



# FAO



## EMERGENCY CENTRE FOR LOCUST OPERATIONS

### DESERT LOCUST BULLETIN No. 214



#### GENERAL SITUATION DURING JUNE 1996 FORECAST UNTIL MID-AUGUST 1996

**Important Desert Locust infestations during June were concentrated in Algeria and Iran where control operations were in progress against hopper bands and newly formed swarms in order to reduce the scale of anticipated migration towards the summer breeding areas of West Africa and Indo-Pakistan. Nevertheless due to the difficulty of finding and treating all infestations, indicators suggest that additional swarms could form and move towards summer breeding areas where there may be considerable breeding this year. Mauritania, Mali, Niger, Chad, Pakistan and India should be immediately preparing themselves for potential moderate scale survey and control operations to be undertaken in the coming months.**

In Algeria, breeding has occurred over a large and difficult area of the central Sahara which extended into western Libya. During the second half of June, small swarms started to form in central Algeria. As vegetation dries out, adults that escape detection and control are expected to form additional small swarms which will move further south into northern Mali and Niger and perhaps east towards Chad and western Sudan. Reports of locusts in north-eastern Niger suggest that this movement may already be underway. Only scattered showers have fallen so far in the Sahel and favourable breeding conditions are limited to just a few areas. However, conditions are expected to improve over larger areas extending from Mauritania to central Sudan once the seasonal rains commence.

In eastern Iran, hoppers were forming groups as the vegetation continued to dry up along the coast and in the interior. Those infestations that escape detection and control are also expected to form adult groups, and perhaps a few small swarms, and move towards the summer breeding areas along the Indo-Pakistan border. A few groups and small swarms were reported in adjacent areas of western Pakistan and scattered adults were seen in Rajasthan of India indicating that adults are already moving east. These will lay upon arrival in areas that received rains associated with a recent cyclone over Rajasthan.

In mid June, heavy rains associated with a cyclone originating in the Indian Ocean fell over a large portion of the southern Arabian Peninsula from southern Oman to Yemen and south-western Saudi Arabia. Although few locusts were present, there is a chance that some adults may appear and breed in areas where green vegetation develops.

The FAO Desert Locust 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 Locust, Other Migratory Pests and Emergency Operations Group, AGP Division, FAO, 00100 Rome, Italy. It is also available on the Internet.

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## WEATHER & ECOLOGICAL CONDITIONS DURING JUNE 1996

Based on field reports, METEOSAT and NOAA satellite imagery, and Météo-France synoptic and rain data.  
Rainfall terms: light = less than 20 mm of rain; moderate = 20 - 50 mm; heavy = more than 50 mm.

The Inter-Tropical Convergence Zone (ITCZ) was generally located over West Africa around 15N during June but on some days it moved south to 10N over Guinea and north to 22N over southern Algeria. Consequently, only light rains fell in a few parts of the Desert Locust summer breeding areas in the Sahel although clouds associated with the ITCZ moved progressively northwards throughout the month.

During the first dekad of June, rain fell primarily south of the Atlas Mountains in Morocco and Algeria as well as in parts of the southern regions of both countries. Scattered showers were received in northern and south-eastern Mauritania, central Mali and in Tamesna and the south of Niger. During the second dekad, rains continued in the above areas, and there were new reports of rainfall in southern Mauritania, the adjacent areas of the Senegal River Valley and in northern Mali. Very little rainfall was recorded during the third dekad apart from light showers in Morocco south of the Atlas Mountains, in the Senegal River Valley, and in southern Niger. Elsewhere, clouds were present at times during the month over the southern Adrar des Iforas and Tamesna of Mali, and central and eastern Chad as far north as Biltine. As a result of the rains that were reported and those that may have resulted from cold cloud activity, breeding conditions are expected to improve in several areas of the Sahel, mainly in the Senegal River Valley, western Mali, the southern parts of Tamesna and the Adrar des Iforas of north-eastern Mali, southern Tamesna and western Niger, and in central and eastern Chad.

In Sudan, cloud activity moved progressively northwards during the month and had reached south of line extending from El Fasher in western Sudan to El Obeid, Khartoum and Derudeb in the Eastern Region. Substantial cloud masses were present over the southern coast of Eritrea from Tio to Assab and over Djibouti during most of the month. Elsewhere in Eastern Africa, clouds were present at times during the first two dekads of the month over northern Somalia. No rains were reported from any of these areas and conditions are not expected to be favourable for breeding except for in a few places on the coast and in the interior near Berbera in northern Somalia.

A cyclone originating in the Indian Ocean reached the eastern coast of Oman on 10 June and then moved inland to the south-western part of the Arabian Peninsula. As a result, substantial cloud masses were present over most of the southern half of the Peninsula extending from the coast to the interior desert which led to heavy rainfall throughout Yemen and the southern areas of the Empty Quarter in Saudi Arabia. On the western edge of the Empty Quarter in Saudi Arabia, Sharurah received a total of 57 mm and Wadi Najran 74 mm. Flooding was reported in eastern Yemen, moderate rains fell in coastal and southern areas of Oman, and light rains fell along the Red Sea coastal plains from Jizan in Saudi Arabia to the Gulf of Aden coastal plains in Yemen. Breeding conditions are reported to be favourable in places along the Tihama of Saudi Arabia and are expected to improve in other areas of recent rainfall in southern Saudi Arabia and Yemen.

Heavy rains fell in Rajasthan of India as a result of a cyclone that first reached coastal areas of Gujarat on 18 June and later moved further north over Rajasthan. Bikaner received a total of 94 mm and Jodhpur 89 mm. Light to moderate rains extended into Cholistan and Tharparkar deserts of Pakistan; Bahawalpur received a total of 20 mm. Breeding conditions are expected to improve in both areas in the coming weeks.



## AREA TREATED

Algeria	17,815 ha	(June)	Pakistan	25 ha	(16-31 May)
Iran	13,760 ha	(1 May - 10 June)		no details	(June)
Libya	675 ha	(28 May - 22 June)	Saudi Arabia	370 ha	(June)
Niger	50 ha	(8-18 June)			



## DESERT LOCUST SITUATION

Please see the last section of this Bulletin for a definition of terms used in reporting the current locust situation.

### WEST AFRICA

#### MAURITANIA

Isolated solitary and gregarious mature adults were seen at 8 locations during surveys in the extreme south in the first dekad of June. The locusts were scattered within a large area south of Aioun El Atrous (1639N/0937W) and Nema (1632N/0712W) in which swarms had passed in May. Similar infestations were seen at Tidjikja (1829N/1131W) on 8 June. During the second half of June, additional infestations, including a few yellow adults, were present between Aioun El Atrous and Nema and similar infestations were seen in the south-west near Aleg and in southern Trarza.

#### MALI

There was also a late report of an immature swarm passing over Tessalit (2012N/0100E) on 2 May. On 21-22 May, infestations of gregarious maturing adults continued to be observed by travellers in the north in some wadis north-west of Aguelhoc (1927N/0051E), between Aguelhoc and Kidal (1826N/0124E) and in the southern Tilemsi Valley. In the eastern Timetrine, nomads saw groups of immature adults on trees on 27 May in the Tinkar area (ca. 1927N/0022W).

By the end of the month and in early June, gregarious hoppers were found in the Tessalit area, but numbers appeared to rapidly decrease due to drying conditions and strong winds. Only one immature adult was observed in Wadi In Amedane (2026N/0052E) on 13 June. No locusts were reported along the Tilemsi Valley as far as Gao and in the Adrar des Iforas between Aguelhoc and Kidal on 15-16 June. No locusts were seen in the eastern part of the Timetrine area (ca. 1920N/0010W) on the 14th.

There was an unconfirmed report of solitarious adults mixed with low numbers of Red Locust in the Central Delta near Tenenkou (1427N/0455W) in mid-June.

#### NIGER

Late reports from surveys carried out in the Air during the last dekad of May indicate that a mature swarm was seen on 23 May in the Tagomass Valley (1745N/0818E) and low densities of yellow adults were present at a few other places nearby. Solitary adults were present at several locations of Tamesna during the same period. Densities varied from 200 adults per ha near In Abangharit (1802N/0600E), 2,000 per ha near Arlit (1843N/0725E), up to 10,000 per ha further north at Tiraouen (1915N/0614E). Isolated gregarious adults were also seen at a few places. During the first dekad of June, solitary adults were present in the south near Diffa at Bagueleram (1329N/1133E).

During surveys carried out in the north-east on 8-18 June, low densities of solitary mature adults were seen north of Bilma at Achenouma (1907N/1256E) and Aney (1922N/1254E) and about 170 km west of Bilma at Fachi (1805N/1136E). About 50 ha were treated at Aney. There were unconfirmed reports of high concentrations of locusts in several other oases further north: Seguedine (2011N/1258N), Chirfa (2058N/1221E) and Djado (2059N/1220). If confirmed, these may suggest another southerly and easterly movement of adults from the spring breeding areas of the central Sahara towards the summer areas of the Sahel. In the south, mature adults persisted near Diffa and there were new reports of adults near Maradi at Birnin Lalle (1430N/0646E) during the period.

#### BURKINA FASO

The swarm reported in the last Bulletin (No. 213) was confirmed to be a dense maturing Desert Locust swarm seen on 5 May at Bouroum (1330N/0045W).

**No locust reports were received from other countries in the Region up to 30 June.**

### NORTH-WEST AFRICA

#### MOROCCO

No locust activity was reported during June.

## ALGERIA

During the first half of June, locust infestations were mainly concentrated in the central Sahara, west and north-west of the Hoggar Mountains near Tamanrasset (2250N/0528E) and to a lesser extent between Djanet (2434N/0930E) and Illizi (2630N/0830E). A few infestations were also reported further north near In Salah (2712N/0229E) and In Amenas (2805N/0923E). Control operations were carried out in all areas against high densities, up to 4,000 per sq. m., of hoppers of all instars, but mostly fourth and fifth instar, treating 9,147 ha at 115 locations. So far there was only one report of fledgling near Tamanrasset on the 11th. Scattered solitary adults mixed with other locust species, at densities of up to 3,000 per ha, persisted in several places of the Adrar (2751N/0019W) region where infestations were reported last month.

During the second half of the month, most of the hoppers near Tamanrasset were in the process of fledging and forming small immature swarms. Hoppers between Djanet and Illizi continued to mature and some had started to fledge by the end of the month; however most infestations consisted of second to fifth instar hoppers. Control operations were in progress in all areas including the Adrar region where solitary adults that were concentrating and forming groups were treated. A total of 8,668 ha were treated during the period.

## LIBYA

Groups of first to fifth instar hoppers were present during 4-22 June in several wadis near Ghat (2459N/1011E) where swarms were reported to have laid during May. A total of about 545 ha were estimated to be infested. Control operations were in progress and treated 675 ha from 27 May to 22 June.

**No locust reports were received from Tunisia up to 30 June.**

## EASTERN AFRICA

### SOMALIA

No locusts were seen during surveys undertaken in coastal and subcoastal areas east of Berbera (1028N/4502E) on 5-9 June except at Biyo Dader (1020N/4522E) where scattered mature adults were present.

**No locust reports were received from other countries in the Region up to 30 June.**

## NEAR EAST

### SAUDI ARABIA

Control operations were carried out against scattered adults at densities of 25-50 per ha at Qunfidah (1920N/4118E) on 370 ha during June.

### YEMEN

Solitary adults were present in the interior of the Shabwa Region at Shubaykhah (1441N/4648E) and in the Mayfaah Valley at Al-Hadhnah (1423N/4739E) on 25 June. No locusts were seen elsewhere in the interior from Ataq to Marib and Al-Jawf.

### KUWAIT

No locusts were reported during May.

**No locust reports were received from other countries in the Region up to 30 June.**

## SOUTH-WEST ASIA

### IRAN

Control operations continued during the second half of May and early June against groups of late instar hoppers and new adults on the Vashnum Plains near Chabahar (2516N/6041E), treating a total of 6,500 ha. Operations extended to other areas along the coastal plains near Jask (2540N/5746E) and in the interior near Bampur (2713N/6028E), treating a total of 1,260 ha and 6,000 ha respectively. There were additional reports of control operations in the Jaz Murian area near Iranshahr (2715N/6041E), and near Nikshahr (2612N/6014E) and Khash (2814N/6115E).

## PAKISTAN

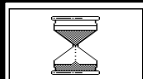
During the last half of May, two small low-density groups of immature adults were treated in the Dasht Valley at Saiji (2532N/6210E) of western Baluchistan on the 20th. Scattered adults at densities up to 18 per site were reported at a total of 23 locations throughout the coastal and interior areas of Baluchistan. Most of these were concentrated in Uthal, Kharan and Pasni districts and to a lesser extent in Turbat and Nushki districts. A swarm of about 1.5 sq. km in size was seen laying in Kharan District at Broko (2806N/6520E) on the 31st; control operations were underway.

During June, locust groups continued to appear in Baluchistan throughout the month. Three mature swarms, varying in size from 0.5-2.4 ha, were seen copulating at a few locations in the Kharan Valley on the 2nd, 3rd and 5th. Infestations of fourth and fifth instar hoppers were reported from 12 locations near Kharan (2832N/6526E). Solitary adults were present at several places in the Kharan District and at one location in Panjgur District. On the 20-24th, groups of maturing adults, varying in size from 0.5-2 ha, appeared near the Iranian border in Gwadar District. Control operations were in progress in all infested areas. Scattered adults were present in Lasbela District on the 21st.

## INDIA

Late reports indicated that isolated solitary adults were present at two locations of Bikaner District in Rajasthan during the first half of May and at one location of Barmer District during the second half of the month.

During the first half of June, scattered adults at densities up to 8 per site were seen at seven locations of Bikaner, Churu and Barmer districts with the maximum at Sejrasar (2821N/7346E) of Bikaner District on the 5th.



### FORECAST UNTIL MID-AUGUST 1996

Forecasting terms used in this section to indicate the chances of a particular event happening are indicated below; every term is arranged within each category from most to least probable:

high probability	will, probably, almost certain, likely, expected
medium probability	may, might
low probability	possibly, perhaps, unlikely

## WEST AFRICA

### MAURITANIA

Low numbers of adults will persist in the southern regions, continue to mature and lay with the onset of the rainy season. As a result, hatching is likely to start during July. Although infestations may gradually build up during the summer, initial populations are expected to be rather dispersed. A few adults may be present in some areas of recent rains in the north.

### MALI

Groups of adults and a few small swarms are expected to arrive from the north during July. As conditions are becoming favourable in several wadis in the Tilemsi Valley, maturation and laying will occur. Hatching could start by the end of the forecast period. Infestations will be dispersed and difficult to detect at the beginning of the summer. A similar situation could develop in Tamesna if rainfall occurs.

### NIGER

Groups of adults and a few small swarms are expected to appear from the north, mature and lay in wadis west of the Air Mountains and in Tamesna if rainfall occurs. Hatching and increasing numbers of hoppers are expected to appear by the end of the forecast period although infestations will be dispersed and difficult to detect at the beginning of the summer. Adults present in the Bilma and Djado areas are likely to continue moving eastwards towards northern Chad.

## **CHAD**

Adult groups, perhaps a few small swarms, are expected to appear in the Tibesti area from the west and north. Some of these may persist while others could move further east in the Borkou and Ennedi regions and lay if rainfall occurs.

## **BURKINA FASO**

As the swarm reported in May has almost certainly dispersed, no significant developments are likely.

## **SENEGAL**

Low numbers of adults may appear from the north in the Senegal River Valley and lay if rainfall occurs.

## **CAPE VERDE, GAMBIA, GUINEA BISSAU and GUINEA CONAKRY**

No significant developments are likely.

## **NORTH-WEST AFRICA**

### **ALGERIA**

Groups of adults and a few small swarms will continue to form from any hopper infestations that escape detection and control. Most of these are expected to migrate further south to the summer breeding areas of the Sahel, primarily in northern Mali and northern Niger. However, some may persist in those areas that remain green, mature and perhaps lay.

### **LIBYA**

Groups of adults and perhaps a few small swarms are likely to form from any hopper infestations that escape detection and control in the south-west. Infestations will decline as adults move towards the summer breeding areas of the Sahel.

### **MOROCCO and TUNISIA**

No significant developments are likely.

## **EASTERN AFRICA**

### **SUDAN**

Low numbers of adults are expected to be present in Northern Darfur and Northern Kordofan where they could start laying during July if rainfall occurs. These are likely to be supplemented by some adult groups, perhaps a few small swarms, from North-West Africa during July.

### **ERITREA**

Isolated adults may be present in the western lowlands and could be supplemented by some adult groups arriving from the west at the end of the forecast period.

### **ETHIOPIA**

Isolated adults may be present in the Railway area.

### **SOMALIA**

A few isolated adults may persist at some places on the north-western coastal plains.

### **DJIBOUTI, KENYA, TANZANIA and UGANDA**

No significant developments are likely.

## **NEAR EAST**

### **EGYPT**

There is a low possibility of adults and perhaps a few groups appearing from the west in the oases of the Western Desert. Some may stay and breed while others could move further south.

## **SAUDI ARABIA**

Scattered adults are expected to persist in a few locations on the southern Tihama.

## **YEMEN**

Scattered adults are expected to persist and lay in areas that received substantial rains, primarily in the interior areas from Al-Jawf to Shabwa and perhaps in coastal areas along the Red Sea and Gulf of Aden.

## **OMAN**

As a result of control operations, drying conditions and eastward migration through the Gulf of Oman, infestations have almost certainly declined on the Batinah coast where only a few adults are expected to remain. Scattered adults may be present in places along the eastern coast from Sur to Salalah.

## **BAHRAIN, IRAQ, ISRAEL, JORDAN, KUWAIT, QATAR, SYRIA, TURKEY and UAE**

No significant developments are likely.

## **SOUTH-WEST ASIA**

### **PAKISTAN**

Infestations in Baluchistan will decline as adults move towards the summer breeding areas near the Indian border. In the Kharan district, infestations may persist somewhat longer in areas of current breeding where a few adult groups are expected to form and also move towards the Indo-Pakistan border. As a result, increasing numbers of adults and perhaps a few groups or small swarms are likely to appear in the Cholistan and Tharparkar deserts throughout July and lay in areas that have recently received rainfall. Hatching will occur during the forecast period and a few small hopper bands may form.

### **INDIA**

Small scale breeding may have already started in those areas of Rajasthan that recently received rainfall. Increasing numbers of adults and perhaps some groups will continue to appear from the west throughout the forecast period and lay upon arrival. A few small hopper bands may form by the end of the forecast period.

### **IRAN**

Infestations along the south-eastern coast and adjacent areas of the interior are expected to decline as a result of control operations, drying conditions and eastward migration. As a result, only isolated adults may remain by the end of the forecast period.

### **AFGHANISTAN**

No significant developments are likely.



## ANNOUNCEMENTS

In addition to the usual transmission by fax and by mail, the Desert Locust Bulletins and Updates are also sent by electronic mail to an increasing number of affected countries. However, as these facilities are for the moment not available in all Plant Protection Departments, this information is sent by e-mail to the FAO or UNDP Representatives listed below. Due to frequent fax communication problems, National PPDs should contact these offices in order to receive a print out of the text within the first week of the month.

Algeria	UNDP Office, Algiers
Bahrain	UNDP Office, Manama
Benin	FAOR Office, Cotonou
Burkina Faso	FAOR Office, Ouagadougou
Cameroon	FAOR Office, Douala
Cape Verde	FAOR Office, Praia
Chad	UNDP Office, N'Djamena
Côte d'Ivoire	FAOR Office, Abidjan
Egypt	FAO Regional Office
Ethiopia	FAOR Office, Addis Ababa
Gambia	FAOR Office, Banjul
Guinea Conakry	FAOR Office, Conakry
Guinea Bissau	FAOR Office, Bissau
India	FAOR Office, New Dehli
Iran	FAO Office, Tehran
Iraq	FAO Office, Bagdad
Kenya	FAOR Office, Nairobi
Kuwait	UNDP Office, Kuwait City
Lebanon	FAOR Office, Beyrouth
Libya	UNDP Office, Tripoli
Mali	FAOR Office, Bamako
Mauritania	FAOR Office, Nouakchott
Morocco	UNDP Office, Rabat
Niger	FAOR Office, Niamey
Nigeria	FAOR Office, Lagos
Pakistan	FAOR Office, Islamabad
Senegal	FAOR Office and Locustox Project, Dakar
Sierra Leone	UNDP Office, Freetown
Sudan	FAOR Office, Khartoum
Syria	FAOR Office, Damascus
Tanzania	FAOR Office, Dar es Salam
Togo	UNDP Office, Lome
Tunisia	FAOR Office, Tunis
Turkey	FAOR Office, Ankara
Uganda	FAOR Office, Kampala
Yemen	FAOR Office, Sanaa

In order to maintain an updated list of e-mail in affected countries and donor organizations, it is kindly requested that new e-mail addresses be sent to [ECLO@fao.org](mailto:ECLO@fao.org).





## GLOSSARY OF TERMS

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

### Non-gregarious adults and hoppers

isolated	very few present and no mutual reaction occurring; 0 - 1 adult per 400 m foot transect (or less than 25 per ha). Other terms: a few.
scattered	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). other terms: some, low numbers.
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 sq. km	band: 1 - 25 sq. m.
small	swarm: 1 - 10 sq. km	band: 25 - 2,500 sq. m.
medium	swarm: 10 - 100 sq. km	band: 2,500 sq. m - 10 ha
large	swarm: 100 - 500 sq. km	band: 10 - 50 ha
very large	swarm: more than 500 sq. km	band: more than 50 ha

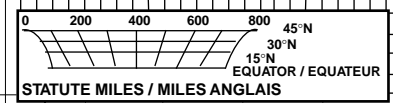
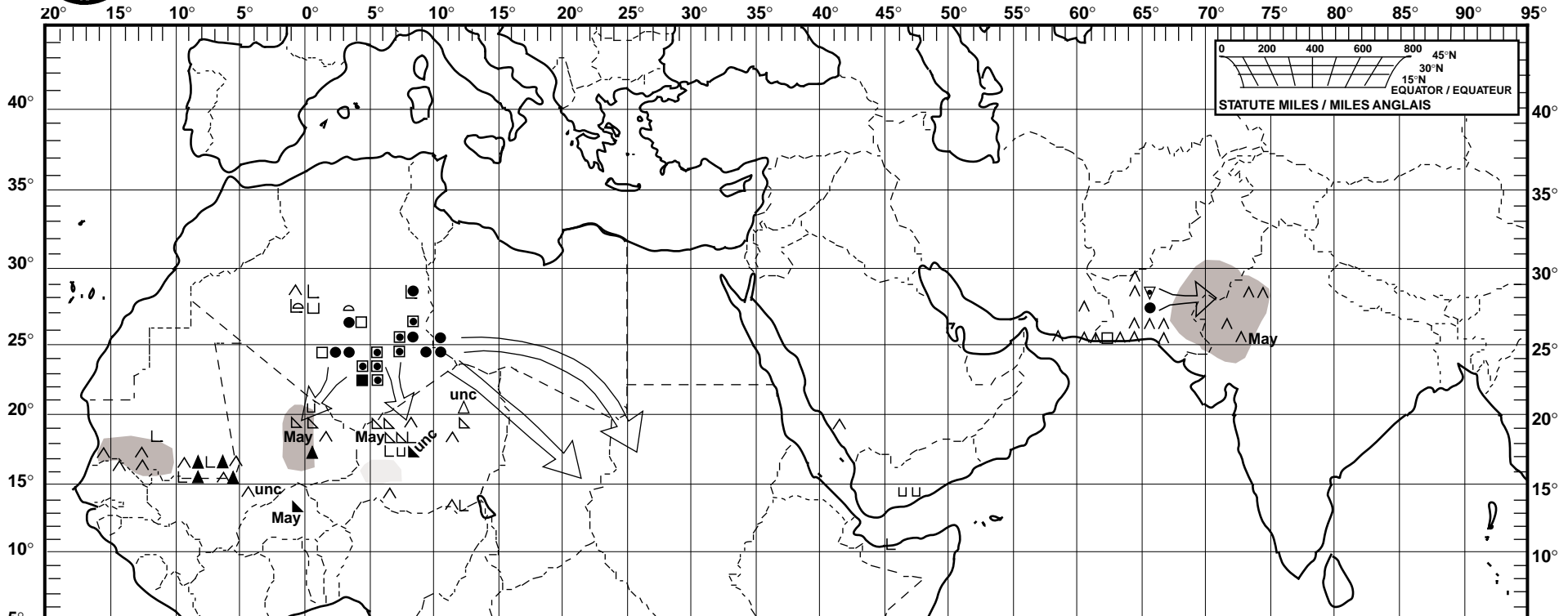
### Other reporting terms

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.



# Desert Locust: summary Criquet pèlerin: situation résumée

## No. 214



<b>SITUATION:</b> <b>June 1996</b> <b>juin 1996</b>	swarms or hopper bands essaims ou bandes larvaires	adults/hoppers adultes/larves	
		in groups en groupes	density low/unknown densité faible/inconnue

<b>FORECAST TO:</b> <b>PREVISION AU:</b> 15.08.96	<b>LIKELY PROBABLE</b>	<b>POSSIBLE POSSIBLE</b>
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)			