December. Ecological conditions were primarily dry and unfavourable for breeding except for some coastal areas on both sides of the Red Sea.

In the **Western Region**, no significant rain fell during December. Light rain may have fallen at mid-month in parts of the central Sahara and Hoggar Mountains in Algeria. Ecological conditions remained generally unfavourable for locust breeding but may be sufficient in some areas for limited survival of low numbers. In West Africa, annual vegetation continued to dry out in western Mauritania, northern Mali, Tamesna and the Air Mountains in northern Niger, and in the northern Sahel of Chad. In Northwest Africa, mainly dry vegetation was present in central and southern Western Sahara of Morocco except for small spots of green vegetation in a few places. In Algeria, vegetation was green in the central Sahara near irrigated farms in the Adrar Valley, and in wadis draining the Hoggar Mountains in the southern Sahara southwest of Tamanrasset and in the east near Illizi.

In the **Central Region**, no significant rain fell during December in winter breeding areas along the Red Sea and Gulf of Aden coasts. Nevertheless, vegetation was green or becoming green in a few places along the central and southern coast of Sudan, on the coast in southeast Egypt and on the northern coast of Saudi Arabia between Thuwal and Al Wajh. Smaller areas of green vegetation were present in subcoastal areas of northeast Sudan, and on the coast in Eritrea near the Sudanese border and on the southern parts of the Akbanazouf Plain. In Oman, good rains fell during the second decade of the month in parts of the northern coast and interior.

In the **Eastern Region**, no significant rain fell in the region during December. Ecological conditions remained unfavourable for breeding in all areas.

Area Treated

No control operations were reported during December.

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During the first week of December, isolated immature and mature solitarious adults persisted in a few places of Tiris-Zemmour near Bir Moghrein (2510N/1135W) and in southwest Adrar near Choum (2118N/1304W). Small-scale breeding occurred between Oujeft (2003N/1301W) and Akjoujt (1945N/1421W) where a few second to fifth instar hoppers were present mixed with isolated immature and mature solitarious adults.

• **FORECAST**

Low numbers of adults will persist in parts of southwest Adrar and Tiris-Zemmour, and could be present in parts of Inchiri. There is a possibility for small-scale breeding if additional rainfall occurs.

Mali

• **SITUATION**

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

• **FORECAST**

Low numbers of adults may be present and could persist in parts of the Adrar des Iforas.

Niger

• **SITUATION**

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

• **FORECAST**

Low numbers of adults are likely to present and will persist in a few places in the Air Mountains and perhaps to a lesser extent in parts of Tamesna.

Chad

• **SITUATION**

During December, locust numbers declined and only isolated mature solitarious adults, at densities of 100–600 adults/ha, were scattered in Kanem and Batha near Salal (1448N/1712E) and southeast of Beurkia (1523N/1800E), and in the northeast between Arada (1501N/2040E) and Fada (1714N/2132E).

• **Forecast**

No significant developments are likely.

Senegal

• **Situation**

No locust activity was reported 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, isolated mature solitarious adults persisted in a few places of the Adrar Valley (2753N/0017W) of the central Sahara and were present in the south between Tamanrasset (2250N/0528E) and the Malian border. No locusts were seen in the east near Illizi (2630N/0825E).

• **Forecast**

Scattered adults may persist in the extreme south near the Mali and Niger borders while others could remain near irrigated cropping areas in the Adrar Valley.

Morocco

• **Situation**

No locusts were seen during surveys carried out in southern and central areas of Western Sahara from south of Bir Anzarane (2353N/1431W) to the Mauritanian border from 27 November to 11 December.

• **Forecast**

Isolated adults may be present in parts of the Western Sahara where small-scale breeding could take place if rainfall occurs.

Libya

• **Situation**

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

• **Forecast**

No significant developments are likely.

Tunisia

• **Situation**

No locust activity was reported during December.

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During the first half of December, isolated immature and mature solitarious adults were present on the Red Sea coast in the Tokar Delta (1827N/3741E) while isolated mature adults were seen on the coast near Suakin (1906N/3719E) and Aiterba (1753N/3819E). Small-scale breeding was detected during the second half of the month at one place near Suakin.

• **Forecast**

Small-scale breeding will occur in areas of recent rainfall along the Red Sea coast and in subcoastal areas of the northeast, causing locust numbers to increase slightly. Limited hatching will commence in early January and hoppers will fledge by mid-February.

Eritrea

• **Situation**

No locusts were seen during surveys carried out on the central Red Sea coastal plains from Wekiro (1548N/3918E) to the Sudanese border on 16–20 December.

• **Forecast**

Small-scale breeding is likely to occur in areas of recent rainfall on the central and northern Red Sea coastal plains.

Ethiopia

• **Situation**

During December, isolated solitarious adults were present at one place in the railway area between Dire Dawa (0935N/4150E) and Ayasha (1045N/4234E). No locusts were seen elsewhere during surveys.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

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

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

No reports were received in December.

• **Forecast**

Low numbers of adults may appear and breed on a small scale on the northwest coast in any areas that receive rainfall. No significant developments are likely.

Egypt

• **Situation**

During December, no locusts were seen on the Red Sea coast from south of Marsa Alam (2504N/3454E) to the Sudanese border, and in the Lake Nasser area near Tushka (2247N/3126E) and Abu Simbel (2219N/3138E).

• **Forecast**

Low numbers of adults may appear and breed on the southeastern coastal plains of the Red Sea in any areas that receive rainfall. No significant developments are likely.

Saudi Arabia

• **Situation**

No locusts were seen during surveys carried out along the Red Sea coastal plains between Al Wajh (2615N/3627E) and the Yemeni border during the first week of December.

• **Forecast**

Low numbers of adults are likely to be present in winter breeding areas on the Red Sea coast and breed on a small scale in any areas that receive rainfall.

Yemen

• **Situation**

No surveys were carried out and no locusts were reported in December due to prevailing insecurity.

• **Forecast**

Small-scale breeding may take place on a limited basis in parts of the Red Sea and Gulf of Aden coastal plains where rainfall occurs.

Oman

• **Situation**

No locusts were seen during surveys carried out in a few places of the Musandam Peninsula, the Batinah coast, and the northern interior south of Adam (2223N/5731E) in December.

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

During December, no locusts were seen during surveys carried out on the southeast coast near Jask (2540N/5746E) and in the interior of the Jaz Murian Basin near Ghale Ganj (2731N/5752E).

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

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

• **Forecast**

No significant developments are likely.

India

• **Situation**

No locusts were seen during survey carried out in Rajasthan and Gujarat in December.

• **Forecast**

No significant developments are likely.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Announcements

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

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- **CLCPRO.** Regional Desert Locust Information Officer workshop, Algiers (9–12 April)
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LARGE

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VERY LARGE

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LIGHT

- 1–20 mm of rainfall

MODERATE

- 21–50 mm of rainfall

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

PLAGUE

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

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

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

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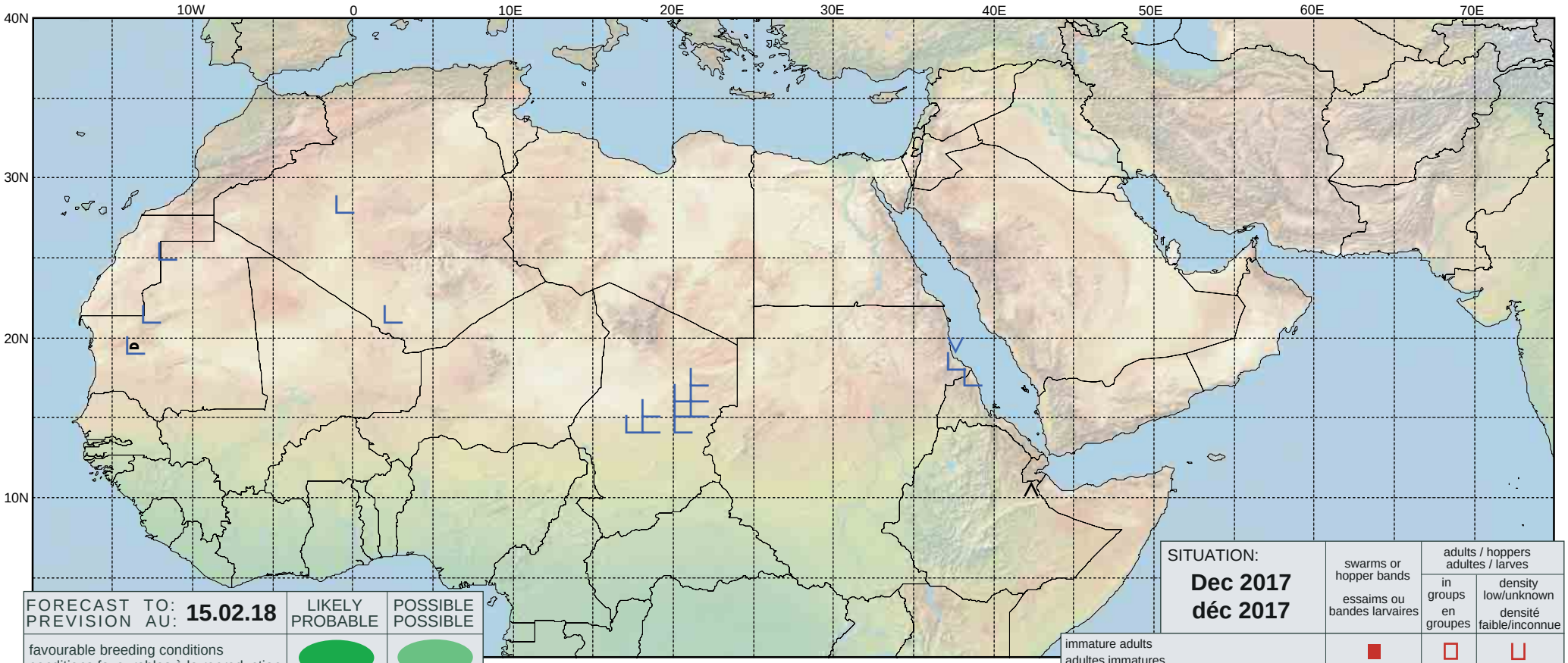
RAMSESv4 training videos. A set of basic training videos are available on YouTube
https://www.youtube.com/playlist?list=PLf7Fc-oGpFHGyzXqE22j8-mPDhhGNq5So
RAMSESv4 and eLocust3. Installer, updates, videos, inventory and support
https://sites.google.com/site/rv4elocust3updates/home
FAOLocust Twitter. The very latest updates posted as tweets
http://www.twitter.com/faolocust
FAOLocust Facebook. Information exchange using social media
http://www.facebook.com/faolocust
FAOLocust Slideshare. Locust presentations and photos
http://www.slideshare.net/faolocust
eLERT. Online database of resources and technical specifications for locust emergencies
http://sites.google.com/site/elertsite

Desert Locust Summary
Criquet pèlerin - Situation résumée

471



FORECAST TO: / PREVISION AU: **15.02.18**	LIKELY / PROBABLE	POSSIBLE / POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **Dec 2017 déc 2017**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves	
		in groups en groupes	density low/unknown densité faible/inconnue
immature adults adultes immatures	■	□	⊔
mature or partly mature adults adultes matures ou partiellement matures	◣	◺	∟
adults, maturity unknown adultes, maturité inconnue	▲	△	∧
egg laying or eggs pontes ou œufs	▼	▽	∨
hoppers larves	●	○	⌓
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)	◘	◙	⊟