

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations



No. 310



General Situation during July 2004
Forecast until mid-September 2004

(4 Aug 2004)

The Desert Locust situation worsened during July as a substantial number of swarms from Northwest Africa invaded West Africa and laid eggs. Swarms were reported in Mauritania, Senegal, Mali and Niger, disrupting the summer planting season. Hatching has started in most of these countries and hopper bands are forming. In the coming weeks, more swarms are likely to appear in West Africa, including Chad, and some may reach western Sudan. Thereafter, breeding will cause locust numbers to increase further and new swarms could start to form by mid-September. In Northwest Africa, control operations declined in Morocco, Algeria and Libya where the situation was becoming calm by the end of July.

Western Region. Numerous swarms escaped control operations in the spring breeding areas in Northwest Africa and migrated to West Africa where they reached the pastures and cropping areas of the Sahel and dispersed within a large area, extending from Senegal to Niger and probably Chad. More swarms are likely to appear in the coming weeks in these countries and there is a slight risk that some could reach northern Burkina Faso. It was reported that some farmers were no longer planting seeds due to the locust threat. A few swarms were reported in the Cape Verde Islands. Favourable ecological conditions allowed the swarms to mature quickly and lay eggs in southern Mauritania, northern Senegal, Mali and Niger. By the end of July, large-scale

hatching started along the Senegal River and in southern Mauritania, and hoppers were forming many dense bands. More breeding will occur during August and September, and new swarms could start to form by mid-September. Soon after this, the swarms are likely to move towards the north and northwest unless conditions remain unusually favourable in the Sahel to allow another generation of breeding. Swarms are not expected to move further south in West Africa until about October on winds associated with the southern movement of the Inter-Tropical Convergence Zone. Intensive control operations continued in early July against swarms in Morocco, Algeria and Libya but declined thereafter as the situation improved. No reports were received from Tunisia.

Central Region. Scattered adults were present in the summer breeding areas in the interior of Sudan and Yemen during July. Small-scale breeding is expected to occur in both areas during August. So far, no locusts have been reported from Darfur in western Sudan but the threat of swarms arriving from Northwest Africa remains high until the end of August. Limited control operations were carried out in several farms in southern Egypt against Desert Locust adults mixed with other locust and grasshopper species.

Eastern Region. Breeding conditions improved during July along both sides of the Indo-Pakistan border where monsoon rains continued in some areas. Only a few isolated adults were reported in Pakistan. No significant developments are likely during the forecast period.

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

Telephone: +39 06 570 52420 (7 days/week, 24 hr)

Facsimile: +39 06 570 55271

E-mail: ecl@fao.org

Internet: www.fao.org

DLIS: www.fao.org/news/global/locusts/locuhome.htm



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Weather & Ecological Conditions in July 2004

Good rains fell and ecological conditions improved throughout the summer breeding areas in the Sahel in West Africa and Sudan during July. Conditions also improved on both sides of the Indo-Pakistan border.

In the **Western Region**, the position of the Inter-Tropical Convergence Zone (ITCZ) over the Sahel fluctuated more than usual during July, generally oscillating between 16N and 20N and occasionally reaching northern Mauritania (25N), northwestern Mali (24N) and southern Algeria (23N). Consequently, light to moderate rain fell throughout the summer breeding areas in the Sahel from Mauritania to Chad as well as in southern Algeria. Rainfall was heaviest in southern Mauritania (Boutilimit-Kiffa), in western and central Mali (Kayes-Nioro, Tombouctou) and in Niger (Agadez, Air Mountains). Moderate to heavy rain fell at times in northern Senegal. Showers may have also occurred in remote areas where rain rarely falls such as along the Mauritanian/Malian border (north of Ouargla and Tombouctou to 20N), the Algerian/Malian border, eastern Niger (Termit-Bilma), Tibesti in northwestern Chad and the Mourdi Depression in northeastern Chad. By the end of the month, breeding conditions had become favourable in most areas in the Sahel. In Northwest Africa, only a few localized showers fell and ecological conditions continued to dry out and become unfavourable.

In the **Central Region**, light to moderate rain fell in the summer breeding areas in the interior of Sudan (White Nile, Northern Kordofan, Darfur) and Yemen (Marib to Ataq), and on the Red Sea coast in Yemen and Jizan, Saudi Arabia during July. Moderate to heavy rain associated with the Karan (summer) season fell on the plateau in northwestern Somalia between Hargeisa and Boroma. Consequently, breeding conditions improved in all of these areas throughout the month. Unusual rainfall occurred on the Red Sea coast in Sudan where some wadis were reported to be flooded.

In the **Eastern Region**, the monsoon rains continued in parts of the summer breeding areas



Area Treated

More than 1.75 million ha were treated in July, bringing the total area treated since October 2003 to nearly 6.4 million ha.

Algeria	1,013,823 ha	(25 June - 24 July)
Cape Verde	16 ha	(8-9 July)
Egypt (1)	1,793 ha	(1-24 July)
Libya	3,095 ha	(1-31 July)
Mauritania	845 ha	(21-30 June)
	5,071 ha	(1-31 July)
Morocco	724,913 ha	(1-31 July)
Niger	1,075 ha	(25-31 July)
Senegal	872 ha	(14-17 July)
Tunisia	no details	(18 May - 31 July)

(1) mixed with other grasshopper and locust species



Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• SITUATION

During July, a substantial number of swarms moved southwards through the western and central parts of the country where there were numerous reports of flying swarms near Akjoujt (1945N/1421W) and in the Adrar region. Most of the swarms arrived in the summer breeding areas between Boutilimit (1732N/1441W), Kiffa (1638N/1124W) and the Senegal River Valley near Kaedi (1612N/1332W), and south of Aioun El Atrous (1639N/0936W) and Nema (1636N/0715W). Some swarms were nearly 20 km² in size with densities up to 400 adults/m². The swarms were highly mobile and were difficult to locate and treat. The swarms matured rapidly because of favourable conditions and, by mid-month, were copulating and laying eggs. The first occurrence of hatching was reported on 30 July southwest of Nema near Timbedra (1614N/0810W) where large first and second instar hopper bands were forming at densities

up to 150 hoppers/m². This was followed by large-scale hatching in the two Hodhs, Gorgol, Guidimaka and Assaba. At the end of the month, more immature swarms arrived in the north (Adrar, Inchiri and Tiris Zemmour) from Northwest Africa. Ground and aerial control operations treated 5,071 ha during July.

• **FORECAST**

Additional swarms are likely to arrive from the north and disperse in the summer breeding areas early in the forecast period. Moderate to large-scale hatching and band formation will occur in the south during August. Fledging is likely to commence by the end of the month and new swarms could start forming in early September. Unless conditions remain unusually favourable to allow a second generation, most of the swarms are likely to move towards the northwest and north from October onwards. Breeding could also extend to the centre of the country near Tidjikja and to the northwest near Akjoujt.

Mali

• **SITUATION**

In late June and during the first decade of July, scattered immature and mature adults at densities up to 3,600/ha were present in the Timetrine and in the eastern Adrar des Iforas.

During the second decade of July, several swarms arrived in the north from Northwest Africa. Most of these were highly mobile and were seen moving southwards in the Adrar des Iforas between Tessalit (2011N0102E) and Gao (1616N/0003W). One swarm was seen laying on the 11th near Tessalit. On the 18th, a swarm reached the Niger River near Ansongo (1539N/0030W), less than 100 km from the Niger and Burkina Faso border. In the western part of the country, several swarms appeared just south of the Mauritanian border near Kayes (1426N/1128W), Niore (1512N/0935W) and Nara (1510N/0717W) on 16-23 July.

• **FORECAST**

Additional swarms are likely to arrive and disperse in the Adrar des Iforas, Tilemsi Valley, Timetrine and Tamesna from Northwest Africa early in the forecast period. Other swarms are likely to appear in western Mali near the Mauritanian border. There is a risk that some swarms could move south of the Niger River. Hatching may have already occurred in some places and will certainly increase during August, causing bands to form on a moderate to large scale. Fledging is likely to commence by the end of the month and new swarms could start forming in early September. If more rain falls from September onwards, most of the new swarms will probably remain in place, mature and a second generation of breeding could eventually occur in the north.

Niger

• **SITUATION**

During July, small adult groups were present in the eastern Air where they continued to mature. Hatching was reported at the beginning of the second decade at Agar-Aagar (1758N/0850E). Elsewhere, locusts at densities up to 500 adults/ha were seen in crops near Arlit (1843N/0721E) where some damage occurred.

From 20 July onwards, many mature swarms from Northwest Africa invaded the Tamesna Plains west of the Air Mountains. Reports of swarms flying south were received from Assamaka (1921N/0538E) on the Algerian border, Madaouela (1840N/0736E) and Tassara (1651N/0542E). The swarms split into numerous smaller swarmlets and groups, at densities of up to 20 adults/m², and laid eggs along the western side of the Air Mountains (Irhazer to Talak), throughout Tamesna and in the northern Sahel between Abalak (1522N/0621E) and Tanout (1505N/0850E). Many mature adult groups and swarms were also seen moving south in the western Air Mountains. Ground control operations treated 1,075 ha on 25-31 July.

• **FORECAST**

Additional mature swarms are likely to arrive and lay eggs throughout Tamesna and perhaps in the west near Tillaberi. Moderate to large-scale hatching and band formation will commence early in the forecast period with fledging and the formation of new swarms starting from mid-September onwards. If more rain falls from September onwards, most of the new swarms will probably remain in Tamesna, mature and a second generation of breeding could eventually occur. Breeding could also extend further south into the northern Sahelian zone.

Chad

• **SITUATION**

No reports received.

• **FORECAST**

Adult groups and swarms from Northwest Africa may already be present or are likely to appear in the next few weeks in the north (B.E.T.) and northeast as well as in parts of Kanem, Batha and Biltine in the centre. Adults will mature rapidly and lay eggs that will hatch and could give rise to hopper bands. Every effort should be made to monitor the situation in these areas.



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Senegal

• SITUATION

On 14 July, two swarms were reported in the Senegal River Valley near Matam (1540N/1318W) and a third one was seen further east near Bakel (1454N/1226W). One 40 ha swarm, at a density of 20 adults/m², was seen laying eggs near Matam. During the last week of July, hatching commenced in the Senegal River Valley between Matam and Bakel where first instar hoppers were forming numerous small bands at densities up to 600 hoppers/m². On the 28th, a high density 12 km² mature swarm crossed the Senegal River Valley from Kaedi, Mauritania and was seen copulating nearby. Control operations treated 872 ha on 14-17 July.

• FORECAST

Hatching and band formation will continue during August along the Senegal River Valley and may extend to adjacent areas in the north. Fledging is likely to commence by the end of the month and new swarms could start forming in early September. If more rain falls from September onwards, most of the new swarms will probably remain in place, mature and a second generation of breeding could eventually occur.

Cape Verde

• SITUATION

On 5 July, several immature swarms invaded coastal areas of Boa Vista, Maio, Santiago and Fogo islands. These probably arrived from the coast of Western Sahara and Mauritania during a brief period of northeasterly winds. The swarms, at densities up to 60 adults/m², dispersed upon arrival and some moved into the interior. Damage was reported in some areas. Ground control operations treated about 16 ha.

• FORECAST

The risk of additional locusts arriving from West Africa is extremely low. Consequently, no significant developments are likely.

Burkina Faso

• FORECAST

There is a moderate risk of a few adult groups and swarms arriving in the extreme north during periods when the Inter-Tropical Convergence Zone is south of 15N.

Algeria

• SITUATION

During July, a substantial number of immature swarms was present within a large area extending from the Moroccan border to Tunisia. Most of these were along the southern side of the Atlas Mountains, but some populations were reported in the foothills and the plateaux further north. Despite intensive control operations, crop damage occurred in some places. The largest populations were present in the north near El Bayadh (3341N/0102E), Djelfa (3440N/0314E) and M'Sila (3541N/0431E). By mid-month, the situation was reportedly improving in some regions, namely Ghardaia (3225N/0337E), Ouargla (3157N/0520E), Biskra (3448N/0549E) and El Oued (3323N/0649E). Some populations were shifting back and forth across the common borders with Morocco, Tunisia and Libya. Locust infestations were also reported in the southwest near Tindouf (2741N/0811W), in the south near Tamanrasset (2250N/0528E) and in the southeast near Illizi (2630N0825E) and Djanet (2434N/0930E). By the end of the month, the situation was reportedly improving in the north. Aerial and ground control operations treated 1,013,823 ha from 25 June to 24 July.

• FORECAST

Locust infestations will decline in the north as swarms move south towards the summer breeding areas. The situation is expected to become calm in the coming weeks. Adult groups and swarms are likely to appear in the south and southeast where they could lay eggs in areas where breeding conditions are favourable. If so, hatching and band formation will occur during the forecast period.

Morocco

• SITUATION

Intensive aerial and ground control operations continued during the first decade of July against numerous hopper band and swarm infestations that extended from the Atlantic coast to the Algerian border including the Draa Valley, and the foothills and plateaux of the Atlas Mountains. Although there were still reports of fifth instar hopper bands in many places, most of the populations were forming immature swarms. The heaviest infestations were reported in the northeast near Bouarfa (3232N/0159W) and Ain Beni Mathar (3400N/0201W) and along the southern side of the Atlas Mountains near Ouarzazate (3057N/0650W) and Errachidia (3154N/0425W). Despite massive control efforts, crop damage has occurred in several regions. From about mid-month onwards, there was a significant decline in locust infestations in the spring breeding areas. By the end of July, only small groups of immature adults were reported in the Draa Valley near Assa

(2834N/0927W) and in the Western Sahara near Smara (2644N/1142W) in the north and Bir Gandouz (2136N/1628W) in the south. Control operations treated 724,913 ha on 1-31 July.

• **FORECAST**

Locust infestations will continue to decline and the situation will become calm as any remaining swarms are treated or move south towards the summer breeding areas in the Sahel in West Africa.

Libyan Arab Jamahiriya

• **SITUATION**

The Desert Locust situation improved during July and control operations against late instar hopper bands and immature swarms, at densities up to 20 adults/m², declined in the northwest. During the first decade, there were reports of swarms moving back and forth across the Algerian and Tunisian borders and several immature swarms were seen further south near Ghat (2459N/1011E). This suggests that a general shift from the spring to the summer breeding areas was in progress. Control operations treated 2,882 ha during the first decade of July and 218 ha during the second. No operations were undertaken after 20 July because the situation had reportedly become calm.

• **FORECAST**

Early in the forecast period there is a risk that a few late maturing swarms could appear from Tunisia and Algeria in the west of the country and move south towards the summer breeding areas in West Africa.

Tunisia

• **SITUATION**

The situation remains unclear because reports have not been received since 18 May. It is likely that swarms continued to form in the previously infested areas in the south during July. Further details are urgently awaited.

• **FORECAST**

Swarms are almost certainly forming in the south but, in the absence of regular reporting, it is difficult to estimate with precision the scale and the threat to other countries. The locust situation is expected to return to being calm during the forecast period.

Gambia, Guinea Bissau and Guinea Conakry

• **FORECAST**

No significant developments are likely.

CENTRAL REGION

Sudan

• **SITUATION**

During July, low numbers of immature and mature adults, at densities up to 150 adults/ha, were scattered throughout Northern Kordofan between El

Obeid (1311N/3010E) and Abu Uruq (1554N/3027E). No locusts were seen in adjacent areas in White Nile and Khartoum states.

• **FORECAST**

Small-scale breeding will occur over a large area of Northern Kordofan and could extend into adjacent areas of White Nile and Khartoum States. There is a moderate risk that adult groups and swarms will arrive in Northern Darfur from Northwest Africa and lay eggs. Some swarms could move further east into Northern Kordofan. Every effort should be made to monitor the situation in these areas.

Eritrea

• **SITUATION**

No locusts were seen in the western lowlands near the Sudanese border during surveys carried out 13-17 July.

• **FORECAST**

Low numbers of locusts are likely to appear and breed on a small scale in the western lowlands.

Somalia

• **SITUATION**

No locusts were seen during surveys carried out on 14-20 July on the plateau and escarpment between Boroma, Hargeisa and Berbera.

• **FORECAST**

Isolated adults may be present and could breed in areas of recent rainfall on the escarpment and plateau between Burao and Boroma.

Ethiopia

• **SITUATION**

No surveys were carried out and no locusts were reported up to 23 July.

• **FORECAST**

No significant developments are likely.

Djibouti

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Egypt

• **SITUATION**

During July, scattered Desert Locust adults mixed with moderate numbers of African Migratory Locusts



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and local grasshopper species were present in several farms at Sh. Oweinat (2219N/2845E). Ground teams treated 1,793 ha. No Desert Locusts were seen elsewhere in the Western Desert.

• **FORECAST**

Low numbers of Desert Locust may persist in some cropping areas and farms in the Western Desert and along the Lake Nasser shoreline. No significant developments are likely.

Saudi Arabia

• **SITUATION**

No locusts were reported during July.

• **FORECAST**

No significant developments are likely.

Yemen

• **SITUATION**

Isolated adults were seen laying eggs at one place in the summer breeding areas in the interior desert northwest of Ataq (1435N/4649E) on 21 July. No locusts were reported elsewhere between Marib and the Hadhramaut.

• **FORECAST**

Small-scale breeding is expected to take place in the interior between Marib and Hadhramaut where hatching is likely to occur in early August. Isolated adults may be present and persist in a few places on the Red Sea coastal plains.

Oman

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

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

• **FORECAST**

No significant developments are likely.

EASTERN REGION

Iran

• **SITUATION**

No locusts were seen from 30 June to 26 July along the southeastern coast between Jask and Chabahar or in the interior in the Jaz Murian basin.

• **FORECAST**

No significant developments are likely.

Pakistan

• **SITUATION**

During the first half of July, isolated mature adults were seen in a few places in Cholistan near Bahawalpur (2924N/7147E), Rahimyar Khan (2822N/7020E), and Sukkur (2742N/6854E), and in Tharparkar Desert near Mirpurkhas (2533N/6905E).

• **FORECAST**

Locust numbers will increase in the summer breeding areas along the Indian border where small-scale breeding is expected to occur in areas of rainfall. No significant developments are likely.

India

• **SITUATION**

No locusts were reported during the second half of June and first half of July.

• **FORECAST**

Scattered adults are likely to appear and breed on a small-scale in areas of recent rainfall in Rajasthan. No significant developments are likely.

Afghanistan

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.



Announcements

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO 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.

Reporting by e-mail. After each survey or control operation, affected countries should send completed FAO Desert Locust Survey and Control Forms or the RAMSES output file with a brief interpretation of the results by e-mail to eclo@fao.org.

Locust archives. Desert Locust reports received by FAO from affected countries from 1952 to the present are available on a series of four CDs in PDF. Please contact the Locust Group for more details.

eLocust. A new French version of eLocust for data collection and transmission in the Western Region is available at www.fao.org/news/global/locusts/eltdown.htm. More details can be found at: www.fao.org/news/global/locusts/elocust.htm.

Upsurge photos. Pictures of the current upsurge in the Western Region are available on the Internet at: www.fao.org/news/global/locusts/outbreakpix04.htm

Publications on the Internet. New FAO publications and meeting reports are available for downloading at www.fao.org/news/global/locusts/publist.htm:

- Report of the 1st CLCPRO Executive Committee meeting held in June in Niamey, Niger (French)
- Contingency planning spreadsheets and simulations for outbreaks, upsurges and plagues (English, French)
- 24th Central Region Commission meeting report (English, Arabic)
- 8th Desert Locust Control Committee Technical Group meeting report (English, French)
- FAO Desert Locust Standard Operating Procedures (SOP) for survey, control and aerial operations (English, Arabic)
- FAO Desert Locust Guidelines – Arabic version in PDF is now available for downloading

Desert Locust research award. The FAO Commission for Controlling the Desert Locust in the Central Region (CRC) is pleased to announce a cash award for outstanding research on Desert Locust. For more details, please contact the CRC Office in Cairo (munir.butrous@fao.org).

2004-05 events. The following meetings are scheduled:

- **EMPRES/CR.** 12th Liaison Officers meeting, Egypt, 9-13 October
- **Pesticide Referee Group.** 9th meeting, Rome, 18-21 October
- **Desert Locust Control Committee.** Extraordinary session, Rome 29 November – 2 December
- **EMPRES/WR.** 3rd Liaison Officers meeting, Dakar (Senegal), 13-17 December
- **SW Asia Commission.** 24th session, Delhi (India), January 2005

Press release. A press release on the current Desert Locust emergency was issued by FAO on 27 July. It is available at: <http://www.fao.org/newsroom/en/index.html>.



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



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SPRING RAINS AND BREEDING

- February - June/July

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.

REGIONS

WESTERN

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

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

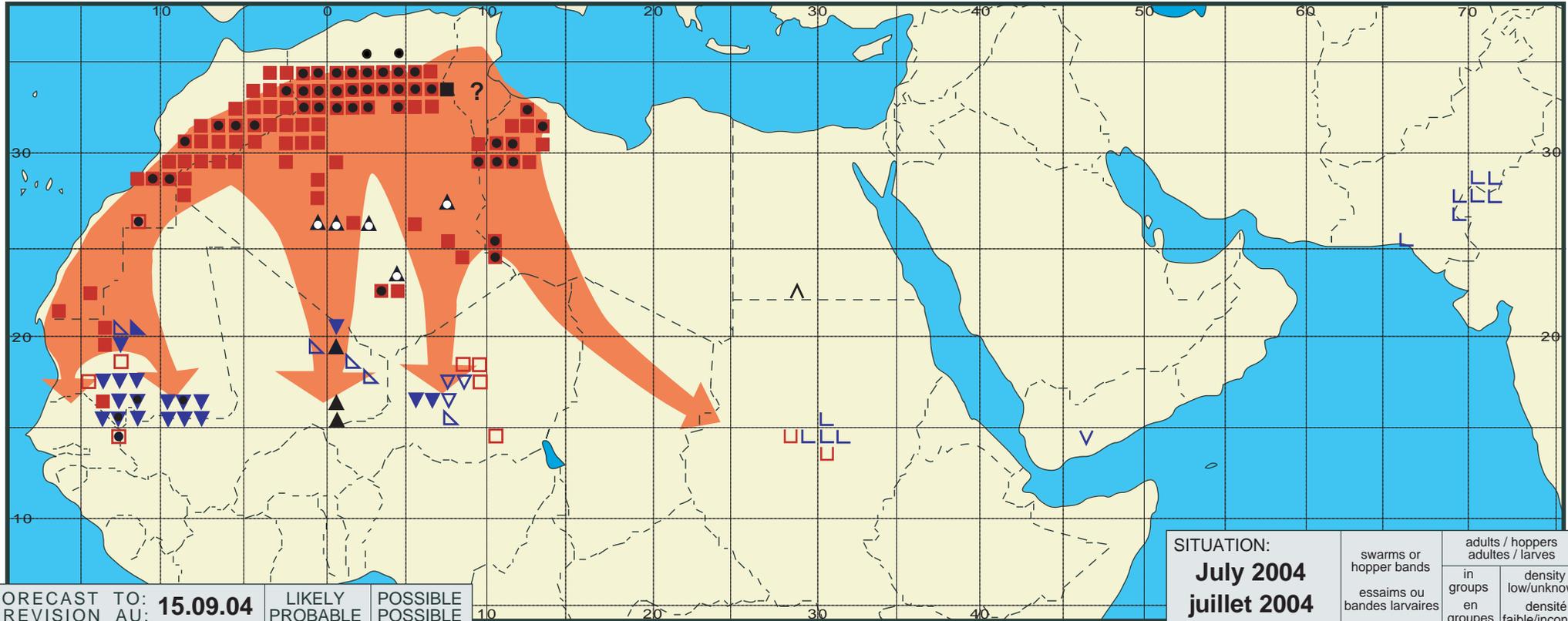
- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.



Desert Locust Summary

Criquet pèlerin - Situation résumée

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FORECAST TO: PREVISION AU: 15.09.04	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: July 2004 juillet 2004	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)			