



DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations



No. 338

(4 December 2006)



General Situation during November 2006 Forecast until mid-January 2007

Small hopper bands formed during November in northwest Mauritania and in southern Western Sahara from of an outbreak that occurred in October. Small groups of hoppers and adults formed in Mali and Niger as vegetation dried out. Ground teams in Mauritania, Western Sahara and Niger treated 3,200 ha. Limited infestations are expected to persist in these countries in the coming months and, unless further rainfall occurs, breeding should end. Small-scale breeding started along the Red Sea coast in Sudan and Eritrea, while only isolated adults were present in Yemen. Breeding is expected to occur during the forecast period on both sides of the Red Sea causing locust numbers to gradually increase. The situation remained calm in Southwest Asia.

Western Region. Ground control operations treated nearly 900 ha of hopper bands and groups in northwest Mauritania and 600 ha in Western Sahara during November. In Mauritania, these operations were supplemented with biological control trials using *Metarhizium*. As little rain fell during November, the infestations were limited to just a few areas and should remain so unless more rains fall. Although low temperatures will delay egg development and locust maturation, there is a risk of adults moving further north to northern Mauritania and the Draa Valley in Morocco during periods of warm southerly winds. Surveys could not be carried out in northeast Mali but small groups of hoppers and adults formed further west near Tombouctou as well as further east on the

Tamesna Plains in Niger. Ground teams treated 1,700 ha in Niger. As vegetation continues to dry out in Mali and Niger, locusts will concentrate in the few areas that remain green where they could form small groups. No locusts were reported elsewhere in the region.

Central Region. Isolated solitarious adults were present and laying eggs in a few places on the Red Sea coastal plains in Sudan and Eritrea. Solitarious adults were also reported on the Red Sea coast in Yemen. Small-scale breeding is expected to occur during the coming months along parts of the Red Sea coast between southeast Egypt and central Eritrea as well as from the central coast in Saudi Arabia to Yemen. The extent of the breeding will depend on rainfall during the forecast period. Consequently, all efforts should be made to monitor these areas closely on a regular basis.

Eastern Region. Low numbers of solitarious adults persisted in a few places in Rajasthan, India during November. Limited breeding occurred in one area that was flooded in August. No significant developments are expected during the forecast period in the region.

The FAO Desert Bulletin is issued monthly, supplemented by Updates during periods of increased Desert Locust activity, and is distributed by e-mail, FAO pouch and airmail by the Locusts and Other Migratory Pests Group, AGP Division, FAO, 00100 Rome, Italy. It is also available on the Internet.

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Weather & Ecological Conditions in November 2006

No significant rainfall occurred during November in the Western Region and vegetation remained green only in parts of Mauritania, Western Sahara, Algeria and Niger. Sporadic rains fell along parts of the Red Sea coast and breeding conditions improved. Vegetation remained green along both sides of the Indo-Pakistan border from August flooding.

In the **Western Region**, no significant rain was reported or is thought to have occurred in the Desert Locust breeding areas in the Sahel in West Africa during November. Nevertheless, vegetation remained green in northwest Mauritania (Inchiri, Dakhlet Nouadhibou, southwest Adrar) but was drying out further south in Trarza (Aouker, Aguilal Faye). In Mali, vegetation was drying out or already dry in most places except for one area about 150 km northeast of Tombouctou towards Ti-n-kar. Vegetation remained mostly green on the Tamesna Plains in Niger but was starting to dry out in a few places by the end of the month. Vegetation was dry south of 17N and Tassara. In Northwest Africa, light rain fell at times in parts of central Algeria between Tamanrasset and In Salah and in southern Tunisia. Light to moderate rains fell on 5-6 November in northwest and central Libya in the Al Hamada Al Hamra area and between Sabha and Mizda, causing some wadis to flood. There were also reports of some wadis flooded in the southwest near Ghat. Green vegetation was present in the southern part of Western Sahara between the Mauritanian border and Awssard but, by the end of the month, there were the first signs that some vegetation was starting to dry out. Vegetation was dry further north in Western Sahara and in western Algeria. Elsewhere in Algeria, vegetation was green near Adrar and Illizi, and in the south and southeast between the Mali border and Tamanrasset.

In the **Central Region**, rain fell sporadically during November in winter breeding areas along the Red Sea coastal plains. Good rains and flooding occurred on the coast of southeastern Egypt between Abu Ramad and the Sudanese border on 1-4 November. Rains also fell along parts of coast of Sudan (between

Suakin and Mohamed Qol), Eritrea (between Karora and Mehimet (76 mm on 22-23 November), and near Shieb), Saudi Arabia (near Jizan) and Yemen. Vegetation was already green from October rainfall in parts of the central and northern coast of Eritrea (from Shieb to the western Akbanazouf Plains, near Mersa Cuba and Mehimet) and on the central Tihama coast in Yemen but was drier near the Yemen / Saudi Arabia border. Vegetation started to become green along the central coast of Sudan and in some places to the west of the Red Sea Hills near Wadi Diib, and on the Gulf of Aden coastal plains in southern Yemen during November.

In the **Eastern Region**, no significant rain fell during November. Nevertheless, ecological conditions remained favourable for breeding in parts of Barmer and Jaisalmer districts in India and in Tharparkar, Pakistan where unusually heavy rains and flooding occurred in August. Light showers fell in the northern interior of the spring breeding areas in Baluchistan, Pakistan at Dalbandin and Nushki. Lighter rain fell in the central interior at Panjgur.



Area Treated

Mauritania	894 ha (1-30 November)
Morocco	600 ha (16-28 November)
Niger	1,706 ha (23-30 November)



Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• SITUATION

During November, small hopper bands continued to develop in the northwest province of Inchiri where late instar bands were present in two areas southwest of Bennichab (1932N/1512W). Similar infestations were found in two additional areas, one near the Banc d'Arguin National Park and the other about 150 km towards the north near the Western Sahara border. The hopper bands were small, varying from 5 to 4,000 m² in size, at densities of 5-120 hoppers/m². Low numbers of solitary hoppers and mature adults were also present in Inchiri. A few of the adults were copulating. Locust populations declined west and northwest of the Tagant Plateau in the Aftout Faye region (ca. 18N/14W) of northern Trarza, extending to nearly Chinguetti (2027N/1221W) in southwest Adrar.

Mainly isolated and scattered solitary and *transiens* hoppers and adults persisted except at one location near Lebheir (1936N/1235W) where hoppers and fledglings at densities of 2 locusts/m² were present mixed with adults. The situation improved during the second half of November as locust numbers continued to decline in all areas. Ground control teams treated 894 ha on 1-30 November.

• **FORECAST**

Low numbers of locusts will persist in the northwest (Inchiri, Dakhlet Nouadhibou, Trarza and southwest Adrar) and continue to breed on a limited basis in a few places. Consequently, some hatching may be expected from mid December onwards. If good rains fall, breeding is likely to be on a somewhat larger scale and would cause locust numbers to increase more. During periods of warm southerly winds, some adults could move further north to Tiris-Zemmour and eventually breed in any areas that receive rainfall. In any case, cool temperatures will delay egg development and locust maturation in the northwest and north.

Mali

• **SITUATION**

During November, a few immature solitary and *transiens* adults were seen during surveys carried out to the west of Tombouctou (1649N/0259W) as well as northeast of Tombouctou towards Ti-n-kar (1926N/0022W). In the latter area, part of a 200 ha immature swarm was reported on 19 November at El Blod (1832N/0210W) with an estimated density of 30 adults/m². Nearby, fourth and fifth instar *transiens* hoppers formed small groups at densities of 15-25 hoppers/m² at two locations during the last week of the month. Elsewhere, no locusts were seen during surveys in the west and centre between Kayes (1426N/1128W) and Tombouctou. No surveys could be undertaken in the Timetrine, Tilemsi Valley, Adrar des Iforas and Tamesna.

• **FORECAST**

Scattered hoppers and adults are almost certainly present and breeding on a small scale in parts of Timetrine, Tilemsi Valley, Adrar des Iforas and Tamesna. Low numbers of locusts are expected to persist during the forecast period in any areas that remain green in the northeast.

Niger

• **SITUATION**

During November, small-scale breeding continued over a large portion of Tamesna north of 17N where mainly low numbers of solitary hoppers of all instars were present. Late instar solitary and *transiens* hoppers and immature adults formed small groups at about 30 places between In Abangharit

(1754N/0559E) and Tassara (1650N/0550E). By the last week of the month, hopper group densities increased to 50 hoppers/m². Ground control teams treated 1,706 ha on 23-30 November.

South of Tamesna, scattered immature and mature solitary adults were seen between Tassara and the Mali border.

• **FORECAST**

Unless rainfall occurs, breeding will decline in the Tamesna as vegetation dries out. Consequently, hoppers and adults are expected to concentrate in the few areas that remain green where they could form a few small groups.

Chad

• **SITUATION**

A late report indicated that small-scale breeding occurred near Fada (1714N/2132E) in October where low numbers of mature solitary adults and third to sixth instar hoppers were present at a few places. Isolated adults were also seen about 100 km to south near Kalait (1550N/2054E) as well as near Arada (1501N/2040E) and in parts of northern Batha.

No reports were received during November.

• **FORECAST**

No significant developments are likely.

Senegal

• **SITUATION**

No locusts were reported during the first two decades in November.

• **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**

No locusts were seen during surveys carried out in November in the west near Tindouf (2741N/0811W), in the central Sahara near Adrar (2753N/0017W) and In Salah (2712N/0229E), in the southeast near Illizi (2630N/0825E) and Djanet (2434N/0930E), and in the southern Sahara near Tamanrasset (2250N/0528E) and along the borders of Mali and Niger.



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• FORECAST

Low numbers of adults could appear in the west and in the south during periods of warm southerly winds.

Morocco

• SITUATION

In Western Sahara, breeding occurred during November in one limited area of about 35 km by 25 km in the Adrar Souttoug region southwest of Awssard (2240N/1410W). Low numbers of first to third instar hoppers were first seen on 5 November. At mid-month, hoppers of all instars were forming up to 50 small groups and bands, each about 400 m² in size and at densities of 30-40 hoppers/m², within areas of less than 50 ha. This suggests that egg laying occurred during the second half of September and early October while hatching started in the second week of October. Isolated solitary and *transiens* immature and mature adults were reported nearby. Ground control operations treated 600 ha on 16-28 November.

Further north in Western Sahara, isolated solitary adults were maturing at a few places near Bir Anzarane (2353N/1431W) and Guelta Zemmur (2508N/1223W) in early November.

• FORECAST

Unless rainfall occurs, small-scale breeding should end in Western Sahara. If temperatures remain warm, fledging will commence in early December; otherwise, it could be delayed by several weeks due to low temperatures. Consequently, there is a risk that adult numbers will increase and a few small groups and swarmlets could form during the forecast period. If so, these are likely to remain in Western Sahara except during periods of warm southerly winds when they could move further north towards the Draa Valley.

Libyan Arab Jamahiriya

• SITUATION

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

• FORECAST

Scattered adults may be present in parts of the Al Hamada Al Hamra and near Ghat where small-scale breeding could occur in areas of recent rainfall and cause locust numbers to increase slightly.

Tunisia

• SITUATION

No locusts were reported during November.

• FORECAST

No significant developments are likely.

CENTRAL REGION

Sudan

• SITUATION

During the first week of November, isolated mature solitary adults were seen at four places on the Red Sea coast between Port Sudan (1938N/3707E) and south of Suakin (1908N/3717E). Small-scale laying and hatching is thought to have occurred in some places including the Tokar Delta. At the end of the month, similar populations were seen in crops at one place near Tomala (2002N/3551E) along Wadi Oko in the northeast. Some of the adults were reported to be copulating. No locusts were seen during surveys on the coast between Suakin and the Eritrean border.

Surveys were also carried out in the summer breeding areas north of Khartoum, but no locusts were seen in the Baiyuda Desert or east of Shendi (1641N/3322E) along Wadi El Hawad.

• FORECAST

Locust numbers will increase slightly as small-scale breeding continues along the Red Sea coastal plains and in Wadi Oko/Diib. Hatching is likely to continue during December, and fledging could start by the end of the year.

Eritrea

• SITUATION

Isolated mature solitary adults were present and laying eggs at a few places on the Red Sea coastal plains on the western side of the Akbanazouf Plain (1555N/3910E), near the sea at Mersa Cuba (1616N/3911E), and between Mehimet (1723N/3833E) and the Sudanese border during the first week of November.

• FORECAST

Small-scale breeding will continue in areas of recent rainfall on the Red Sea coastal plains between Massawa and the Sudanese border. Hatching will take place early in the forecast period and the resulting hoppers are expected start fledging by late December or early January. Consequently, locust numbers will increase, and all efforts should be made to monitor the situation closely.

Ethiopia

• SITUATION

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

• FORECAST

No significant developments are likely.

Djibouti

• SITUATION

No locusts were seen during surveys carried out on 23-26 November on the coast near the capital as well as along the Gulf of Tadjourah or in inland areas near Tadjourah (1147N/4253E) and Obock (1157N/4317E).

• FORECAST

No significant developments are likely.

Somalia

• SITUATION

No locusts were reported during November.

• FORECAST

No significant developments are likely.

Egypt

• SITUATION

No locusts were seen during surveys carried out during November in the northwest near Salum (3131N/2509E) and Siwa (2912N/2531E) and along the shore of Lake Nasser from Abu Simbel (2219N/3138E) to Garf Husein (2317N/3252E). At the end of the month, no locusts were seen during surveys in the Red Sea Hills between Marsa Alam (2504N/3454E) and Shalatyn (2308N/3535E).

• FORECAST

Low numbers of solitary adults are likely to be present and will breed in areas of recent rainfall on the Red Sea coastal plains between Shalatyn and the Sudanese border.

Saudi Arabia

• SITUATION

No locusts were reported from the Mecca, Al Jawf and Asir regions during November.

• FORECAST

Scattered adults may appear along parts of the Red Sea coastal plains between Rabigh and Jizan where they could breed on a small-scale in areas of recent rainfall, causing locust numbers to increase slightly during the forecast period. All efforts should be made to monitor the situation closely.

Yemen

• SITUATION

During November, isolated solitary immature and mature adults were present at a few places on the Red Sea coast between Suq Abs (1600N/4312E) and Al Zuhrah (1541N/4300E), and on the central plains between Bajil (1458N/4314E) and Bayt Al Faqih (1430N/4317E). No locusts were seen during surveys carried out along the Gulf of Aden coast.

• FORECAST

Low numbers of locusts are expected to persist on the Red Sea coastal plains and breed on a small-scale. Limited breeding could also occur in areas

of recent rainfall on the Gulf of Aden coastal plains. Consequently, locust numbers will increase slightly during the forecast period. All efforts should be made to monitor the situation closely.

Oman

• SITUATION

No locusts were seen during surveys carried out on the northern Batinah coast from Sohar (2421N/5644E) to the Musandam Peninsula during November.

• 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

No reports were received during November.

• FORECAST

No significant developments are likely.

Pakistan

• SITUATION

No locusts were reported during November.

• FORECAST

No significant developments are likely.

India

• SITUATION

A late report indicated that scattered immature and mature adults were present in Jaisalmer District west of Sam (2649N/7030E) during October and there was one report of laying.

During November, low numbers of solitary adults persisted at eight places west of Sam and laying was reported at one of these locations on the 9th. Adults were also seen at two places near Phalodi (2706N/7222E). No locusts were seen elsewhere in Rajasthan during surveys.

• FORECAST

Isolated hoppers are likely to be present near Jaisalmer and will fledge by the end of the forecast period. No significant developments are likely.



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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 locust outbreaks, upsurges and plagues, RAMSES output files with a brief interpretation should be sent twice/week and affected countries are 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 has been established to indicate the seriousness of the current Desert Locust situation: green for *calm*, yellow for *caution* 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. Your feedback on the usefulness of this scheme and any suggested improvements is welcome.

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.

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:

- **DLCC.** Final report of 38th session held in Rome (September 2006)
 - **Mauritania forecast.** Six month forecast for Northwest Africa to May 2007 (issued 13 November)
 - **Mauritania photos.** Pictures of infestations and ground operations (October-November 2006)
 - **FAO Technical series No. 33.** Environmental impact of Barrier Treatments against Locusts
- Links to the above information can be found in the new *Latest Additions* section on Locust Watch.

2006-07 events. The following meetings are scheduled:

- **EMPRES/WR.** 5th Liaison Officer Meeting, Nouakchott (Mauritania), 4-7 December
- **CLCPRO.** 3rd Executive Committee, Nouakchott (Mauritania), 8-9 December
- **World Bank.** Mid-Term review of the World Bank Africa Emergency Locust Project, Nouakchott (Mauritania), 11-15 December
- **IFAD.** Kick-off meeting of IFAD research project, Nouakchott (Mauritania), 16-17 December
- **EMPRES/WR.** 2nd Session of the Steering Committee, Bamako (Mali), 22-24 January
- **Alternative control.** Workshop on alternatives to conventional locust control methods, Dakar (Senegal), 12-15 February

Morocco accident. It is with deep regret that we announce the deaths of two National Locust Control Centre staff, Mr. Riyahi Hamdia (driver) and Mr. Omar Al Hilali (survey officer), as a result of an accident near Guelmim, Morocco on 7 October. We would like to express our sincere condolences to their families and government.



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 km² • band: 1 - 25 m²

SMALL

- swarm: 1 - 10 km² • band: 25 - 2,500 m²

MEDIUM

- swarm: 10 - 100 km² • band: 2,500 m² - 10 ha

LARGE

- swarm: 100 - 500 km² • band: 10 - 50 ha

VERY LARGE

- swarm: 500+ km² • band: 50+ ha

RAINFALL

LIGHT

- 1 - 20 mm of rainfall.

MODERATE

- 21 - 50 mm of rainfall.

HEAVY

- more than 50 mm of rainfall.

OTHER REPORTING TERMS

BREEDING

- the process of reproduction from copulation to fledging.

SUMMER RAINS AND BREEDING

- July - September/October

WINTER RAINS AND BREEDING

- October - January/February

SPRING RAINS AND BREEDING

- February - June/July

DECLINE

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

OUTBREAK

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

UPSURGE

- a period following a recession marked initially by a very large increase in locust numbers and contemporaneous outbreaks followed by the

production of two or more successive seasons of transient-to- gregarious breeding in complimentary seasonal breeding areas in the same or neighbouring Desert Locust regions.

PLAGUE

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

RECESSION

- period without widespread and heavy infestations by swarms.

REMISSION

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

WARNING LEVELS

GREEN

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

YELLOW

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

RED

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

REGIONS

WESTERN

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

CENTRAL

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

EASTERN

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



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Desert Locust Summary

Criquet pèlerin - Situation résumée

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FORECAST TO: PREVISION AU: 15.01.07	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favorables 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 2006 nov 2006	swarms or hopper bands	adults / hoppers adultes / larves	
	essaims ou bandes larvaires	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)			