



# FAO



## EMERGENCY CENTRE FOR LOCUST OPERATIONS

### DESERT LOCUST BULLETIN No. 213



#### GENERAL SITUATION DURING MAY 1996 FORECAST UNTIL MID-JULY 1996

**Movement of Desert Locusts from the spring breeding areas of North-West Africa towards the summer breeding areas of the Sahel of West Africa increased during May. There were new reports of immature swarms arriving in Mauritania, Senegal, Libya, Mali and Niger. There was also an unconfirmed report from Burkina Faso. Although the scale of the migration so far is assessed to be low, additional adult groups and perhaps a few small swarms are expected to arrive in these countries while there is a low to moderate risk of further movement eastward into Chad, western Sudan and western Egypt during June. Adults are expected to lay eggs once the rains commence. In the Eastern Region, control operations were undertaken against hoppers and young adults that were forming groups along the coasts of Oman and Iran and to a lesser extent in western Pakistan. Low to moderate numbers of adults are expected to move from these areas towards the Indo-Pakistan summer breeding area during June.**

Infestations in southern Morocco declined throughout the month as a result of control and movement of swarms south towards Mauritania. Some of these continued across the dry areas and reached northern Senegal on 5 May. Control operations continued in Algeria against hopper bands south of the Atlas Mountains. Nevertheless, several groups of adults and small swarms formed and moved south-eastwards through central Algeria, reaching northern Mali during the first dekad of May and northern Niger and western Libya during the second dekad. Breeding occurred north of the Hoggar Mountains in southern Algeria and in south-western Libya where hopper bands were forming. Control operations were mounted in both of these areas.

As a result of above-average rainfall earlier this year, local breeding occurred in a few areas along the coastal plains of Oman, Iran and Pakistan. As vegetation dried up, hoppers and new adults concentrated and started to change from solitary to gregarious, forming small groups. Control operations were undertaken in all countries to prevent swarm formation and reduce the eventual migration towards the Indo-Pakistan summer breeding areas.

So far, seasonal rains have yet to commence in the summer breeding areas of the Sahel in West Africa and Sudan or along the Indo-Pakistan border.

There were no significant developments in the situation in eastern Africa or the Red Sea Trench.

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 MAY 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.

Generally dry weather prevailed during May in most of the summer breeding areas, apart from light to moderate rainfall in a few places of North-West Africa and the Arabian Peninsula. So far only light showers were received in parts of the Sahel of West Africa and Sudan. The ITCZ was usually located between 10N and 15N during the first half of the month and gradually continued its northern movement to above 15N during the second half of May. Under the influence of several strong depressions that moved eastwards from the Atlantic across the Mediterranean between the 4th and the 20th, it reached well above 20N over the Adrar des Iforas, Hoggar, Air and Tibesti mountains. Winds associated with these disturbances are expected to have facilitated locust movement east within North-West Africa and south towards the Sahel.

Unfavourable breeding conditions persisted in most places of the Sahel in West Africa. Vegetation and soil remained dry as high temperatures prevailed in Adrar, eastern Inchiri and Tagant of Mauritania. Although, rains were reported for the first time this year in south-eastern Mauritania at Nema on the 18th (4 mm) and Kiffa on the 25th (9 mm), seasonal rains have yet to commence in the Sahel. There were some clouds at times over northern Mali, northern Niger and more often over central and northern Chad which may have produced a few showers. However, no significant rains were reported from any of these areas. Breeding conditions may have improved at some places in Timetrine and the Adrar des Iforas of northern Mali as a result of rains received during April.

Conditions were favourable for breeding in parts of central Algeria as a result of heavy rains received during April. A few light showers during the last week of May may allow favourable conditions to persist and green vegetation is likely to start to appear near Djanet which received 28 mm. Breeding conditions were already favourable in the adjacent areas of south-western Libya near Ghat. In early May, favourable conditions were reported in Wadi Draa of Morocco. Although some light rains were received at times on the southern coast, most of places were drying out in the southern regions. Rains fell in southern Tunisia but no locusts are expected to be present to take advantage of these rains.

Dense clouds were visible early in the month over western Sudan. The first rains of the season occurred in central and eastern Sudan, although these were too light to have a significant impact on breeding conditions. Khartoum received 18 mm during the second half of May and, in Northern Darfur, Geneina 10 mm on the 31st. Ecological conditions are likely to improve in the Railway area of Ethiopia where Dire Dawa received a total of 100 mm between 9-24 May. Dense clouds were present during most of the first three weeks over north-western Somalia where breeding conditions are favourable and Djibouti; Hargeisa received 57 mm on the 14th and good rains fell in southern Djibouti.

Cloud activity suggested that only a few showers may have occurred in the Arabian Peninsula, primarily in the Asir Mountains and over the southern Tihama of Saudi Arabia and in adjacent areas of Yemen. Light rains were reported at several locations, for example 19 mm at Jizan on the 17th and more than a total of 21 mm at Abha. However, vegetation will continue to become dry due to high temperatures throughout the Peninsula. Moderate rains fell in southern Oman near Salalah during the second dekad, but no locusts are expected to be present.

Only light rains fell in parts of Rajasthan in India. Although, south-westerly winds associated with the monsoon prevailed, there is no indication that the rains have started along the Indo-Pakistan border.



## AREA TREATED

Algeria	2,849 ha	(22-30 April)	Mauritania	360 ha	(15-16 April)
	4,690 ha	(1-31 May)		138 ha	(11 May)
Iran	200 ha	(2-5 May)	Oman	4,000 ha	(12-15 May)
Libya	1,185 ha	(11-27 May)	Pakistan	no details	(1-14 May)
			Saudi Arabia	150 ha	(May)



## 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

Additional reports indicate that swarms first appeared from the north near the Moroccan border in the Tmeimichat area (ca. 2114N/1423W) in early April. There were more than 30 reports of swarms throughout the month by survey teams, locals and travellers, primarily near Zouerate (2241N/1240W) and between Tmeimichat and Akjoujt (1945N/1424W). Sizes, densities and general direction of movement were difficult to assess because they were often flying high due to hot temperatures, and some swarms may have been reported several times. One was up to 14 km by 6 km in size. Most of the swarms were immature. Some fifth instar hoppers were present at one place near Tmeimichat and one yellow swarm was seen near Zouerate on the 11th. Control operations were hampered by weather conditions and 360 ha were treated near Tmeimichat on the 15-16th.

During the first half of May, there was a total of ten reports of immature swarms in Adrar, Tagant and Inchiri. Most of these were flying south. One maturing swarm was treated covering 138 ha near Tidjikja (1832N/1126W). Isolated and low numbers of pink and grey adults were reported in these regions, primarily south of Atar (2031N/1303W). During the second half of the month, most of the adults gradually dispersed as there were only three reports of immature swarms in the Adrar region, all still flying south. Elsewhere, a few isolated solitarious adults were reported near Atar and Tidjikja. No locusts were found in other places of Adrar and Tagant.

#### SENEGAL

An immature swarm first reached the Senegal River Valley on 5 May at Thikite (1609N/1358W). It was reported to cover some 800 ha, but was fragmented and of low density (10-15 adults per sq. m.). It moved south-west towards Linguere (1523N/1507W) on the following day. On the 8th, two other swarms were reported at Aere Lao (1624N/1419W) and Richard Toll (1627N/1541W). Surveys were in progress, but no further information was received for the remainder of the month.

#### MALI

Yellow and pink adults were seen near Aguelhoc (1928N/0051E) and in the Timetrine area at Tinkar (1927N/0026W) by locals and nomads in mid April. Locust numbers and densities increased during the following weeks and several immature and a few mature swarms were reported. Damage occurred on trees.

During 2-8 May, travellers reported seeing swarms and groups of mostly yellow adults coming from the north in several wadis near Aguelhoc and in the Tilemsi Valley. There were other reports of flying immature adults and swarms on the 16th from Foufi (1710N/0404E) in Tamesna to In Ounfassen (1837N/0235E) on the eastern side of the Adrar des Iforas. Isolated adults were seen at several places in the town of Gao (1619N/0009E) on the 20th.

#### NIGER

Late reports were received indicating that a few isolated adults were present in some wadis north of Agadez during the second dekad of February. During the second half of March, nomads reported a swarm moving south of Agadez; however, this could not be confirmed by a survey team on the 20th. In late April, locusts were reported again north of Agadez near Arlit (1843N/0725E) and 30 km east of Agadez.

On 12 May, immature swarms were seen flying in the Irhazer area (1649N/0634E) of Tamesna west of Agadez. Immature adults, some pink, were reported by nomads and locals in the north-east of the country at Seguedine (2012N/1259E) and Dirkou (1901/1253E) on the 10th, and south of the Djado Plateau at 2100N/1215E on the 14th. No details were available on densities nor sizes of the infestations. However, these reports may be the first indication of adults moving from the spring breeding areas of North-West Africa to the summer areas in the Sahel.

## BURKINA FASO

There was an unconfirmed report of locusts near Kaya (1305N/0105W) during the first dekad of May. No further details are available.

**No locust information was received from other countries in the Region up to 31 May.**

## NORTH-WEST AFRICA

### MOROCCO

During the second half of April, the situation continued to improve in the extreme south-west where only a few groups of immature adults persisted near Tichla (2159N/1410W), Awsserd (2233N/1418W) and Beggari (2316N/1402W). Infestations were reported to be low density, and some adults were seen moving east.

In early May, a few solitary adults were reported near Laayoune (2707N/1313W) on the southern coast. Isolated pink adults were present near the Algerian border in Wadi Lamrhimine (3006N/0337W) on the 16th. No locusts were reported south of the Atlas Mountains between Tichla and Goulmine, in Wadi Draa, near Errachidia and Ouarzazate. However by the end of the month, small groups of pink adults were seen flying south at Oum Dreiga (2417N/1305W), Boucraa (2622N/1250W) and Almahbes (2724N/0849W) on the 22-24th.

### ALGERIA

More details were received concerning the second half of April. Hopper bands of all instars were present near the Moroccan border in the Hammada du Draa and Tabelbala areas west of Beni Abbes (3011N/0214W). Individual infestations varied from 5 ha to 1,300 ha (average 200 ha) and densities ranged from 10 to 150 hoppers per sq. m. The total area infested was estimated to be about 3,200 ha south-west of Tabelbala and nearly 1,000 ha west of Beni Abbes. Young adults started to appear near Tabelbala, at densities of up to 2 per sq. m. Ground control operations were undertaken in both areas, treating a total of 1,874 ha and 975 ha respectively.

Hopper bands continued to mature and form immature swarms at densities of 200-300 per sq. m during the first three weeks of May in the above areas. There were new reports of mature adult groups between Ahnet Mouydir (2530N/0330E) and Tamanrasset (2250N/0528E) as well as near Illizi (2630N/0830E) from mid-month onwards. As a result of previously undetected laying, small early instar hopper bands at densities up to 500 per sq. m. were present at numerous locations north of Tamanrasset and to a lesser extent near Djanet (2434N/0930W). By the end of the month, some of these had reached fourth instar. Control operations treated a total of 4,690 ha during May primarily in the Tabelbaba and Tamanrasset areas, and to a lesser extent in Illizi.

### LIBYA

During the second dekad of May, several groups and small immature and mature swarms entered the south-west of the country and moved east and north-east from the Ghat (2459N/1011E) and Murzuq (2556N/1357E) areas to south-east of Sabha (2704N/1425E). Most of the swarms dispersed and were present in several wadis, primarily near Ghat and Murzuq. Densities varied from 15-30 adults per sq. m. and infested areas ranged from about 21 sq. km near Ghat to 50-60 ha near Murzuq and Sabha. Some adults were seen copulating and laying near Ghat. There was also an unconfirmed report of small pink and yellow swarms in Hammada al-Hamra region south-east of Ghadames at En Nahia (2841N/1116E). Control operations were undertaken in the Ghat area where 455 ha were treated.

During the third dekad, control operations continued in the Ghat area where an additional 730 ha was treated. By the end of the month, a few groups of first instar hoppers started to appear in Wadi Tetghamin (2538N/1005E). No locusts were reported between Murzuq and Sabha.

**No locust information was received from other countries in the Region up to 31 May.**

## EASTERN AFRICA

### ERITREA

A late report stated that isolated solitary adults mixed with African Migratory Locust were present in several wadis on the coastal plains south of Massawa during April. No other details are available.

**SOMALIA**

During a survey in the Hargeisa area on 8-13 May, isolated adults were seen at Dobo (1019N/4320E) and Saley (1015N/4420E). No locusts were found in 18 other locations surveyed.

**ETHIOPIA**

No locusts were seen during surveys undertaken in western Oromiya and eastern Hararghe regions, and near Dire Dawa, Jijjiga and Kebri Beyah from 30 April to 8 May.

**No locust information was received from other countries in the Region up to 31 May.**

**NEAR EAST****SAUDI ARABIA**

A late report stated that one solitary adult was seen at Hail (2726N/4141E) and two at Al-Hait (2558N/4022E) during April.

During May, a total of 150 ha of scattered adults, at densities of 25-50 adults per ha, were treated on the Tihama near Qunfidah (1920N/4118E).

**OMAN**

Aerial and ground control operations were carried out against about 2,000 ha of high densities of hoppers and immature adults showing transiens characteristics on the Batinah coast north-west of Muscat near Jammah (2335N/5738E) from 12 May onwards. Control operations were concluded by the end of the month.

**GULF of OMAN**

An isolated grey locust was reported off the coast of Fujayrah at 2507N/5647E on 18 May.

**KUWAIT**

No locust activity was reported near Al Wafra (2834N/4804E) and Al-Abdaly (3005N/4742E) during April.

**JORDAN**

No locust activity was reported during March and April.

**IRAQ**

No locusts were seen during surveys in the Al Basrah region of the south-east during March.

**No locust information was received from other countries in the Region up to 31 May.**

**SOUTH-WEST ASIA****IRAN**

In late April, additional infestations were found in the interior between Iranshahr (2715N/6041E) and Bampur (2713N/6028E) consisting of late instar hoppers and immature adults, some in the transiens phase. Infestations were dispersed within an approximate area of 20 by 30 km.

During May, high densities of hoppers of all instars but primarily first and second were present at several locations of the Vashnum Plains north-east of Chabahar (2516N/6041E). Many of the hoppers were transiens and starting to form groups at densities of 30-40 per sq. m. covering up to 200 ha. Control operations were undertaken at Brejdar (2526N/6044E) on 2-5 May. Scattered immature adults and a few hoppers were seen along the Chabahar coast from Kachow (2513N/6057E) to Darak (2530N/5926E). Infestations similar to those on the Vashnum Plains but at lower densities were also present on the coastal plains east of Jask (2540N/5746E) in early May.

**PAKISTAN**

A late report stated that scattered solitary adults were present in four locations of the Turbat district during the first half of April, with a maximum of 12 adults seen at Shooli (2533N/6213E) on the 3rd.

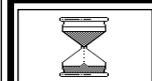
Scattered first to fourth instar solitary hoppers were also present on about 25 sq. m. Isolated adults were seen at four other locations each in Nushki and Kharan districts during the same period.

During the first half of May, low density groups of second to fifth instar hoppers were treated at Shooli on the 8th. Low density adults were reported in some coastal areas of Turbat and Lasbella districts as well as in the interior near Nushki. A maximum of 14 adults was seen at Sulika (2550N/6256E) in Turbat district on the 5th.

## INDIA

No locust activity was reported during the second half of April and in May.

**No locust information was received from other countries in the Region up to 31 May.**



## FORECAST UNTIL MID-JULY 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

Adult groups and a few small swarms will continue to move towards the southern regions where they will mature and lay eggs with the onset of the rainy season. Adults will probably disperse upon arrival and therefore breeding is likely to be scattered over several areas. If rains occur early in the forecast period, hatching could commence during the first half of July.

### SENEGAL

Adult groups and a few small swarms are expected to persist in the north-west, primarily along the Senegal River Valley, where they will mature and lay eggs with the beginning of the rainy season. Breeding is expected to be on a small scale.

### MALI

Laying may have occurred in northern areas that received sufficient rains during April and, if so, hoppers are almost certainly present at some places along the Tilemsi Valley. Locust numbers are expected to increase as adults arrive from the north. These will mature and lay eggs in the Adrar des Iforas and Tamesna during the forecast period if rainfall occurs.

### NIGER

Locust numbers are expected to increase in the Tamesna and wadis west of the Air Mountains as adults arrive from the north. These will mature and lay eggs with the onset of the rainy season during the forecast period. Adults present in the Bilma area are expected to move further east in the absence of favourable breeding conditions.

### CHAD

Adult groups and possibly a few small swarms are expected to arrive from the west in the Kanem region and move further east towards Ennedi and Biltine regions. If rainfall occurs, these will probably persist and lay eggs.

### BURKINA FASO

If reports in the central part of the country are confirmed to be Desert Locust adults, these may breed on a small scale with the onset of the rainy season.

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

No significant developments are likely.

### **NORTH-WEST AFRICA**

#### **MOROCCO**

Current infestations will decline further as conditions continue to become unfavourable for breeding and the remaining adult groups move towards the summer breeding areas of the Sahel.

#### **ALGERIA**

Groups of adults and possibly a few small swarms that escape control operations in the Tabelbala area are expected to move towards the south and east. Hopper bands that escape detection and control between Ahnet Mouydir and Tamanrasset and near Illizi and Djanet will form new swarms from mid June onwards. These are expected to move southwards as conditions become dry.

#### **LIBYA**

Additional laying is expected to occur and hopper infestations will almost certainly continue to appear in the Hammada al-Hamra region early in the forecast period. Locust numbers may be augmented by adults and perhaps a few groups or small swarms coming from the west. These could continue to move east through central and eastern Libya or south towards the summer breeding areas of the Sahel.

#### **TUNISIA**

No significant developments are likely.

### **EASTERN AFRICA**

#### **SUDAN**

There is a low to moderate risk of adults and perhaps a few small groups of swarms appearing from the west or north-west in western Sudan during the forecast period. If rainfall occurs, these will mature and lay; otherwise, they will continue to move eastwards towards Northern Kordofan and Kassala. The threat of locusts arriving from Arabia is assessed to be low at this point.

#### **ERITREA**

Isolated adults may be present in the western lowlands. There is also a possibility for additional low numbers of adults to arrive from the west late in early July.

#### **ETHIOPIA**

Isolated adults may be present in the Railway area and lay in areas that received recent rains.

#### **SOMALIA**

Isolated adults are expected to persist on the northern coastal plains and adjacent areas of the interior and lay in areas that received recent rains.

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

No significant developments are likely.

### **NEAR EAST**

#### **EGYPT**

Adult groups, possibly a few small swarms, are likely to appear in the Western Desert coming from the west during June. These are expected to remain in the oases or move further south towards Sudan.

#### **SAUDI ARABIA**

Scattered adults are likely to persist on the Tihama.

## **YEMEN**

Isolated adults may be present and persist in some places along the coast of the Red Sea and the Gulf of Aden. Scattered adults may be present in Sabatayn and Wadi Hadhramaut areas and breeding in areas that received rains.

## **OMAN**

Any adults on the Batinah that escaped detection or control are expected to form small groups and move east across the Gulf of Oman towards the Indo-Pakistan summer breeding areas.

## **UAE**

Low numbers of adults are likely to be present in Fujayrah but populations will decline as they move east towards the Indo-Pakistan summer breeding areas.

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

No significant developments are likely.

## **SOUTH-WEST ASIA**

### **IRAN**

Infestations that escape detection and control operations along the Baluchistan coast between Jask and Chabahar are expected to form small groups of adults and perhaps a few small swarms and move east towards the Indo-Pakistan summer breeding areas. As a result of drying conditions, no further breeding is expected and the overall infestation will continue to decline.

### **PAKISTAN**

As a result of migration from the west, adult numbers will increase in all summer breeding areas along the Indian border. Adults will lay eggs, perhaps on a moderate scale, with the onset of the monsoon rains. Hatching is expected to commence from early July onwards. Infestations will gradually decline in Baluchistan as conditions continue to dry out.

### **INDIA**

As a result of migration from the west, adults will appear in Rajasthan and Gujarat and lay, perhaps on a moderate scale, with the onset of the monsoon rains. Hatching is expected to commence from early July onwards.

### **AFGHANISTAN**

No significant developments are likely.

5 June 1996



## 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

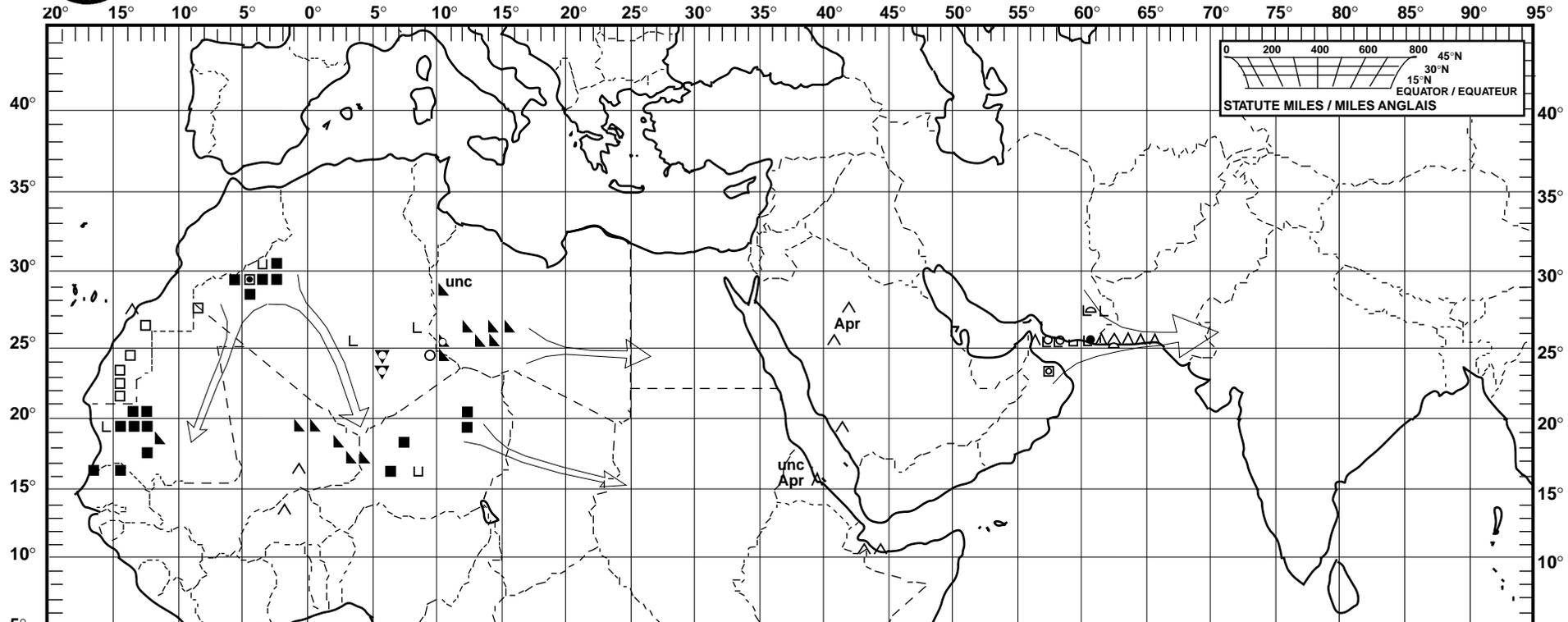
### Other reporting terms

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. 213



FORECAST TO: PREVISION AU: <b>15.7.96</b>	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		

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

immature adults adultes immatures			
mature or partly mature adults adultes matures ou partiellement matures			
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)			