

DESERT LOCUST BULLETIN

Emergency Centre for Locust Operations



No. 216



General Situation during August 1996 Forecast until mid-October 1996

During August, significant Desert Locust infestations continued to develop in the summer breeding areas, albeit on a smaller scale to date than last year at the same period, possibly due to less rain. There were three main infested regions and breeding occurred in all of these. The first infestation was dispersed over a wide area in southern Mauritania where swarms have laid and small hopper bands were starting to emerge. The second one was in southern Yemen where solitarious and gregarious hoppers continued to be present. The third area was along the Indo-Pakistan border where increasing numbers of solitarious adults were seen and small scale breeding occurred.

In Mauritania, infestations shifted from south-eastern regions to the south-west. Groups and small mature swarms have laid at several locations between Aioun El Atrouss in the east and the coast south of Nouakchott. Consequently hopper patches and small bands started to form first near Aioun El Atrouss and later in south-western regions towards which there was apparently an increasing migration throughout the month. Swarms reached as far as a few tens kilometres south of Nouakchott where they have

already laid. Control operations were limited to about 800 ha during August, but additional hopper bands are expected to form throughout September in southern Trarza and there is still a possibility that additional groups will arrive from the east.

More breeding was discovered along the coasts west and east of Aden and in the interior of Yemen, where small groups and possibly a few small swarms are expected to form and migrate towards the Red Sea during September as ecological conditions dry out. A total of 4,400 ha was treated. No locust activity was reported from Saudi Arabia although low numbers of adults and hoppers could similarly be present in areas adjacent to the Yemeni border in the south-west.

In South-West Asia, significant rains continued in Rajasthan which are likely to have extended into the desert along the Indo-Pakistan border. Increasing numbers of locations continued to report solitarious adults in the summer breeding areas both in Pakistan and in India. Scattered solitarious hoppers were reported in the Pakistani part and breeding is almost certainly in progress in adjacent areas of India.

In northern Mali and northern Niger, breeding was in progress but infestations were limited. They consisted of a few small swarms in Mali which resulted in a few hopper patches and bands. Control was undertaken over about 100 hectares. No gregarious locusts have been reported to date in northern Niger, despite relatively widespread favourable conditions in Tamesna, and no control was required. In southern Algeria, infestations declined and no locusts were reported by the end of August, although some breeding may have occurred in the extreme south near the borders of Mali and Niger.

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It is also available on the Internet.

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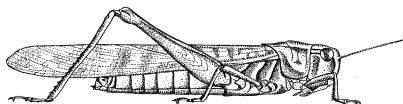
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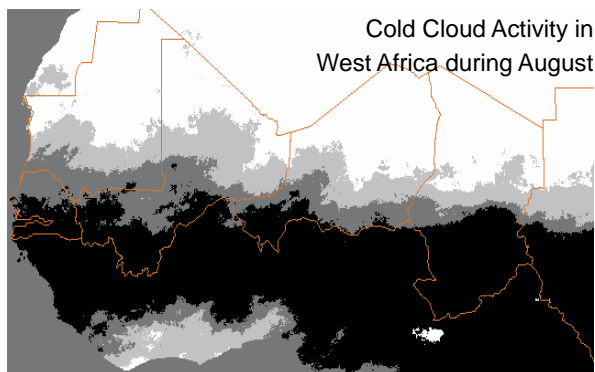


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Weather & Ecological Conditions during August 1996

□ light □ moderate ■ heavy



Although rainfall increased in the Sahel of West Africa and Sudan during August compared to last month, cold cloud activity and subsequent rainfall appeared less than last year at the same period. Below long term average rains were reported from many places, but favourable ecological conditions for locusts were present in several areas.

The ITCZ continued its progression further north over West Africa although a series of depressions present over the Mediterranean during the month have probably influenced this movement. Its highest position north oscillated between 18N and 22N primarily over the Adrar des Iforas and the Air Mountains, with a maximum of 26N over the Mouydir Mountains of Algeria on the 14th, but it remained most of the time located further south over the rest of Mali and Niger, Mauritania and Chad. As a result, most rainfall in **Mauritania** occurred in the south-west between Rosso, Boutilimit and Nouakchott, and to a lesser extent in southern Tagant. Breeding conditions were improving in southern Trarza, whereas they have started to dry up in Hodh el Chargui. Favourable conditions are expected to have developed in north-western **Senegal** and along the River as a result of timely light to moderate rains received throughout the month. A few light rains were reported from Tombouctou and Gao in **Mali**, while conditions were drying out in Gourma. In northern **Niger**, nomads reported substantial rains in the Tamesna and the western side of the Air Mountains, where indeed

dense green vegetation and standing water were present at several locations. Significant rains were received in south-eastern Niger and cold cloud activity suggested that these may have extended to southern Kanem in **Chad**. In eastern Chad, Abeche received light to moderate rains and favourable ecological conditions may therefore be present in northern Ouaddai.

In North-West Africa, significant rains were received in the extreme south of **Algeria** during the second half of August. As a result, favourable ecological conditions may persist in areas of earlier rains near the borders with Mali and Niger.

Cold cloud activity was generally sporadic over Eastern Africa during August. In Sudan, light to moderate rains were reported mainly from northern Darfur and near Kassala where conditions may have improved. Little cloud activity was observed on the western side of the Red Sea where only a few showers may have fallen on the coasts of Egypt, Sudan and Eritrea. Light to moderate rains were regularly received at Dire Dawa and ecological conditions may therefore have improved nearby in parts of the Railway area of **Ethiopia**. In north-western **Somalia**, dense green vegetation was seen during an aerial survey near Hargeissa in the interior and Berbera on the coast, which is likely to be the consequence of unusual rains received during July.

On the eastern side of the Red Sea, light to moderate rains and favourable ecological conditions were reported from the southern Tihama and southern Asir Mountains of **Saudi Arabia**. Similar rains occurred during August on the Tihama of **Yemen** where conditions may improve, whereas conditions were drying at most places east of Aden. In southern **Oman**, the monsoon continued in the Dhofar region near Salalah.

In South-West Asia, Rajasthan of **India** continued to receive light to heavy rains at regular intervals and conditions are almost certainly favourable for breeding over a wide area as a result of these and the rains received since June. In **Pakistan**, dry weather was reported from most of the summer breeding areas except in Bahawalpur.



Area Treated

Algeria	1,126 ha	(15-31 July)
	580 ha	(1-15 August)
Mali	110 ha	(26-28 July)
	1 ha	(18-22 August)
Mauritania	827 ha	(1-28 August)
Pakistan	800 ha	(16-23 July)
Yemen	4,400	(22 July - 17 August)



Desert Locust Situation and Forecast

WEST AFRICA

Mauritania

• SITUATION

During the first dekad of August, more small swarms and groups appeared and laid in southern Mauritania where control operations commenced. Infestations were dispersed over a wide area. For example, there were four reports of small mature swarms north-west of Aioun El Atrouss (ca. 1643-1650N/0933-0949W) and three were treated. In eastern Trarza, a loose maturing swarm, covering an estimated area of 1230 ha, could not be treated east of Boutilimit at 1732N/1414W due to strong winds. Another one was treated after it was seen laying nearby at 1713N/1422W on the 8th. In southern Tagant, there were two reports of swarms near Moudjeria (1752N/1219W). A total of 585 ha were treated during the period. Some swarms may have already laid whereas others were drifting west through northern Brakna and reaching south-western Trarza. Consequently, bands of first to third instar hoppers began to be reported and treated near Aioun, hatching began east of Boutilimit in the same area and laying swarms and egg fields were found in the R'Kiz area (1654N/1518W) during the second dekad. About 240 ha were treated during the period.

During the third dekad, most infestations appeared to have shifted from south-eastern areas to the south-west. There was a total of six reports of small mature swarms, all in Trarza, but most infestations consisted of small patches of young instar hoppers and hatchlings. Consecutive reports of swarms along the road south of Nouakchott throughout the dekad suggested further movement northwards. By the end of August, several swarms reached a few tens of kilometres south of Nouakchott, up to 1752N/1556W, and laid. Limited control operations continued against hoppers in eastern Trarza, whereas they were coming to an end near Aioun. A few isolated adults were seen at times during surveys undertaken between Aioun and the Tamchakett area (1715N/1040W), north of Timbedra (1615N/0810W) and in Hodh El Chargui up to Oualata (1718N/0702W). By the end of the month, travellers reported hoppers north-west of Letvatar (1745N/1231W) in Tagant.

• FORECAST

Breeding will continue during the forecast period in southern regions. In the south-east, any remaining hopper infestations are expected to fledge from mid-September onwards in the two Hodhs and may form small groups or swarmlets. These are likely to move west towards Trarza. In the south-west, hatching will

continue to occur from early September onwards in Trarza with fledging starting in early October. Numbers are likely to increase further in coastal and interior areas of Trarza and perhaps Inchiri due to further breeding and possible arrivals from the east. Elsewhere, small scale breeding may be in progress and continue in parts of Brakna and Tagant.

Senegal

• FORECAST

Adult groups, possibly a few small swarms, are likely to appear from the north in the western part of the Senegal River Valley and lay upon arrival in areas of recent rains.

Mali

• SITUATION

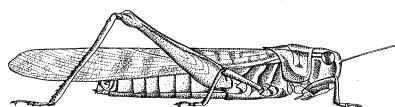
On 26-28 July, two small mature swarms were treated near Gao covering 110 ha. Small patches and bands of first to second instars were reported in the same area on 18-22 August, indicating that undetected laying probably occurred in late July. A total area of about 12 ha was infested, at densities of 10-1,000 per sq. metre. Due to the presence of cattle, only 1 ha could be treated. Elsewhere during the first half of August, low numbers of mature transiens adults were reported along 60 km between Doro (1609N/0049W) and Gossi (1549N/0109W). Densities were up to 1,000 per ha; some adults were seen copulating. Scattered solitarious adults were also present at a few places between Gossi and Gourma Rharous (1652N/0156W).

• FORECAST

Breeding will continue in the Gourma area between Gao and Tombouctou where current hopper infestations are expected to start fledging from late September onwards and may form groups and small swarms. Breeding is likely to be in progress in some parts of the Adrar des Iforas with hoppers appearing during September. By the end of the forecast period, adults and perhaps a few small swarms from both areas could start to move further west.

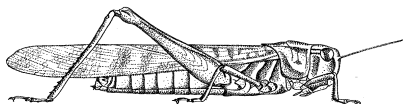
Niger

During surveys undertaken on 17-26 July in the western side of the Air Mountains and Tamesna, mostly mature scattered adults were found at 22 locations, mainly near In Abangharit (1653N/0603E), out of 51 visited. Densities were up to 1,000 adults per



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ha, but in most cases less than a few tens per ha. Copulating adults were present north of In-Abangharit at 1727N/0620E on the 20th and 1822N/0644E on the 23rd. During another survey undertaken from 28 July to 3 August, scattered adults were seen primarily east of In Abangharit at a density of 30 per ha and near Iferouane (1904N/0823E) at densities of 10-200 per ha. Infestations declined during the second half of the month, but solitary first and second instar hoppers, at a density of 2,000 per ha over 200 ha, were found at Tagart (1818N/0556E).

Surveys were also undertaken in the cropping areas further south from 25 July to 4 August. Isolated and scattered immature and mature adults were observed at 13 locations north and west of Diffa (1319N/1236E), 2 locations north of Filingue (1420N/0319E) and 2 locations north of Tillabery (1413N/0126E).

• FORECAST

Small scale breeding is expected to continue in a few areas of central Tamesna. As a result, low numbers of hoppers are likely to appear during September and start fledging by the end of the forecast period. Unless further rainfall occurs, infestations are expected to remain small and limited.

Chad

• FORECAST

The situation remains unclear due to a lack of information. Low numbers of adults may be present in parts of Tibesti, southern Ennedi and Biltine. Small scale breeding may be in progress in a few areas where rains may have recently fallen. As a result, hoppers and new adults could appear during the period.

Burkina Faso

• SITUATION

No locusts were reported up to 10 August.

• FORECAST

No significant developments are likely.

Cape Verde, Gambia, Guinea Bissau and Guinea Conakry

• FORECAST

No significant developments are likely.

NORTH-WEST AFRICA

Algeria

• SITUATION

Previous infestations in central and southern Sahara continued to decline. During the second half of July, control operations treated new adults, most of them concentrated west of Tamanrasset (2250N/0528E). Two small infestations were treated in northern Tassili N'Ajjer at 2632N/0724-0741E and north of Amguid (2638N/0535E). Low densities of adults persisted at several locations near Adrar (2751N/0019W). The size of the infested areas declined further, being usually less than 50 ha although there were a few up to 200 ha. One infestation, consisting of fourth and fifth instar hoppers mixed with pink adults, covered 1350 ha. Highest densities were up to 30 adults per sq. m., but in most cases they were equivalent to less than one per sq. m. A total of 1,126 ha were treated during the period.

During the first half of August, control operations were limited to the Tamanrasset area, treating 580 ha of fourth and fifth instar hoppers mixed with pink adults, at densities up to 15,000 per ha. Isolated adults, at densities less than 10 per ha, were reported from Adrar, Illizi (2630N/0830E) and Djanet (2434N/0930E) areas. No locust activity was reported in all these areas during the second half of the month.

• FORECAST

Although low numbers of adults may still be present in Central Sahara and near Tamanrasset, these will continue to decrease as conditions dry out. Small scale breeding may be in progress in the extreme south near the borders of Mali and Niger in areas of earlier rains. As a result, hoppers may be present and could start fledging from late September onwards. Some of these may concentrate and form a few small groups or swarms by the end of the forecast period.

Morocco

- SITUATION

No locust activity was reported during August.

• FORECAST

There is a low possibility of low to moderate numbers of adults appearing in the extreme south-west by the end of the forecast period.

Libya and Tunisia

• FORECAST

No significant developments are likely.

EASTERN AFRICA

Sudan

• FORECAST

Low numbers of locusts are almost certainly present and will persist in parts of the summer breeding areas extending from Northern Darfur to the Nile but should

start to decline by the end of the forecast period as they start to move east towards the Red Sea coastal plains. Similar infestations are expected to persist in the Eastern Region west of the Red Sea Hills where numbers may increase as a result of breeding and early migration from western and central Sudan. There is a low risk of adults appearing on the coastal plains south of Port Sudan and in the Wadi Oko/Diib area at the end of the forecast period.

Somalia

• SITUATION

No locusts were reported during an aerial survey on 29-31 July.

• FORECAST

Small scale breeding may be in progress in the north-west with hoppers and new adults may appear during the forecast period. Elsewhere, scattered adults may be present and are likely to persist along some parts of the coastal plains as far east as Las Koreh.

Eritrea

• FORECAST

There is still a low possibility that scattered hoppers and new adults may appear early in the forecast period as a result of small scale breeding in parts of the western lowlands. Low numbers of adults may appear on the Red Sea coastal plains from the east late in the forecast period.

Ethiopia

• SITUATION

No locusts were seen during ground surveys undertaken near Dire Dawa from 23 July to 6 August, and during aerial surveys between Dire Dawa, Jigjiga and the Somali border on 30 July - 01 August.

• FORECAST

Scattered adults, mixed with Locusta, may be present and breeding near Dire Dawa and in the Eastern Region near the Somali border. Consequently, low numbers of hoppers could appear during the forecast period.

Djibouti, Kenya, Tanzania and Uganda

• FORECAST

No significant developments are likely.

NEAR EAST

Saudi Arabia

• SITUATION

No locust activity was reported during August.

• FORECAST

Low to moderate numbers of hoppers and adults may be present along the western edge of the Empty Quarter from Wadi Najran to Wadi Dawasir as a result

of earlier undetected breeding. Scattered adults may be present on the southern Red Sea coastal plains near Jizan and breeding in areas of recent rainfall. Additional adults are expected to appear on the coastal plains of the Red Sea between Jeddah and Jizan from the interior by the end of the forecast period.

Yemen

• SITUATION

Moderate densities of hoppers and adults were reported along the coastal plains of Aden at several places between Wadi Abrain (1302N/4428E) and Zubbad (1415N/4553E) on 22 July - 17 August. These consisted of third to fifth instar solitary and gregarious hoppers, at densities up to 7 per sq. m., mixed with scattered solitary adults. Infestations varied in size from a few hectares to one sq. km. A total of 3,600 ha were treated. Further north in the interior, low numbers of solitary fourth to fifth instar hoppers mixed with adults were reported from Wadi Jawf (1605N/4447E) and Wadi Khabb (1640N/4519E) on 4-16 August. About 800 ha were treated in the Wadi Jawf area. Solitary mature and copulating adults were reported at several locations during a survey undertaken on 23-26 August in southern Sabatayn between Ataq (1432N/4733E) and Bayhan (1448N/4543E). Groups of first and second instar hoppers were reported at Wadi Zalimayn (1450N/4619E) and Wadi Markhah (1453N/4633E) over 200 ha on the 26th. Control operations started.

• FORECAST

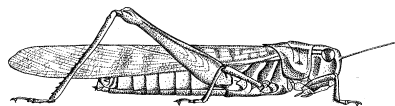
Small groups and perhaps a few swarms are expected to form during the forecast period in the interior between Khabb and Wadi Hadhramaut as well as on the coastal plains west and east of Aden. As vegetation dries out, these are expected to move west to the Red Sea coastal plains where they could arrive by the end of the forecast period. If rains have occurred on the coastal plains, they could lay soon after arrival.

UAE

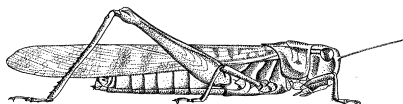
No locust activity was reported during July.

• FORECAST

No significant developments are likely.



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period, densities could increase further as vegetation begins to dry out. Consequently, a few small groups of adults may form.

INDIA

• SITUATION

During the second half of July, scattered adults persisted in Rajasthan, where 35 locations were found infested. Most locations were in Jaisalmer district, and, to a lesser extent, in Bikaner, Churu, Barmer, Jodhpur and Banaskantha. Densities ranged from 30 to 2250 adults per sq. km.

During the first half of August, the number of infested locations and densities at each location increased. Scattered adults, at densities up to 6,000 per sq. km were present at 73 locations. Most of these were in Jaisalmer and Bikaner districts, and, to a lesser extent, in Barmer and Jodhpur districts.

• FORECAST

Breeding is almost certainly in progress in western Rajasthan where locust numbers are expected to increase primarily in Jaisalmer, Bikaner and Barmer districts and to a lesser extent in other neighbouring districts. By the end of the forecast period, densities could start to increase as vegetation begins to dry out. Consequently, a few small groups of adults may form.

AFGHANISTAN and IRAN

• FORECAST

No significant developments are likely.

Kuwait

• SITUATION

No locusts were reported during July and August.

• FORECAST

No significant developments are likely.

Egypt

• FORECAST

Low numbers of adults may persist in a few southern oases and in cropping areas in the Nile River Valley south of Aswan .

Bahrain, Iraq, Israel, Jordan, Oman, Qatar, Syria and Turkey

• FORECAST

No significant developments are likely.

SOUTH-WEST ASIA

Pakistan

• SITUATION

During the second half of July, a total of 15 adult groups of about 50 ha each were reported from the interior of Baluchistan in the Kharan district primarily at Naro (2826N/6531E) and to a lesser extent at Borko (2817N/6542E) on the 16th-23rd. One similar group was reported further south in the Khuzdar district at Mamai (2550N/6515E) on the 19th. All these were treated by ground. Scattered adults, at densities ranging from 75 to 2,100 per sq. km., were reported from a total of 50 locations in the summer breeding areas along the Indian border extending from Tharparkar to Cholistan.

During the first half of August, low density adults persisted in 44 locations along the Indian border and 4 locations of the Uthal district west of Karachi. During the second half of the month, the number of infested locations and densities at each location increased along the Indian border. Scattered adults, at densities up to 4,500 per sq. km. were reported from 83 locations from Tharparkar to Cholistan and further west from 4 locations in Lasbela. Isolated late instar solitarious hoppers were also reported at Birthwar (2627N/7009E) and Ismail Dhar (2750N/7109E) on the 21st-22nd.

• FORECAST

Breeding will continue in the summer areas from Tharparkar to Cholistan. As a result, locust numbers will increase in most areas. By the end of the forecast



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 per 400 m foot transect (or less than 25 per ha).

SCATTERED (SOME, LOW NUMBERS)

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

GROUP

- forming ground or basking groups;
- more than 20 adults per 400 m foot transect (or more than 500 per 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.

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.

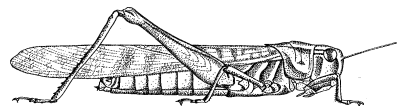
REMISSION

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

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.

issued: 5 September 1996



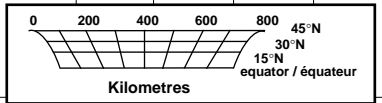
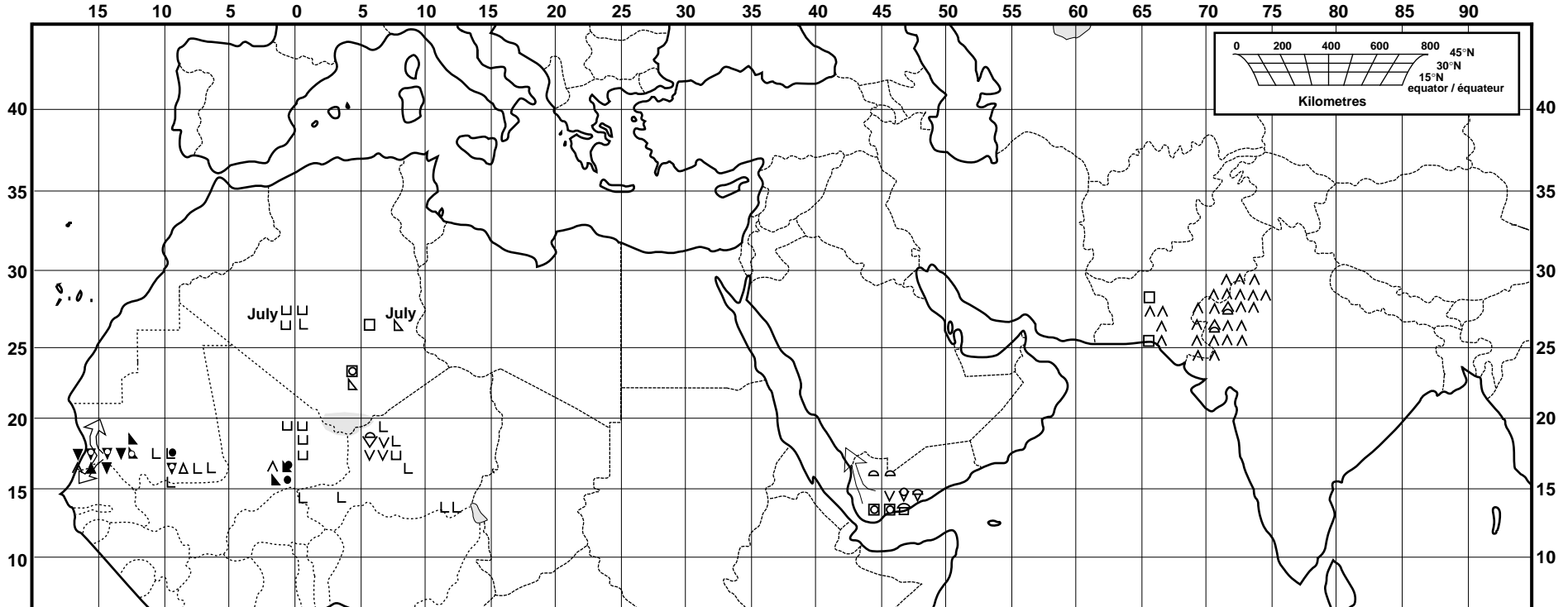
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Desert Locust summary

Criquet pèlerin situation résumée



SITUATION: August 1996 août 1996	swarms or hopper bands essaims ou bandes larvaires	adults/hoppers adultes/larves	
		in groups en groupes	density low/unknown densité faible/inconnue

FORECAST TO: PREVISION AU:	15.10.96	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			

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)			