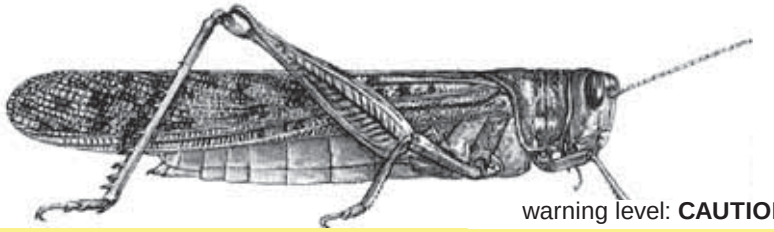

warning level: **CAUTION (Central Region)**

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations

No. 349

(5 November 2007)

General Situation during October 2007
Forecast until mid-December 2007

A Desert Locust outbreak developed during October in northern Sudan where hopper bands and small swarms formed. A few hoppers bands also formed on the Red Sea coast in Sudan and Yemen. This winter will be very important as there is a strong possibility that locust numbers will increase significantly on the Red Sea coast in Sudan and, to a lesser extent, in Yemen during November and December. All efforts should be made to monitor this developing and potentially dangerous situation closely and carefully, and to undertake control as necessary. In the Horn of Africa, a few swarms moved from northern Somalia to eastern Ethiopia where they will probably lay eggs in November. There is a very low risk that some locusts could reach northeastern Kenya.

Western Region. The situation continued to remain calm during October. Small-scale breeding occurred in parts of western and central **Mauritania**, northern **Niger** and northeast **Chad** where locust numbers increased slightly. A similar situation is expected in northern **Mali** but surveys could not be carried out due to insecurity. During the forecast period, locusts could concentrate, increase in number and form a few small groups as vegetation dries out in western Mauritania, on the Tamesna Plains in Niger and in northeast Chad. No locusts were reported in northwest Africa and no significant developments are expected.

Central Region. Locust numbers increased in the summer breeding areas in **Sudan** where small hopper bands and a few swarms formed in the north during October. Although aerial and ground control operations were undertaken, small adult groups and swarms are likely to form in the interior during November and move to the Red Sea coastal plains where they will rapidly mature and lay eggs. Hatching and band formation will occur by mid-December. Although the outbreak ended in the interior of **Yemen**, breeding on the Red Sea coast gave rise to a few hopper bands, and more breeding is expected during the forecast period. Limited breeding will take place along the coast in southeast **Egypt**, northern **Eritrea** and on the coast of **Saudi Arabia** where a few locusts were present in October. Small to moderate scale breeding is likely to occur in the Ogaden in eastern **Ethiopia** where several swarms arrived from northern **Somalia**. Limited ground control operations were carried out in Ethiopia, Saudi Arabia and Yemen in October.

Eastern Region. Locust numbers declined in the summer breeding areas along both sides of the Indo-Pakistan border during October, and a few adults persisted on the coast in southeastern Iran. No significant developments are expected in the Region during the forecast period.

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

Weather & Ecological Conditions in October 2007

Vegetation dried out during October in the summer breeding areas of the Sahel in West Africa and Sudan. Light rains along the Red Sea coast in Sudan, Saudi Arabia and Yemen maintained favourable ecological conditions in the winter breeding areas. Dry weather prevailed in the Eastern Region.

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) began its southward retreat where it remained below 15N over West Africa during October. Consequently, only light rains fell at times, mainly in southern Mauritania in early October. In Mauritania, annual vegetation dried out in the south but remained green in the southwest and west where conditions were favourable for breeding. Similarly, annual vegetation was drying out in northern Mali, Niger and Chad. Ecological conditions remained favourable for breeding in southern Algeria near the Hoggar Mountains and along the Malian border. In Northwest Africa, light rains associated with eastward-moving Mediterranean depressions fell along the southern side of the Atlas Mountains in Morocco and, to a lesser extent, in Algeria.

In the **Central Region**, very little rain fell during October in the summer breeding areas while showers occurred in some areas along the Red Sea coastal plains. In the winter breeding areas, light to moderate rains fell in the Red Sea Hills from southeastern Egypt to the Sudanese/Eritrean border, including parts of the coast near the Egyptian border and in the Tokar Delta in Sudan. Consequently, vegetation was becoming green or already green, and breeding conditions were favourable in the Tokar Delta and improving in the other areas. In Eritrea, ecological conditions were not favourable on the coast as no rain fell except for some showers in the north on the 29th between Mehimet and the Sudanese border. Light to moderate rains fell along the Red Sea coast between Jizan, Saudi Arabia and Mocha, Yemen where ecological conditions continued to be favourable for breeding. In the Horn of Africa, light rains fell on the plateau in northwest Somalia in early October but vegetation remained dry. Light rain may have also fallen in parts of the Ogaden in eastern Ethiopia where breeding conditions could improve if more rains occur.

In the **Eastern Region**, dry conditions prevailed throughout October in the summer breeding areas along both sides of the Indo-Pakistan border. No rains fell and vegetation was drying out.

Area Treated

Egypt	8 ha (October)
Ethiopia	35 ha (1-8 October)
India	21 ha (16-30 September)
Saudi Arabia	15 ha (October)
Sudan	11,212 ha (1-29 October)
Yemen	10 ha (25-30 September)
	384 ha (1-10 October)

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

Small-scale breeding occurred during October in parts of Tagant, northern Brakna, Trarza and southwest Adrar. In these areas, isolated and scattered solitarious hoppers and immature and mature solitarious adults were present. Egg laying and hatching were reported up until the end of the month in southwest Adrar, Tagant and northern Brakna, causing locust numbers to increase slightly, up to 400 hoppers/site.

• **FORECAST**

If rains fall in the northwest (Inchiri and southwest Adrar) and the north (southern Tiris-Zemmour), small-scale breeding could cause locust numbers to increase slightly.

Mali

• **SITUATION**

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

• **FORECAST**

Low numbers of locusts may be present and could persist in those areas that remain green in the Adrar des Iforas.

Niger

• **SITUATION**

Although surveys could not be carried out during October, scattered third to fifth instar solitarious

hoppers and immature adults were reported from one place northwest of Agadez (1700N/0756E) on the 26th and groups of immature solitarious adults were seen 15 km east of Arlit (1843N/0721E) on the 30th.

• **Forecast**

Scattered adults are likely to be present and breeding in parts of Tamesna, in the western Air Mountains and near Tanout. Consequently, locusts could increase, concentrate and form small groups.

Chad

• **Situation**

During September, isolated solitarious mature adults were present in Kanem near Salal (1448N/1712E), in Biltine north of Iriba (1507N/2215E) and in Ennedi between Kalait (1550N/2054E) and Fada (1714N/2132E). Small-scale breeding occurred near Kalait where low numbers of solitarious hoppers of all instars were present. Egg laying was reported near Kalait and Fada after mid-month.

During the first half of October, scattered immature and mature solitarious adults, at densities up to 3,700 adults/ha, persisted in Kanem near Salal (1448N/1712E) and in Ennedi near Kalait (1550N/2054E) and Fada (1714N/2132E). Some adults were seen copulating near Fada early in the month.

• **Forecast**

Locust numbers are expected to increase in the Fada area as hatching occurs early in the forecast period. Elsewhere, locusts are likely to concentrate and could form small groups as vegetation continues to dry out.

Senegal

• **Situation**

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

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

During October, isolated solitarious adults were present in the extreme south along the Malian border near Bir Bou Mokhtar (2120N/0056E).

• **Forecast**

Low numbers of locusts may persist in the south near Tamanrasset and Bir Bou Mokhtar but breeding is unlikely unless additional rainfall occurs.

Morocco

• **Situation**

No locusts were reported during September.

• **Forecast**

Isolated adults may appear in the extreme south of Western Sahara, especially if rainfall occurs.

Libyan Arab Jamahiriya

• **Situation**

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

• **Forecast**

No significant developments are likely.

Tunisia

• **Situation**

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

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During the first week of October, a few small swarms laid eggs and hatching occurred in the northern Baiyuda Desert near Merowe (1830N/3149E). Throughout the month, hopper bands formed and groups of immature and mature adults were present in the Baiyuda between Merowe and Shendi (1641N/3322E), along the Atbara River, northwest of Kassala (1527N/3623E), and on the western side of the Red Sea Hills near Haiya (1820N/3621E) and in Wadi Oko near Tomala (2002N/3551E). The bands were mainly small and consisted of all instars at densities up to 50 hoppers/m^2. By the end of the month, most of the bands were fledging. From the 18th onwards, small immature and mature swarms were seen in the Baiyuda and near Kassala and Haiya. Some of these swarms near Kassala laid eggs.

In the winter breeding areas, groups of immature and mature solitarious and gregarious adults were present on the Red Sea coast in the Tokar Delta at densities up to 2,000 adults/ha, and in the northern subcoastal areas along Wadi Diib at densities up to 650 adults/ha. In the Tokar Delta, egg laying occurred throughout the month. Solitarious, *transiens* and gregarious hoppers formed small groups at densities

up to 12 hoppers/m^2 and, by the last week of the month, a few small late instar hopper bands had formed.

Ground control teams treated 11,212 ha during October of which 418 ha were in the Tokar Delta and 112 ha were with *Metarhizium*. Some aerial control was carried out near Kassala.

• Forecast

Small adult groups and swarms are likely to form in the Baiyuda Desert, along the Atbara River and west of the Red Sea Hills. These locusts are expected to move to the Red Sea coastal plains where they will rapidly mature and lay eggs, primarily in the Tokar Delta and surrounding coastal plains but some could also reach Wadi Diib in the north. Hatching and the formation of groups and perhaps small bands are expected to take place in Tokar and could occur near Kassala where swarms were seen laying eggs in October.

Eritrea

• **Situation**

During October, locust numbers declined on the Red Sea coastal plains because of unfavourable breeding conditions. Only low numbers of solitarious mature adults persisted in a few places near Shelshela (1553N/3906E), Naro (1626N/3840) and Karora (1745N/3820E). Small-scale breeding occurred in crops near Naro where scattered second and third instar solitarious hoppers were seen at mid-month, and adults were copulating in the north near Mehimet (1723N/3833E) during the last week. No locusts were seen between Massawa (1537N/3928E) and Tio (1441N/4057E) during surveys on 9-13 October.

• **Forecast**

Small-scale hatching will take place and locust numbers will increase slightly on the Red Sea coast between Massawa and Karora if rainfall occurs during the forecast period. There is a slight risk of adult groups arriving in the north from adjacent coastal areas in Sudan.

Ethiopia

• **Situation**

During the first decade of October, isolated immature solitarious adults persisted between Dire Dawa (0935N/4150E) and the borders of Djibouti and northern Somalia where about three swarms were seen in late September. In the Ogaden, egg laying occurred north of Warder (0658N/4520E) and small medium-density second instar hopper bands were reported on the 27th at two places. From about the 23rd onwards, there were several reports of mature swarms arriving in the eastern Ogaden from adjacent areas of northern Somalia. These swarms moved west and south and, by the end of the month, a few swarms had reached the Fik area (0808N/4218E) in the west and south of Kebri Dehar (0644N/4416E) near Kelafo (0524N/4410E) and the Shabele River. Survey efforts were hampered by insecurity in the region.

In the Afar region, ground control teams treated 35 ha of hoppers that gregarized at Buldugum (1155N/4129E) in early October.

• **Forecast**

Small to moderate scale breeding is expected to occur in areas of recent rainfall in the Ogaden, giving rise to hopper groups and bands that may form small adult groups and swarms by the end of the forecast period.

Djibouti

• **Situation**

No reports were received during October.

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

During the last week of September, a swarm near Hargeisa was seen moving southeast towards adjacent areas in eastern Ethiopia. Immature and mature solitarious adults were present at a few places on the coastal plains west of Berbera (1028N/4502E).

In early October, groups of mature adults were seen in the northeast near Gardo (0930N/4905E). During the second week, there were several reports of locusts further south between Garowe (0824N/4828E) and Galkayo (0642N/4725E). Some of these were seen crossing into eastern Ethiopia. Shortly after mid-month, there were reports of several swarms southeast of Burao (0931N/4533E) along the border with Ethiopia. The situation was reported to be calm at the end of the month.

• **Forecast**

Unless further rainfall occurs, only scattered adults are likely to remain in some areas on the plateau between Boroma and Gardo, and the northwest coastal plains

Kenya

• **Forecast**

There is a very low risk that a few small adult groups or swarms could reach the northern part of the North Eastern Province from adjacent areas of

southeastern Ethiopia and eventually lay eggs in areas of recent rainfall.

Egypt

• **Situation**

During October, scattered solitarious mature adults were present on the Red Sea coastal plains near Abu Ramad (2224N/3624E) and Wadi Diib. At the end of the month, some adults were copulating. Isolated immature solitarious adults were present along the western side of Lake Nasser near Tushka (2247N/3126E), and ground teams treated 8 ha of solitarious and *transiens* mature adult groups.

• **Forecast**

Small-scale breeding is likely to occur in the southeast on the coastal plains between Abu Ramad and Halaib and in Wadi Diib. Isolated adults may persist near Lake Nasser.

Saudi Arabia

• **Situation**

During October, isolated immature and mature solitarious adults were present on the Red Sea coast near Jizan (1656N/4233E), Qunfidah (1909N/4107E), Rabigh (2247N/3901E) and Yenbo (2405N/3802E). Ground teams treated 15 ha near Yenbo and an infestation of adults at densities of 200-500 adults/ha near Medina. No locusts were reported in the interior.

• **Forecast**

Small-scale breeding is likely to occur along parts of the Red Sea coast, especially in areas of recent rainfall or where rains fall during the forecast period, causing locust numbers to increase slightly.

Yemen

• **Situation**

During October, small locust infestations were present along the coastal plains of the Red Sea and Gulf of Aden. Small-scale breeding continued in the north near Suq Abs (1600N/4312E) and on the central plains between Hodeidah and Bayt Al Faqih (1430N/4317E). Hoppers of all instars formed a few small bands in the north and small groups at densities up to 20 hoppers/m^2 on the central coast. Ground control treated 384 ha on 1-10 October. Solitarious fledglings, immature and mature adults at densities less than 1,000 adults/ha were also present in both areas. Some of the adults were copulating early in the month.

Immature and mature solitarious adults, at densities less than 500 adults/ha, were scattered along the Aden coast from west of Aden to east of Zinjibar (1306N/4523E). Most of the locusts were concentrated in the Am Rija (1302N/4434E) area, and some were *transiens* in appearance. A few adults were seen copulating early in the month, hatching occurred during the second half of the month and scattered first and second instar solitarious hoppers were present at densities of 2 hopper/m^2 during the last week.

In the summer breeding areas of the interior, *transiens* and gregarious mature adults were present near Minwakh (1650N/4812E) during the first week of October. Thereafter, no further surveys were conducted.

• **Forecast**

Small groups, hopper bands and perhaps a few very small swarms could form in some areas along the Red Sea coastal plains. If more rains fall, another generation of breeding will occur that would cause locust numbers to increase further. On the Gulf of Aden coast, breeding could continue if more rains fall; otherwise, only low numbers of locusts are likely to persist.

Oman

• **Situation**

No locusts were seen during surveys carried out on the northern Batinah coast and on the Musandam Peninsula during October.

• **Forecast**

No significant developments are likely.

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

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

A late report indicated that scattered mature solitarious adults, at densities up to 500 adults/ha, were present during the last week of September along the southeastern coast between Chabahar (2517N/6036E) and the Pakistani border. No locusts were seen in the interior between Kahnuj (2757N/5742E) and Bampur (2711N/6028E).

During October, isolated mature solitarious adults persisted at a few places near Chabahar. No locusts were seen on the Persian Gulf coast west of Bander-e Lengheh (2634N/5452E).

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

During October, scattered immature and mature adults at densities up to 350 adults/ha persisted near the Indian border southeast of Rahimyar Khan (2822N/7020E). By the end of the month, locust numbers were declining.

• **Forecast**

No significant developments are likely.

India

• **Situation**

During the last half of September, ground teams treated 21 ha of first to third instar hoppers west of Jodhpur near Phalodi (2706N/7222E).

No locusts were seen during surveys carried out in Gujarat during the first half of October.

• **Forecast**

No significant developments are likely.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Announcements

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

eLocust2. FAO has developed a new version of eLocust in collaboration with affected countries and the French Space Agency (CNES/Novacom) that allows field officers to enter survey and control data directly in the field and transmit it in real time via satellite to their national locust centre. Data can also be downloaded to a PC and visualized on GoogleEarth. The software is in both English and French. FAO DLIS has distributed units to nearly all of the frontline countries. Photos and more information are available at: www.fao.org/ag/locusts/en/activ/DLIS/index.html

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

EMPRES/CRC website. Detailed information on EMPRES/CR and the FAO Central Region Commission as well as member country profiles can be found on the new EMPRES/CRC website at: www.crc-empres.org.

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

New information on Locust Watch. DLIS launched a new initiative in October called *Desert Locust e-info news* as a means of keeping everyone informed on a weekly basis of new information on the Locust Group's web page, Locust Watch (www.fao.org/ag/locusts). The latest additions are:

- **Locust situation.** Several updates during October (home page and in Archives section)
- **FAO Technical Series.** No. 34 – Review of the efficacy of *Metarhizium anisopliae* var. *acridum* (Publications section)
- **Guidelines.** *Metarhizium* field trials (Publications section)

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

2007 events. The following meetings are scheduled:

- **EMPRES/WR**. 6th Liaison Officers Meeting (26-30 November) and 3rd Steering Committee (3-4 December), Agadir (Morocco)
- **EMPRES/WR**. RAMSES and eLocust2 evaluation workshop (6-8 December), Agadir (Morocco)

Glossary of terms

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

NON-GREGARIOUS ADULTS AND HOPPERS

ISOLATED (FEW)

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

SCATTERED (SOME, LOW NUMBERS)

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

GROUP

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

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL

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

SMALL

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

MEDIUM

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

LARGE

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

VERY LARGE

- swarm: 500+ km^2 • band: 50+ ha

RAINFALL

LIGHT

- 1 - 20 mm of rainfall.

MODERATE

- 21 - 50 mm of rainfall.

HEAVY

- more than 50 mm of rainfall.

OTHER REPORTING TERMS

BREEDING

- the process of reproduction from copulation to fledging.

SUMMER RAINS AND BREEDING

- July - September/October

WINTER RAINS AND BREEDING

- October - January/February

SPRING RAINS AND BREEDING

- February - June/July

DECLINE

- a period characterised by breeding failure and/or successful control leading to the dissociation of swarming populations and the onset of recessions; can be regional or major.

OUTBREAK

- a marked increase in locust numbers due to concentration, multiplication and gregarisation which, unless checked, can lead to the formation of hopper bands and swarms.

UPSURGE

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

PLAGUE

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

RECESSION

- period without widespread and heavy infestations by swarms.

REMISSION

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

WARNING LEVELS

GREEN

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

YELLOW

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

ORANGE

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

RED

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

REGIONS

WESTERN

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

CENTRAL

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

EASTERN

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

Desert Locust Summary
Criquet pèlerin - Situation résumée

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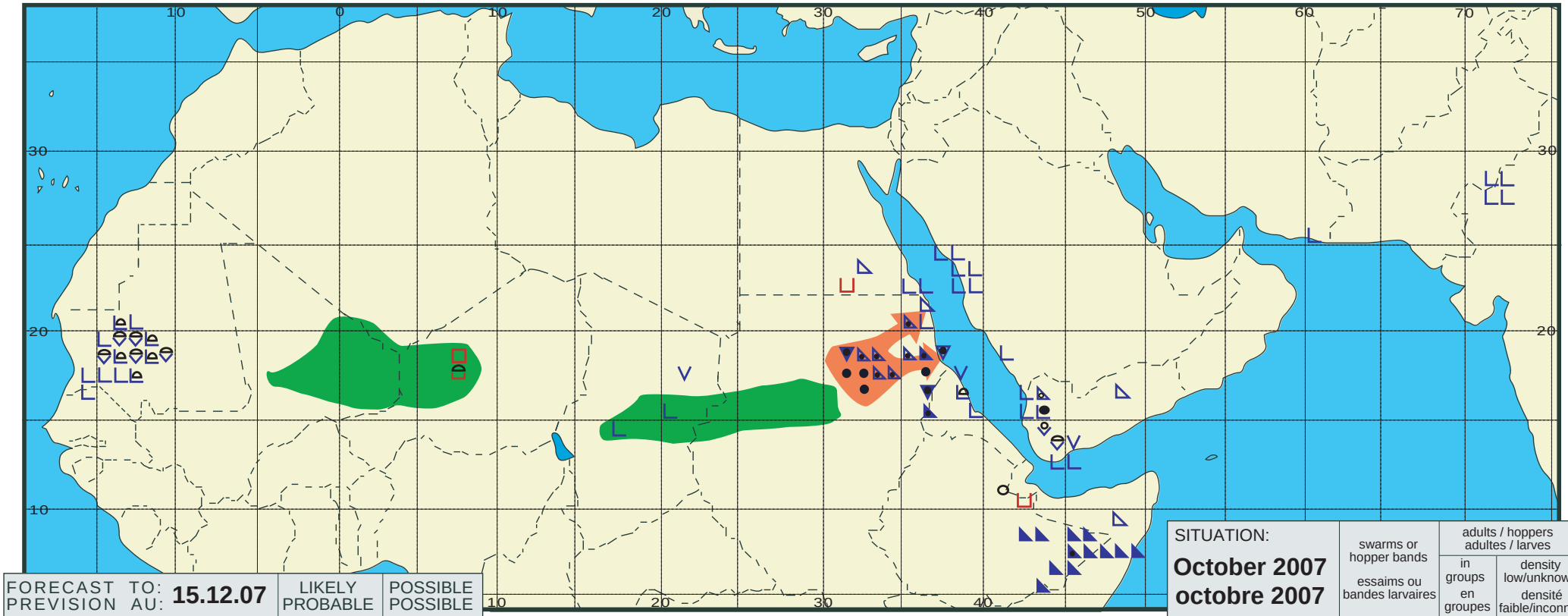

FORECAST TO: / PREVISION AU: **15.12.07**	LIKELY / PROBABLE	POSSIBLE / POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **October 2007 octobre 2007**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves in groups en groupes	density low/unknown densité faible/inconnue
immature adults adultes immatures	■	□	⊔
mature or partly mature adults adultes matures ou partiellement matures	◣	◺	L
adults, maturity unknown adultes, maturité inconnue	▲	△	⋀
egg laying or eggs pontes ou œufs	▼	▽	V
hoppers larves	●	○	◡
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)	◘	◙	⊎