

# DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations



No. 218  
(4 Nov 1996)



## General Situation during October 1996 Forecast until mid-December 1996

*During October, small swarms of Desert Locust moved north along the coast of Mauritania to south-western Morocco. Some of these laid eggs which started hatching by mid month and small hopper bands were forming. Additional swarm movement, hatching and band formation is expected in central and northern Mauritania and southern Morocco during the forecast period. Strong southerly winds at mid month carried adults and several swarms north from Mali and Niger to central Algeria and north-western Libya. Some of these may have also reached north-eastern Morocco. In Yemen, control operations continued against late instar hopper bands and immature adults in the interior desert. Any adults that escape detection and control are expected to appear on the Red Sea coastal plains of Yemen and Saudi Arabia during November.*

In **West Africa**, adults and swarms started to move out of the summer breeding areas towards the winter/spring breeding areas of North-West Africa. In Mauritania, control operations continued in the south-west, treating 5,300 ha. Nevertheless, some swarms escaped and moved north along the coast to south-western Morocco while others moved north-east into

the interior. A number of these laid and eggs started hatching at mid month. By the end of the month, there were several reports of small patches of early instar hopper bands dispersed within a large area of western Mauritania. Swarm movement, laying and band formation are expected to continue during the forecast period in the north-west and north of the country. Late reports indicated that breeding occurred on a larger scale than previously expected in central and northern Mali during September which resulted in high numbers of adults and the formation of several swarms. Although control operations were undertaken treating nearly 1,000 ha, escapees probably moved further west towards Mauritania and north towards Algeria and Morocco.

In **North-West Africa**, adults and several swarms appeared in central Algeria and north-western Libya as a result of strong southerly winds from the Sahel at mid-month. Other adults arrived in south-western Morocco from Mauritania on the 23rd. Additional adults and probably a few small swarms are expected to appear in Morocco and perhaps western and southern Algeria. There is a risk of breeding occurring south of the Atlas Mountains if temperatures remain warm and rainfall occurs during the forecast period.

In **Eastern Africa**, no significant infestations were reported. There is a low risk of a few small adult infestations crossing the Red Sea from Yemen and arriving on the coastal plains of Eritrea and Sudan. Regular surveys are required to monitor the situation.

In the **Near East**, infestations of hopper bands and new adults are concentrated in the interior desert areas of Yemen bordering the Empty Quarter. Ground control operations treated nearly 5,000 ha during the month. Adults that escape detection and control are expected to move towards the Red Sea coastal plains of Yemen

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, Other Migratory Pests and Emergency Operations Group, AGP Division, FAO, 00100 Rome, Italy.  
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and Saudi Arabia. Upon arrival they will mature and lay in those areas that receive rainfall. The scale of this movement and subsequent breeding is assessed to be small at this point.

In **South-West Asia**, infestations resulting from the summer breeding decreased throughout the month and no significant developments are expected in India or Pakistan.

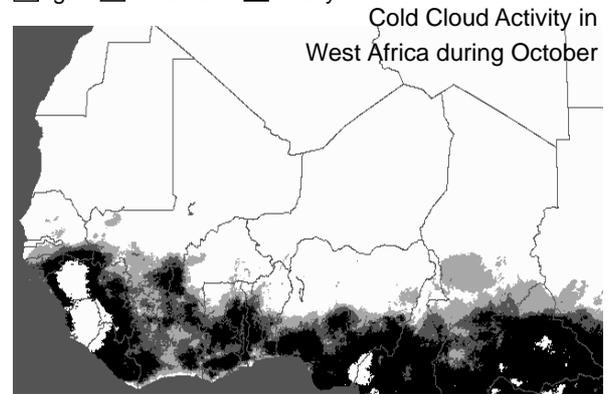


### Weather & Ecological Conditions during Oct. 1996

***During October, no significant rains were reported in any of the locust areas. This indicates that the seasonal rains in West Africa and those associated with the monsoon in South-West Asia have come to an end. Strong southerly winds occurred over northern Mali and Niger at mid-month which may have been responsible for the locusts reported to have arrived in Libya.***

In West Africa, the Inter Tropical Convergence Zone (ITCZ) generally fluctuated between 10-15N throughout the month. Early in the month, it was located between 15-20N over Mauritania and, at times, it reached 20N over northern Mali. The northern limit of cold cloud activity was much further south than the previous month. Only a few light showers occurred in localized areas of western Mali and southern Mauritania. Heavier rains fell at times in the Senegal River Valley and in adjacent areas of south-western Mauritania. During most of the month, prevailing winds over the interior of Mauritania were from the north-east while those closer to the coast were from the north. Easterly winds prevailed from Mali to Chad. Strong southerly winds occurred over northern Mali from the Adrar des Iforas to Tamesna of north-western Niger on the 12-16th. These winds extended north towards Algeria and the north-western coast of Libya. Consequently, they may have been responsible for locusts appearing in north-eastern Morocco, central Algeria and north-western Libya. Vegetation was reported to be drying out in most areas of the Sahel. In Mauritania, green vegetation persisted in northern Brakna and western Tagant up to Tidjikja. By mid-month, vegetation was starting to become green east and south-east of Nouakchott, along the coast to the

□ light    ■ moderate    ■ heavy



north in the southern Tijirit area, and from Nouakchott to Akjoujt.

In North-West Africa, no significant rainfall was reported from Desert Locust areas apart from a few light showers south of the Atlas Mountains where conditions are generally dry. Light rainfall did occur over a widespread area of southern Tunisia during the first half of the month. Small areas of green vegetation were present in the Ahnet region west of the Hoggar Mountains in central Algeria.

In Eastern Africa, light rainfall was reported at a few places in Darfur of western Sudan and also in the Eastern Province. However, conditions are expected to be generally dry. Light rains also fell early in the month near Massawa on the Red Sea coastal plains of Eritrea. By the end of the month, clouds were present over the coastal plains extending from Massawa to Port Sudan. Clouds were also seen over Wadi Diib in Sudan.

In the Near East, light rains fell along the northern coastal plains of the Red Sea in Yemen and in adjacent areas of Saudi Arabia near Jizan during the second half of October. Conditions are favourable for breeding near Jizan but vegetation is still dry on the Yemeni coastal plains. Light rains associated with a tropical depression over the Arabian Sea may have fallen in coastal and interior areas near the Oman/Yemen border on the 30-31st.

In South-West Asia, very little rainfall was reported in summer breeding areas apart from light rainfall near Bahawalpur in the Cholistan desert of Pakistan early in the month. Dry weather prevailed during the second half of the month. Consequently, vegetation is drying up in Rajasthan of India and the adjacent desert areas of Pakistan. A cyclone moved progressively northwards along the western coast of India on the 23-25th but then headed west towards the Arabian Peninsula.



## Area Treated

India	1,331 ha	(16-30 September)
Mali	454 ha	(11-30 September)
	500 ha	(2 October)
Mauritania	5,299 ha	(1-31 October)
Yemen	5,000 ha	(September)
	4,770 ha	(1-27 October)



## Desert Locust Situation and Forecast

### WEST AFRICA

#### Mauritania

##### • SITUATION

During the first dekad of October, control operations shifted from the R'Kiz (1650N/1520W) area, where adult groups were forming, to about 100 km north in the Afojjar (1740N/1542W) area. Although numerous infestations of late instar hopper bands and immature adults were treated, many locusts are likely to have escaped detection and control and formed immature swarms along the coast and in adjacent interior areas. These swarms moved further north and north-east, reaching just south of 19N by the 10th. Many of the swarms rapidly matured and laid eggs over a large area extending from just north of Afojjar to north of Nouakchott and east towards Tidjikja (1829N/1131W) and Moudjeria (1746N/1231W).

During the second dekad, swarms continued moving north, north-east and east from the coast and Afojjar area, reaching just south of 20N. There was an unconfirmed report on the 11th of a swarm south of Zouerate (2244N/1230W). Breeding continued and hatching was first reported on the 18th near Nouakchott with resulting hoppers forming small but very dense patches. Control operations continued against mainly mature swarms.

During the third dekad, more small infestations of early instar hopper bands were found in the above areas as well as between R'Kiz and Moudjeria. By the end of the month, some hoppers had reached the third instar; laying and hatching continued to be reported. There were also three reports of swarms moving towards the north-west between Kiffa (1638N/1128W) and Aioun El Atrous (1640N/0937W) suggesting that undetected breeding occurred in the south or perhaps movement occurred from infested areas in central Mali. Control operations continued but mainly against newly emerged hoppers near Nouakchott. A total of 5,299 ha were treated during the month by ground and air.

##### • FORECAST

*Swarms will continue to migrate during the forecast period as long as temperatures remain warm. It is likely that some may have already reached the El Hank area of the north and could lay if conditions are favourable. Breeding will continue in Inchiri, southern Adrar, northern Trarza, western Tagant and north-eastern Brakna with hoppers forming small bands scattered within a large area extending from Nouakchott to Tidjikja and Atar. By early December, new swarms could start to form on a small to moderate scale.*

#### Senegal

##### • FORECAST

*Scattered adults may be present in the western part of the Senegal River Valley. The risk of additional infestations arriving from the north is greatly diminished and no significant developments are expected during the forecast period.*

#### Mali

##### • SITUATION

Late reports indicate that significant infestations were present in several different parts of the north from mid September onwards. Near Gao (1619N/0009W), hopper bands at densities up to 500 hoppers per sq. m. and scattered adults were present at several locations during the 10-20th. On the 18th, 48 ha of moderate densities of gregarious adults, up to 30,000 per ha, were treated. During the last dekad of the month, hopper and adult densities increased to 700 hoppers per sq. m and 500,000 adults per ha indicating swarm formation. West of Tombouctou, 80 ha of immature gregarious adults were treated on the 21st at Tin Aicha (1649N/0359W). In the Adrar des Iforas, adults at densities up to 80,000 per ha mixed with late instar hoppers were present east of Kidal at Edjerer (1826N/0206E). Control operations treated nearly 900 ha of immature solitary and transien adults at several locations from 20 September to 3 October. Other infestations on a similar scale were present south of Tessalit (2011N/0102E) and to the north-west at Tin-Djelaline (2059N/0018W).

During October, the situation improved in most areas as vegetation dried out. Hopper bands and swarms were reported on the 21st in Tamesna at In Algomitane (1758N/0258E) and Laya (1755N/0339E).



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### • FORECAST

A few small groups and swarms are still expected to form early in the forecast period near Gao and Tombouctou as well as in the Adrar des Iforas. Most of these are likely to move west and north towards North-West Africa especially during periods of warm southerly winds and prevailing easterly winds. However, a few may persist and slowly mature during the forecast period.

### Niger

#### • SITUATION

Late reports indicate that low numbers of mature adults were present at several locations of Tamesna from 23 September to 2 October. Most infestations consisted of densities up to 1,500 adults per ha in areas of 10-600 ha. Some adults were seen copulating. Isolated adults were also reported between Arlit (1845N/0720E) and the Algerian border at Assamaka (1920N/0546E).

#### • FORECAST

Adults are expected to concentrate and increase in density as vegetation dries out in Tamesna. As a result, a few groups may form and move north during periods of warm southerly winds. Others may disperse and persist during the forecast period.

### Burkina Faso, Cape Verde, Chad, Gambia, Guinea Bissau and Guinea Conakry

#### • FORECAST

No significant developments are likely.

### NORTH-WEST AFRICA

#### Algeria

#### • SITUATION

During the second half of September, solitary hoppers were present in the extreme south-east at Tin Tarabine (2143N/0804E).

During the first half of October, solitary adults mixed with gregarious individuals were present at a few locations of the Ahnet Mouydir area west of the Hoggar Mountains at densities up to 300 per ha on the 10-12th. During the second half of the month, transien adults were reported in central Algeria from Gourd El Hamra (2920N/0630E) on 3 ha at densities of 30-100 adults per ha and from Ait Messaoud (2655N/0005E) on 15 ha at densities of 25-30 per ha. These populations are thought to be a result of movement from the south on

strong southerly winds during the 12-13th.

#### • FORECAST

Low numbers of adults may be scattered in some areas west and south of the Hoggar Mountains as well as further north south of the Atlas Mountains from Bechar to Ouargla and In Amenas. There is a low risk of adults appearing in the western region near Tindouf especially during periods of warm southerly winds. Laying may occur in favourable areas and, if so, hoppers could appear by the end of the forecast period.

### Morocco

#### • SITUATION

Mixed solitary and gregarious adults arrived in the extreme south-west near Bir Guendouz from the south on 23 October at Gleib Houara (2130N/1619W) and Dayat El Khadra (2119N/1609W). Additional surveys on the 25th found infestations of maturing adults scattered over several areas north-west of Bir Guendouz (2134N/1627W) which had reached as far north as Tbarkallah (2251N/1616W). Adults were present in areas of 2-7 ha and at densities of up to 3 per sq. metre. Isolated adults were also reported in the north-east south of the Atlas Mountains near Bouarfa (3230N/0159W) on the 19-20th. These may have arrived on the strong southerly winds that prevailed at mid month.

#### • FORECAST

Low to moderate numbers of adults including some groups and small swarms are expected to continue to appear in the extreme south-west and move northwards towards the Atlas Mountains. The extent of this movement will be influenced by winds and temperatures. During periods of warm southerly winds, adults could reach the Oued Draa area. Laying could occur in areas of favourable conditions and, if so, hoppers could appear by the end of the forecast period with limited band formation.

### Libya

#### • SITUATION

Two immature swarms were seen in the north-west near Nalut (3153N/1059E) and Mizdah (3125N/1302E) on 16 October. There were several reports of solitary immature adults in the same area south of Jabal Nefusa as well as near Ghadames (3010N/0930E) on the 17-19th. These adults are thought to have arrived on strong southerly winds that extended from the northern Sahel during the 12-16th.

#### • FORECAST

Adults that arrived from the south are likely to have dispersed over the western and central interior, some may have reached the north-western coastal plain.

### Tunisia

#### • SITUATION

There was an unconfirmed report of locusts in the

south in mid October.

• **FORECAST**

*There is a moderate possibility of low numbers of adults in the south where they may persist, mature and lay in areas of favourable conditions.*

**EASTERN AFRICA**

**Sudan**

• **SITUATION**

Late reports stated that no locusts were seen during surveys near Ed Duiem during the first and last week of September. Elsewhere, no locusts were reported up to 7 October.

• **FORECAST**

*Any undetected adults present in the summer breeding areas are expected to gradually move east towards the Red Sea coast during the forecast period, mature and lay in areas that receive rainfall. These may be supplemented by any adults arriving from the east*

**Somalia**

• **FORECAST**

*Scattered adults may be present along some parts of the north-west coastal plains and adjacent areas of the interior. There is a low risk that a few adults will arrive from the southern Arabian Peninsula.*

**Eritrea**

• **SITUATION**

No locust were reported up to 4 October on the Red Sea coastal plains.

• **FORECAST**

*Low numbers of adults are likely to appear on the Red Sea coastal plains from any undetected populations in the western lowlands. These may be supplemented by any adults arriving from the east. If rainfall occurs, these are expected to lay and hatching could commence late in the forecast period.*

**Ethiopia**

• **SITUATION**

No locust were seen during surveys carried out in the north-eastern province of Welo on 3-4 October.

• **FORECAST**

*No significant developments are likely.*

**Djibouti, Kenya, Tanzania and Uganda**

• **FORECAST**

*No significant developments are likely.*

**NEAR EAST**

**Saudi Arabia**

• **SITUATION**

No locust activity was reported during October.

• **FORECAST**

*Low to moderate numbers of adults and perhaps a few groups and small swarms are expected to appear on the southern Red Sea coastal plains from the Yemen interior. These will continue to mature and lay in areas of recent rainfall. Hatching could commence late in the forecast period.*

**Yemen**

• **SITUATION**

During October, control operations continued against persistent infestations of late instar hopper bands and of new adults in the interior between Ash Shubaykhah (1439N/4647E) and Bayhan (1448N/4543E), near Marib (1533N/4521E), and Wadi Al-Jawf (1605N/4447E). Most of the infestations were concentrated in wadis leading to the Ramlat Sabatayn and covered several hundred hectares. Hopper band densities varied from 25-40 per sq. metre. Adults were both transients and gregarious at densities up to 3,000 per ha. There was an unconfirmed report of adults at a few locations on the coastal plains west of Aden. A few solitary adults were seen in the Sayun (1559N/4844E) area. No locusts were seen during surveys on the Red Sea coastal plains. Nearly 5,000 ha were treated by ground operations during the month.

• **FORECAST**

*Low to moderate numbers of adults and perhaps a few groups and small swarms are expected to appear on the Red Sea coastal plains from the interior. These will continue to mature and lay in areas of recent rainfall. Hatching could commence late in the forecast period. Some infestations may persist along the Aden coastal plains.*

**Egypt**

• **SITUATION**

Scattered mature adults were present in a few cropping areas and wadis in the extreme south to the east of Lake Nassar and on the Red Sea coastal plains between Halaib (2212N/3635/E) and Shalatein (2308N/3536E) on 25 September. These populations remained until the end of October.

• **FORECAST**

*Low numbers of adults are likely to persist in the above areas.*



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locations of Bikaner district and one of Barmer. During the second half of the month, similar infestations were present at 9 locations of Bikaner district at densities up to 10 per site.

### • FORECAST

*Infestations will continue to decline in Rajasthan as vegetation dries up and adults move further west. Low numbers of solitary adults may persist in a few places.*

### **Kuwait**

#### • SITUATION

No locusts were reported during September.

#### • FORECAST

*No significant developments are likely.*

### **Bahrain, Iraq, Israel, Jordan, Oman, Qatar, Syria, Turkey and UAE**

#### • FORECAST

*No significant developments are likely.*

### **SOUTH-WEST ASIA**

#### **Pakistan**

#### • SITUATION

During the first half of October, low densities of solitary adults persisted in the summer breeding areas mainly in the Tharparkar and Cholistan deserts and to a lesser extent in Khipro. Although densities of up to 16 adults per site were similar to last month, the total number of locations that reported infestations (55) was somewhat less.

During the second half of the month, infestations declined in the summer breeding areas and only isolated adults up to 6 per site were seen at 14 locations of Tharparkar and Khipro deserts. A few infestations were also reported in Lasbela district.

#### • FORECAST

*Densities may increase early in the forecast period as vegetation dries out further and adults become concentrated. However, infestations should decline throughout the period as adults move west towards Baluchistan where they should first appear in coastal areas.*

### **INDIA**

#### • SITUATION

During the second half of September, control operations were carried out on a total of 1,300 ha of small infestations of late instar hoppers and new adults in three locations of Bikaner District and one in Jodhpur. Elsewhere, low to high densities of solitary adults were reported at a total of 21 locations in the above districts as well as in Jaisalmer and Barmer districts. Some of these were probably concentrating in the relatively small areas of remaining green vegetation.

During the first half of October, varying densities of solitary adults up to 75 per site were present at five

### **IRAN and AFGHANISTAN**

#### • FORECAST

*No significant developments are likely.*



## Announcements

An increasing number of Desert Locust reports are sent to FAO-HQ via electronic mail. In order to avoid delays in the processing of these reports, messages regarding locust and weather information should only be sent to: [ECLO@fao.org](mailto:ECLO@fao.org)

The personal email addresses of the various Locust Group staff can continue to be used for other information.

Thank you for your collaboration.



## 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 km<sup>2</sup>      • band: 1 - 25 m<sup>2</sup>

### **SMALL**

- swarm: 1 - 10 km<sup>2</sup>              • band: 25 - 2,500 m<sup>2</sup>

### **MEDIUM**

- swarm: 10 - 100 km<sup>2</sup>          • band: 2,500 m<sup>2</sup> - 10 ha

### **LARGE**

- swarm: 100 - 500 km<sup>2</sup>        • band: 10 - 50 ha

### **VERY LARGE**

- swarm: 500+ km<sup>2</sup>              • 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.

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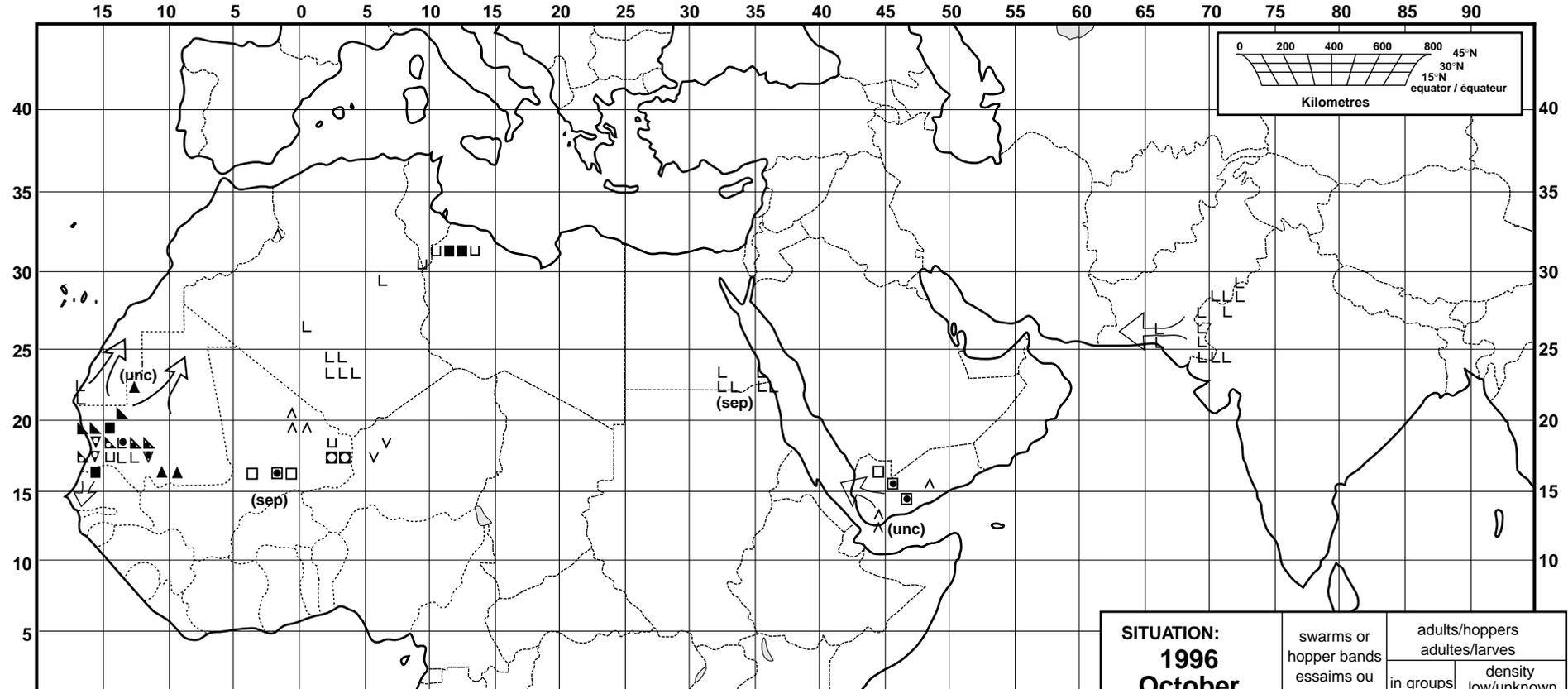
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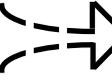
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# Desert Locust summary Criquet pèlerin situation résumée



FORECAST TO: PREVISION AU:	15.12.96	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			

SITUATION: 1996 October octobre	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)			