

# DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations



No. 229  
(6 Oct 1997)



## General Situation during September 1997 Forecast until mid-November 1997

Desert Locust breeding continued along the Indo-Pakistan border where control operations were undertaken by both countries against swarms and hopper bands. Adults and perhaps a few small swarms that escape these operations will move towards western Pakistan, eastern Iran and perhaps eastern Arabia by the end of the forecast period. Control operations were also carried out against several swarms in Sudan where breeding is in progress. Adults and a few small swarms from the summer breeding areas could start to appear at anytime on the Red Sea coastal plains of Sudan, Eritrea, Egypt and perhaps Saudi Arabia and Yemen. No significant locust activity was reported in West or North-West Africa.

**Eastern Region.** Breeding increased in **Pakistan** and **India** as more hoppers and small bands were discovered in other parts of the desert along the Indo-Pakistan border. There was some indication of several small mature swarms moving back and forth across the border and laying eggs. During the month, control operations treated an estimated 15,000 ha in Pakistan and more than 5,000 ha in India against laying swarms,

hopper bands and new adults. Further breeding is unlikely but adults that escape control operations could form groups and a few small swarms which are likely to start moving towards the spring breeding areas of western Pakistan and eastern Iran, and perhaps beyond, by the end of the forecast period.

**Central Region.** Control operations were carried out against several swarms in eastern **Sudan** near the border with **Eritrea** in early September. These may have come from areas of undetected breeding on either side of the border. Some swarms laid eggs which supplemented breeding that was already in progress in several areas which required control. During the forecast period, breeding should come to an end and adults and perhaps a few small groups or swarmlets could start appearing on the Red Sea coastal plains of Sudan and perhaps Egypt and Eritrea, and lay if early rains occur. There is a possibility that some may cross the Red Sea and appear on the coastal plains of **Saudi Arabia** and **Yemen**. In eastern Arabia, adults and perhaps a few small swarms may appear in northern **Oman** from the Indo-Pakistan summer breeding area late in the forecast period.

**Western Region.** No significant locust activity or rainfall were reported. Only isolated adults persisted at a few places in southern **Mauritania** while a few adults may appear in the north-west during the forecast period.

The FAO Desert Bulletin is issued monthly, supplemented by Updates during periods of increased Desert Locust activity, and is distributed by fax, e-mail, FAO pouch and airmail by the Locusts, Other Migratory Pests and Emergency Operations Group, AGP Division, FAO, 00100 Rome, Italy.  
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### Weather & Ecological Conditions during Sept. 1997

**Dry weather prevailed over most parts of the Sahel of West Africa and along the Indo-Pakistan border except for some sporadic showers. Consequently, favourable breeding conditions are limited to just a few areas.**

In **West Africa**, the Inter-Tropical Convergence Zone (ITCZ) was located between 15-20N but steadily moved southward throughout the month. Cold clouds associated with the ITCZ declined over summer breeding areas. During the first dekad, the northern limit of these clouds reached parts of northern Mauritania, Mali, western Niger and central Chad. By the end of the month, clouds were only present over the south-western areas of Mauritania and Mali. Consequently, rainfall was very poor throughout the Sahel. In Mauritania, light rains were reported in the north during the first dekad while moderate rains occasionally fell in a few places in the south during the remainder of the month. Light to moderate rains fell a few times in south-western Mali along the Mauritanian border, in western Niger near Tahoua and Agadez, and in eastern Chad near Abeche. Breeding conditions improved in south-western and central Mauritania as a result of earlier rains but declined in the south-east. In Mali, green vegetation was limited to a few wadis in the Adrar des Iforas between Kidal and Tessalit and parts of southern Tamesna. In Niger, similar conditions were

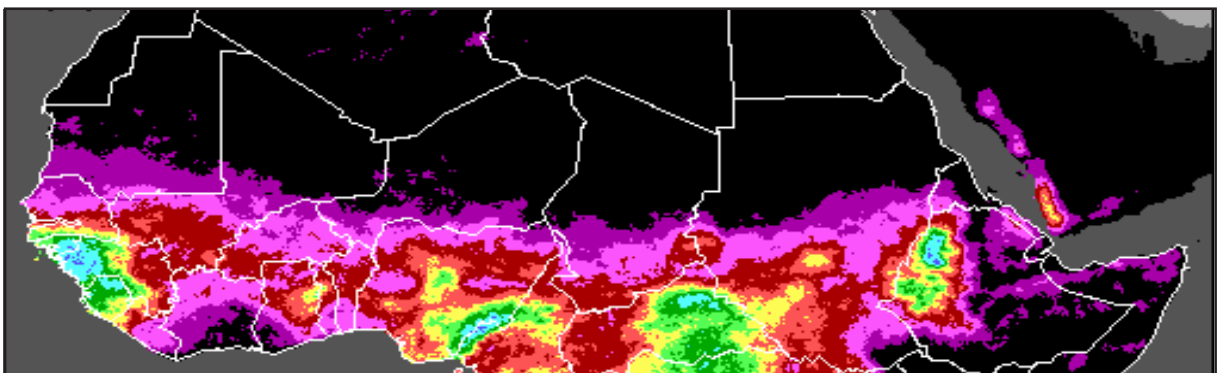
present in western Air between Agadez and Arlit and in the Tamesna south of In-Abungarit. Favourable conditions declined in both countries throughout the month.

In **North-West Africa**, a few light showers associated with eastward moving depressions were reported on the southern side of the Atlas Mountains from mid-month onwards; heavier rains fell north of the Atlas causing severe flooding. Breeding conditions are generally unfavourable but may improve in run-off areas south of the Atlas.

In **East Africa**, mainly dry weather prevailed in summer breeding areas. In Sudan, the northern limit of cold clouds progressively moved southwards from Kutum-Soderi-Khartoum-Derudeb to Geneina-El Obeid-Kosti-Damazine. Only light showers were reported in a few places during the second half of the month. Heavier rains may have fallen in the western lowlands of Eritrea and across the border in eastern Sudan during the first half of the month but by the last dekad of the month, cold clouds were no longer present. Conditions are favourable for small scale breeding in parts of the above areas. No rain was reported on the Red Sea coastal plains and favourable breeding conditions are limited to a few wadis that receive run-off from the highlands.

In the **Near East**, dry weather prevailed apart from a few showers in Saudi Arabia on the southern Red Sea coastal plains near Jizan and in the central Asir Mountains near Taif. Conditions are likely to be favourable for breeding near Jizan.

In **South-West Asia**, rains associated with the monsoon declined during the month along the Indo-Pakistan border. Only light rains fell during the first and third dekads in a few places in Rajasthan, India and in the Tharparkar Desert, Pakistan. During the first half of the month, a total of 58 mm fell at Barmer and 32 mm at Jodhpur, Rajasthan; 29 mm fell at Chhore in Tharparkar. Dry weather was reported during the last half of the month. Conditions remain favourable for breeding in some of these areas.



Cold-cloud image for September 1997 indicating a decrease in activity over the Sahel of West Africa and Sudan compared to last month. Only light clouds were present over southern Mauritania and south-western Mali. No significant clouds were visible over northern Mali, Niger and Chad.





## Area Treated

Eritrea	400 ha	(August)
India	625 ha	(16-31 August, corrected)
	4,903 ha	(1-15 September)
Pakistan	15,000 ha	(September, estimated)
Sudan	7,273 ha	(6-27 September)



## Desert Locust Situation and Forecast

### WEST AFRICA

#### **Mauritania**

##### • SITUATION

Isolated maturing and mature solitary adults continued to persist during September at a few places near Kiffa (1638N/1128W). Similar populations were present in the south-west north of Rkiz (1655N/1516W).

##### • FORECAST

*Small scale breeding is likely to occur in a few places in the south and centre but population levels will remain extremely low and difficult to detect. Locust numbers may increase slightly in the south-west and a few adults may appear in the north-west by the end of the forecast period.*

#### **Mali**

##### • SITUATION

There were unconfirmed reports of immature and mature solitary and transiens adults at four locations in Timetrine and western Adrar des Iforas between Tin Eridjane (1951N/0036E) and In-Bolrech (2042N/0112E) during September.

##### • FORECAST

*Low numbers of hoppers may appear in a few places of Timetrine and the western Adrar des Iforas as a result of small scale breeding during September and October. By the end of the forecast period, hoppers and adults could become concentrated in the remaining areas of green vegetation and form a few small groups.*

#### **Niger**

##### • FORECAST

*Low numbers of solitary adults may be present and breeding in a few places in Tamesna and western Air. However, population levels are expected to be remain at a low level. By the end of the forecast period, hoppers and adults could become concentrated in the remaining areas of green vegetation and form a few small groups.*

#### **Chad**

##### • FORECAST

*Low numbers of solitary adults may be present and breeding in a few places in Biltine and northern Ouaddai provinces. Population levels are expected to be remain at a low level.*

#### **Burkina Faso, Cape Verde, Gambia, Guinea Bissau, Guinea Conakry and Senegal**

##### • FORECAST

*No significant developments are likely.*

### NORTH-WEST AFRICA

#### **Algeria**

##### • SITUATION

Isolated adults were seen during the first dekad of September in the extreme south near the Niger border at 1945N/0421E.

##### • FORECAST

*Scattered adults may be present in a few places in the central and southern Sahara. These may breed in areas of recent rainfall or run-off.*

#### **Morocco**

##### • SITUATION

No locusts were seen in September.

##### • FORECAST

*Isolated solitary adults may appear in the extreme south-west by the end of the forecast period.*

#### **Tunisia**

##### • SITUATION

No locusts were seen in August.

##### • FORECAST

*No significant developments are likely.*

#### **Libya**

##### • FORECAST

*No significant developments are likely.*

### EASTERN AFRICA

#### **Sudan**

##### • SITUATION

In eastern Sudan, several swarms were seen between Derudeb (1731N/3607E) and Kassala (1524N/3630E), which were said to have come from the Eritrean border on the 4th. One swarm was immature and of high density, settling within an area of about 120



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sq. km. Another was mature and about 90 sq. km. A third swarm was seen on the 11th, was mature and about 100 sq. km in size. Control operations treated about 31 sq. km (3,150 ha). Some of these swarms probably laid eggs as about 1,012 ha of first and second instar hoppers were treated during the last half of the month. Nearby, another 60 ha of second instar hoppers at densities of 250-300 per sq. metre were reported at several locations along the Atbara River on the 22nd. Low densities of mature adults were seen copulating at two locations north of Derudeb on the 28th.

In northern Sudan, ground control operations treated 246 ha of low density late instar hoppers and adults near Shendi (1641N/3322E) on the 6th. High densities of immature adults were present about 100 km to the south on about 600 ha. On the 23rd, scattered mature adults were seen copulating west of the Nile at El Metemma (1642N/3322E).

In central Sudan, a total of 1,180 ha was treated by ground teams against late instar hoppers and solitary immature adults at several places west of the Nile and north-west of Ed Dueim (1359N/3218E).

### • FORECAST

*Breeding in the summer areas is expected to come to an end as conditions become dry. Consequently, hoppers and adults may concentrate in the remaining areas of green vegetation and could form a few small groups, especially near the Atbara River and in the Derudeb area. Adults and perhaps a few small groups or swarmlets could start appearing on the Red Sea coastal plains at anytime during the forecast period and lay if early rains occur.*

### Eritrea

#### • SITUATION

Late information indicated that adults were seen in areas of run-off on the Naro Plains (1711N/3830E) of the Red Sea coast during the third dekad of July. Breeding occurred in this area and on 18 August control operations commenced against about 150 small patches of second to fifth instar solitary hoppers and fledglings covering about 400 ha. Hopper densities were up to 400/sq. m. and some were gregarious.

In the western lowlands, a few solitary adults were seen during surveys near the Barka River between Ghirmayka (1529N/3640E) and Kerkebet (1555N/3730E) on 5-7 September.

### • FORECAST

*Moderate numbers of locusts are expected to be present in the northern part of the western lowlands where breeding may be in progress. However, numbers will decline as conditions become dry and adults move eastwards. Numbers will increase on the Red Sea coastal plains as adults and perhaps a few small groups or swarmlets appear from the summer breeding areas of the interior. These will lay in areas of run-off or where rainfall occurs.*

### Somalia

#### • FORECAST

*Low numbers of solitary adults are likely to be present and persist in the few inland valleys of the north and north-west where vegetation remains green.*

### Djibouti, Ethiopia, Kenya, Tanzania and Uganda

#### • FORECAST

*No significant developments are likely.*

### NEAR EAST

#### Saudi Arabia

#### • SITUATION

No locusts were reported during September.

#### • FORECAST

*Low to moderate numbers of adults and perhaps a few small groups or swarmlets may appear on the southern coastal plains of the Red Sea from Eastern Africa. These are likely to breed near Jizan or in other areas that receive rainfall during the forecast period.*

### Yemen

#### • SITUATION

No locusts were seen on the Tihama coastal plains of the Red Sea during surveys carried out in the last week of September.

#### • FORECAST

*Low numbers of adults may appear on the Red Sea coastal plains and start to lay by the end of the forecast period in areas of recent rainfall. Isolated adults may be present in the interior region of Shabwah.*

### Kuwait

#### • SITUATION

No locusts were reported during August

#### • FORECAST

*No significant developments are likely.*

### Egypt

#### • FORECAST

*Locust numbers are likely to increase in the extreme south-east as adults and perhaps a few small groups or swarmlets appear on the coastal plains. These are expected to lay in areas that receive rainfall during the forecast period.*



## Oman

### • FORECAST

*Low to moderate numbers of adults and perhaps a few small groups or swarmlets may appear on the Batinah from the Indo-Pakistan summer breeding areas by the end of the forecast period. Laying could occur in areas of rainfall.*

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

### • FORECAST

*No significant developments are likely.*

## SOUTH-WEST ASIA

### Pakistan

#### • SITUATION

During the first fortnight of September, breeding increased in desert areas along the border with India. Ground and aerial control operations were undertaken against 11 mature swarms in the Khipro desert and two in the Nara desert. The swarms varied in size from 100-400 ha and were seen copulating. Operations were also carried out against 246 first to third instar hopper bands within an area of 1,800 ha in Nara and Khipro. Some patchy solitary breeding was reported in Khipro, Nara and Cholistan deserts where low to medium density hoppers of all instars and solitary adults were treated. Isolated mature or maturing adults up to 9 per ha were reported from 13 locations between Tharparkar and Cholistan.

During the second fortnight of September, increased ground control operations were carried out against small hopper bands of all instars and fledglings in the Khipro and Nara deserts within an area of 18,500 ha and another 5,230 ha were treated by air. Solitarious maturing and mature adults at densities up to 15 per ha were reported from various locations in Lasbela and Cholistan as well as in the above areas.

#### • FORECAST

*Fledging will continue during early October in areas of previous breeding with the possibility of new adults forming groups and a few small swarms. Further breeding is unlikely as conditions are expected to become dry. Adults that escape control operations will move towards the west. Consequently, moderate numbers of adults and perhaps a few groups and swarms are likely to appear in the interior and coastal areas of Baluchistan by the end of the forecast period. These may be supplemented by additional populations coming from India.*

## India

#### • SITUATION

In addition to the swarms reported during the second fortnight of August (Bulletin 228), isolated solitary adults at densities of up to 60 per ha were reported from 50

locations in Nagaur district and 31 in Jodhpur. A single second instar hopper was seen in Jodhpur district at Udat (2733N/7244E) on the 28th indicating small scale breeding. A total of 625 ha of swarms were treated rather than 1,200 ha as previously reported.

During the first fortnight of September, control operations were carried out against six mature swarmlets (938 ha) and hoppers of all instars, fledglings and new adults (3,965 ha) in Rajasthan. The swarms varied in size from 25-900 ha. Most of the operations were concentrated in Jaisalmer district between Sam (2640N/7011E) and the Pakistani border, and further south in the Sundra (2605N/7013E) area in Barmer district. Scattered adults up to 150 per ha were reported from 36 locations of Bikaner, 12 locations of Barmer and 6 locations of Jodhpur districts. Solitary breeding was also reported in the Sam and Sundra areas. Many of the infestations were near the Pakistani border.

#### • FORECAST

*Fledging will continue during early October in areas of previous breeding with the possibility of new adults forming groups and a few small swarms. Further breeding is unlikely as conditions are expected to become dry with the termination of the monsoon. Adult numbers will decline throughout the forecast period as they start to move west towards the spring breeding areas of western Pakistan.*

## Iran

#### • FORECAST

*Low to moderate numbers of adults and perhaps a few small groups or swarmlets may appear in coastal and interior areas of Baluchistan from the Indo-Pakistan summer breeding areas by the end of the forecast period.*

## Afghanistan

#### • FORECAST

*Low to moderate numbers of adults and perhaps a few small groups or swarmlets may appear in the south from the Indo-Pakistan summer breeding areas by the end of the forecast period.*



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### Other Locusts

Serious infestations of African Migratory Locust (*Locusta migratoria migratoria*) have been reported in **Chad** south of N'djamena. Most of the infestations are present between the Logone and Chari rivers within an area of about 150 by 30 km. Dozens of high density hopper bands up to the fifth instar stage were seen in this area as well as a low density copulating swarm. Hatching is in progress. Damage by hoppers was reported on sorghum and millet crops. Similar infestations are probably present in northern **Cameroon** to the west of the Logone River which defines the border between the two countries. Infestations may also extend into south-eastern **Niger** and north-eastern **Nigeria**; however, this has not been confirmed. A new generation of adults is expected to form swarms from mid October to the end of November which are likely to further threaten crops.



## 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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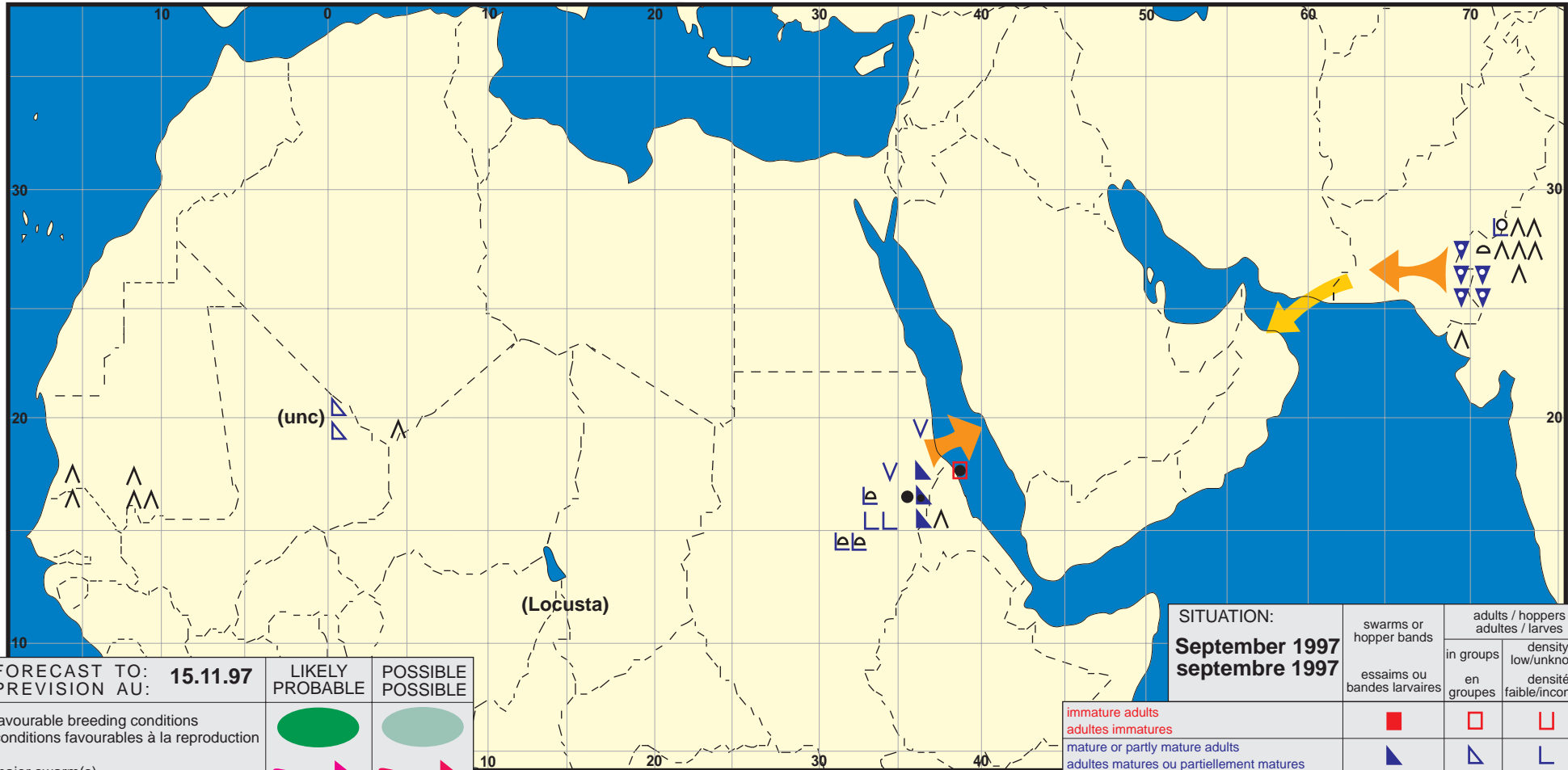
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# Desert Locust summary Criquet pèlerin situation résumée

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FORECAST TO: PREVISION AU:	15.11.97	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:  
**September 1997**  
**septembre 1997**

	swarms or hopper bands	adults / hoppers adultes / larves	
	essaims ou bandes larvaires	in groups en groupes	density low/unknown densité faible/inconnue
immature adults adultes immatures			
mature or partly mature adults adultes matures ou partiellement matures			
adults, maturity unknown adultes, maturité inconnue			
egg laying or eggs pontes ou œufs			
hoppers larves			
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)			