

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations



No. 227
(5 Aug 1997)



General Situation during July 1997 Forecast until mid-September 1997

Desert Locust infestations increased significantly along the Indo-Pakistan border during July. Several small swarms were reported coming from the west and laying eggs in the Tharparkar desert of south-eastern Pakistan. As a result of very good rainfall during June and July, breeding has occurred in Tharparkar and extended north and east into Rajasthan, India. More than 500 hopper bands were treated in Tharparkar and smaller numbers of hoppers were controlled in Rajasthan. Small scale breeding is in progress in central Sudan and in the interior of Yemen but control operations were not required. Low numbers of solitary adults are present in southern Mauritania and northern Mali where conditions are favourable for laying.

Eastern Region

Small mature swarms ranging in size from 1-4 sq. km were reported from five locations in the Tharparkar desert of south-eastern **Pakistan**. These are thought to have originated from spring breeding in the interior of western Pakistan but it is conceivable that some may have come from Saudi Arabia. Laying has occurred earlier than usual this year along the Indo-Pakistan border which may allow for two generations of breeding

this summer. By the end of July, hoppers had reached third instar in Pakistan and fledging had already commenced in Jaisalmer, **India**. Ground control operations were in progress in both countries. Conditions are extremely favourable for more breeding as a result of heavy rainfall this month. Consequently, hopper bands and small groups of adults and swarmlets can be expected during the forecast period.

Central Region

Breeding occurred in the interior of **Yemen** during July where solitary and transiens hoppers were seen in some places in Shabwah region. Breeding is in progress in the central provinces of **Sudan** where good conditions are scattered through large parts of northern Darfur and Kordofan provinces. The situation is under close surveillance in both countries and so far control has not been required. During the forecast period, small hopper bands and adult groups may form in Yemen whereas locusts will increase but probably not become gregarious in Sudan. Scattered solitary adults were also present in south-eastern **Egypt** and northern **Somalia** and may be present on the southern Red Sea coastal plains of **Saudi Arabia**.

Western Region

Isolated locusts were present in parts of southern **Mauritania**. As rainfall has been sporadic and less than in previous years, breeding is expected to occur on a small scale with hoppers appearing during the forecast period. There were late reports of adult groups in northern **Mali** during June where low numbers of adults are expected to persist and breed on a small scale in the coming weeks. Similarly, scattered adults are likely to be present in western **Niger** where they will lay and hoppers will appear during the forecast period. No locusts were reported from North-West Africa.

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.
It is also available on the Internet.

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Weather & Ecological Conditions during July 1997

Sporadic rains fell in parts of the summer breeding areas in the Sahel of West Africa and Sudan and along the Indo-Pakistan border. Consequently, conditions improved enough throughout the month to allow the possibility of scattered breeding.

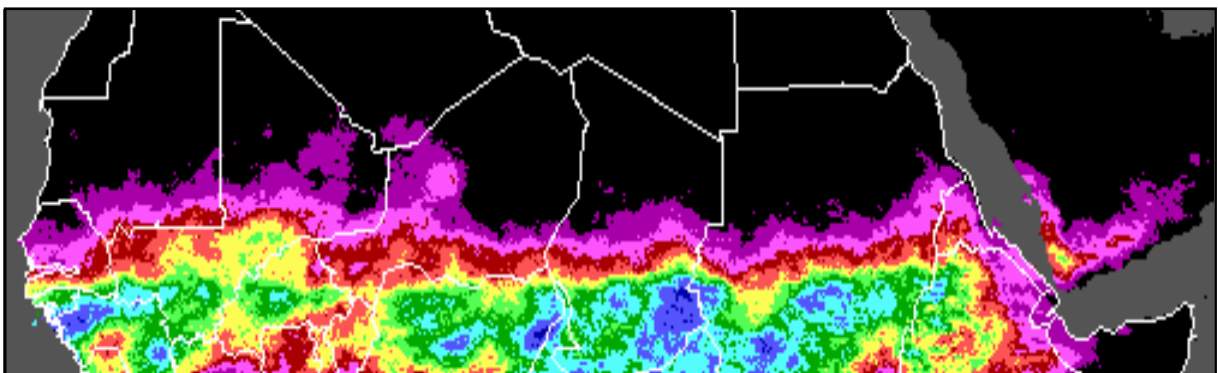
In **West Africa**, the Inter Tropical Convergence Zone (ITCZ) varied between 15-20N. North of the ITCZ, prevailing winds were generally easterly over Chad, Niger and Mali, and north-easterly or northerly over Mauritania. Ecological conditions were generally unfavourable for breeding north of 20N except in a few places where localised rain fell such as Atar, Mauritania (24mm). South of the ITCZ, prevailing winds were westerly and widespread seasonal rains fell sporadically throughout the area. In Mauritania, rains were concentrated in the extreme south-east in southern Hodh el Chargui (Nema: 26mm) and in central southern areas of Hodh el Garbi (Aioun el Atrous: 21mm), Assaba (Kiffa: 23mm) and Tagant (Tidjikja: 30 mm, Moudjeria: 30 mm). By the end of the month, light rains had started to fall in the south-west. In Mali, rains fell in the east (Menaka: 56mm) and in the west (Niuro du Sahel: 97mm, Nara: 40mm, Tombouctou: 23mm). Rains also fell in southern Niger and in parts of central Chad (N'djamena: 122mm, Abeche: 15mm). Breeding conditions are favourable in these areas as well in smaller areas of Tamesna, Niger and the Adrar des

Iforas in northern Mali. The average temperature ranged from 20-30C in the night to 37-45C during the day.

In **North-West Africa**, no significant rainfall was reported and breeding conditions are expected to be unfavourable. Temperatures in southern Algeria ranged from 17-27C at night to 40-45C during the day.

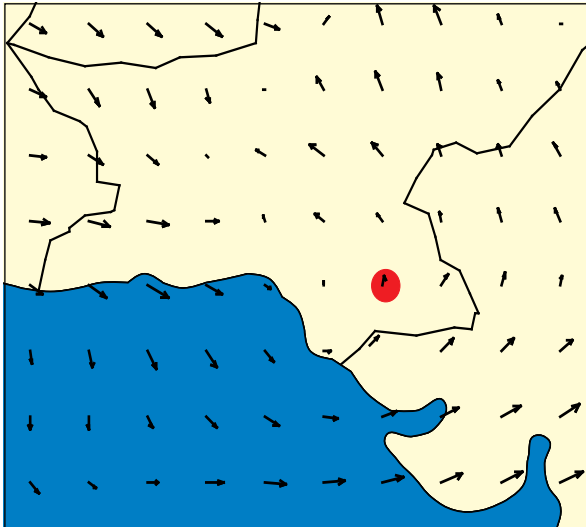
In **East Africa**, prevailing winds over the interior of Egypt were northerly, becoming north-easterly over northern Sudan and easterly over western Sudan. The ITCZ was generally located between 15-20N. South of the ITCZ, prevailing winds were westerly over western Sudan and south-westerly over the eastern province and adjacent areas of western Eritrea. Clouds were seen over a widespread area of western and central Sudan throughout the month. However, rains were only reported on a few days in Southern Darfur (Nyala: 51mm), Northern Kordofan (El Obeid: 74mm) and White Nile (Wadi Medani: 18mm) provinces. Consequently, the ecological conditions are favourable for breeding in several areas scattered over western and central Sudan. Dry conditions prevailed on the Red Sea coastal plains of Eritrea and Sudan outside irrigated agricultural areas. Light rains fell on the coastal plains near Massawa, Eritrea. In northern Somalia, winds were dominated by the south-westerly monsoon that extended to South-West Asia. Conditions were dry along the northern coast but remained green in interior valleys. Temperatures were generally between 25-35C.

In the **Near East**, prevailing winds over coastal areas along the Gulf of Aden and the Arabian Sea were south-westerly due to the monsoon flow towards South-West Asia. Light and localised rain occasionally fell in southern Oman (Salalah: 19mm), the interior of Yemen (Shabwah), and in south-western Saudi Arabia (the southern Asir Mountains and the Red Sea coastal plains near Jizan). Vegetation outside these areas is expected to be generally dry and unfavourable for breeding. Temperatures in the Arabian coastal zone were 20-30C at night and 30-40C during the day.



Cold-cloud image for July 1997 indicating an increase in activity in the Sahel of West Africa, especially southern Mauritania, northern Mali, western Niger and central Sudan. Nevertheless, reports suggest that actual rainfall was sporadic in most areas.

light heavy



Estimated medium-level (850 hPa) winds on 17 July at 1200 GMT indicating winds associated with a weak depression over the Tharparkar Desert, south-eastern Pakistan. Several swarms were reported from Tharparkar (●) coming from the west on 17-20 July.

In **South-West Asia**, the prevailing winds over Baluchistan of eastern Iran and western Pakistan were from the south-west due to the monsoon flow from eastern Africa, becoming south-south-west over Rajasthan in India. Conditions continue to be extremely favourable for breeding along the Indo-Pakistan border as a result of heavy rainfall in June and again during the last half of July in south-eastern Pakistan (Chhore: 90mm; Rahimyar Khan: 72mm; Bahawalpur: 60mm) and to a lesser extent in Rajasthan, India (Jodhpur: 129mm; Bikaner: 18mm). Temperatures ranged from 24-28C at night to 35-43C during the day.



Area Treated

India	62 ha	(July)
Pakistan	7,376 ha	(July)



Desert Locust Situation and Forecast

WEST AFRICA

Mauritania

• SITUATION

Individual solitary locusts appeared in the summer breeding areas of the south. During surveys carried out in the first half of July, maturing adults were seen at a few places between Kiffa (1638N/1128W) and Tidjikja (1829N/1131W). By the end of the month, isolated adults were also present between Nema (1632N/0712W) and the Malian border to the east and south-east.

• FORECAST

Locust numbers will increase slightly in the central and eastern areas of the south as a result of solitary breeding during the forecast period. This breeding is expected to be on a small scale and patchy. Adults may also appear in the south-west and lay if rainfall occurs.

Mali

• SITUATION

Late reports indicate that groups of immature and mature adults appeared in the Adrar des Iforas on 2 June at W. Anoumallen (1903N/0247E) where conditions were favourable for breeding. Other adults were seen further north in W. Taouhouten (2005N/0025E) and west of Tombouctou near Lac Faguibine (1645N/0417W) and Lac Fate (1616N/0342W). On 14 June, nomads reported seeing a large swarm in the Tilemsi Valley (ca. 1641N/0007E) flying from north to south; however, this could not be confirmed. At the end of June, another swarm was reported by nomads in the Timetrine area (ca. 1925N/0020W) but teams could only find low densities of solitary and gregarious adults (50-300/ha) on the 25th. Small patches of gregarious first instar hoppers were reported nearby at Terchichout (1924N/0010W) and to the east at Aguelhoc (1929N/0052E). No reports were received for July.

• FORECAST

Low numbers of solitary adults are expected to persist in some parts of the Adrar des Iforas, Timetrine and Tilemsi as well as further west near Tombouctou. Others are likely to be present or appear near Gourma and Nioro. These are likely to breed on a small scale in those areas where conditions are favourable. A few small groups may form as a result of earlier breeding.

Niger

• SITUATION

Surveys could not be carried out during June or July.

• FORECAST

Low numbers of solitary adults are likely to be present in some parts of the Tamesna and western Air where they are expected to breed in areas of green vegetation. Other adults may appear and breed in the Tahoua and Tillabery areas.



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Chad

• FORECAST

Low numbers of solitary adults may be present in some parts of BET and Biltine. These are likely to breed on a small scale in areas of favourable conditions.

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

• FORECAST

No significant developments are likely.

NORTH-WEST AFRICA

Tunisia

• SITUATION

No locusts were seen in June.

• FORECAST

No significant developments are likely.

Algeria, Morocco and Libya

• FORECAST

No significant developments are likely.

EASTERN AFRICA

Sudan

• SITUATION

There were several late reports from Northern Kordofan of an immature swarm during the first half of June in Wadi Malik at Umm Grain (1604N/2846E) and adult groups on 7 June at Umm Ashuba (1529N/2816E). In Northern Darfur near Geneina, a mature swarm of about 75 ha was seen west of Jebel Kheirban (1333N/2301E) on 3-5 July. The swarms may have originated from spring breeding in the Red Sea area.

During July, scattered mature adults at densities up to 1,400 per ha, continued to be reported from several areas along the western side of the Red Sea Hills north of Kassala (1524N/3630E). Similar infestations but at lower densities were present at several locations west of the Nile River near Ed Duiem (1359N/3341E) and scattered over a large area of Northern Kordofan between Hamrat Esh Sheikh (1436N/2759E) and Sodiri (1423N/2906E) to Umm Saiyala (1425N/3110E) and Hamrat El Wuz (1459N/3009E). Low numbers of adults were seen copulating near Sodiri on the 18th and higher numbers, up to 1,500 per ha, were copulating at Umm Rimta (1451N/3204E). In the Northern Region, small scale breeding was in progress near Wadi Halfa

at Khor Musa Pasha (2149N/3118E) where second and fifth instar solitary hoppers were seen on 7 July.

• FORECAST

Small scale breeding is expected to occur at several places within a large area of Northern Kordofan and in more restricted areas west of the Red Sea Hills in the Eastern province, west of the Nile in the White Nile province and in parts of Northern Darfur. Consequently, hoppers are expected to appear throughout the forecast period but overall locust numbers will remain at a low level.

Eritrea

• SITUATION

Low numbers of solitary maturing adults were seen during surveys carried out on the central coastal plains on 25-26 July. Most of the adults were seen in farms in the Shelshela (1555N/3909E) area. No locusts were seen to the north or south-east. Small scale breeding has occurred in at least one location at Shebah (1542N/3902E) where a few third and fourth instar solitary hoppers were seen on the 25th.

• FORECAST

A few isolated locusts may persist in green areas or farms on the central Red Sea coast. Low numbers of adults are likely to be present in the western highlands where they will breed if conditions are favourable.

Somalia

• SITUATION

Scattered immature and mature adults were seen during surveys on the central northern coast near Berbera (1028N/4502E) on 14-20 June. There were signs that some of these may have laid eggs while others were still present up to the end of July. Low numbers of immature adults were also seen near the Djibouti border at Abdulgadir (1039N/4257E) on 26 July.

• FORECAST

Low numbers of solitary adults will persist in the inland valleys of the north and north-west. Some of these may breed in favourable areas.

Djibouti, Ethiopia, Kenya, Tanzania and Uganda

• FORECAST

No significant developments are likely.

NEAR EAST

Saudi Arabia

• SITUATION

No locusts were reported during July.

• FORECAST

Low numbers of locust adults are likely to be present on the southern coastal plains of the Red Sea near Jizan. These will persist and lay in areas of green vegetation.

Yemen

• SITUATION

Low numbers of mature solitary adults were seen during the last dekad of July at six locations in the Shabwah region between Ataq (1435N/4639E) and Wadi Jannah (1510N/4555E). This is the same area where adult groups were reported to be laying at the end of last month. As a result, second to third instar solitary and transiens hoppers were present within 700 ha at densities of 4-5 per bush at Arqa (1430N/4640E) on the 23rd.

• FORECAST

Locust numbers will increase slightly as hatching is expected to continue in the Shabwah area and more hoppers are likely to appear. Fledging should commence from mid August onwards and new adults may form a few small groups.

Egypt

• SITUATION

Isolated solitary mature adults persisted during July in several places along the south-east coast and in adjacent areas of the interior. Most of these were concentrated in the Wadi Diib area (2205N/3555E).

• FORECAST

Locust numbers will continue to decline on the Red Sea coastal plains and adjacent interior areas and only a few isolated adults are likely to persist.

Kuwait

• SITUATION

No locusts were reported during June.

• 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 fortnight of July, maturing adults were present in a total of 31 locations in the Tharparkar, Khipro, Nara and Cholistan deserts as well as in Las Bela district near Karachi. Densities varied from 1-20 adults per location. There was also a report of a swarm reaching Tharparkar on 8 July where it split into several groups and laid eggs. Hoppers started to hatch on the 13th in the Chachro (2507N/7008E) and Islamkot (2442N/7011E) areas and control operations were undertaken on about 1,000 ha.

During the second fortnight of July, control operations continued in Tharparkar against increasing numbers of small to medium-sized hopper bands,

treating 541 first to third instar bands covering a total area of 4,000 ha. Several small mature swarms and groups were reported coming from the west. The swarms varied in size from 100-400 ha and were reported from five locations near Chachro on 17-20th. Two groups of mature adults were seen nearby. Control operations treated a total of 1,600 ha of swarms and groups but probably after they laid eggs. Solitary breeding was also in progress in Tharparkar and control operations treated 800 ha of first to third instar hoppers. Solitary maturing and mature adults at densities of 1-60 locusts per site were reported from the Nara, Khipro and Cholistan deserts and from Las Bela district.

• FORECAST

Moderate scale breeding will continue in desert areas from Tharparkar to Cholistan. Hopper bands are expected to form in Tharparkar where new adults are likely to start appearing by the end of August and possibly form small groups or swarmlets. Lower numbers of hoppers and adults will be present in Khipro, Nara and Cholistan.

India

• SITUATION

During the second fortnight of June, locust numbers increased slightly, with scattered adults reported from 25 places in Rajasthan at densities of 1-20 per location. Most of the infestations were from Jodhpur district and to a lesser extent, Bikaner and Barmer.

During the first fortnight of July, solitary locusts were reported from a total of 12 locations in Jodhpur, Bikaner, Barmer and Jaisalmer districts and densities had increased to about 40 per location (or 3,000 per sq. km).

Locust numbers increased during the second fortnight of July in Rajasthan where scattered solitary adults at densities of up to 10,000 per sq. km (100/ha) were seen at several locations in Jaisalmer, Barmer and Bikaner districts. The maximum density was reported on the 22nd at Sultana (2725N/7055E) in Jaisalmer district. Control operations were carried out against first to fifth instar hoppers and fledglings on 62 ha in the Sultana area during the last week of the month.



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Glossary of terms

DESERT LOCUST BULLETIN

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

• FORECAST

Small scale breeding will continue in several places of Rajasthan with low numbers of hoppers and new adults present during the forecast period. If conditions remain favourable, a second generation of breeding could occur in early September.

Iran

• SITUATION

Scattered mature adults were present in early June at several locations on the south-eastern coastal plains near Chabahar (2516N/6041E).

• FORECAST

No significant developments are likely.

Afghanistan and Iran

• FORECAST

No significant developments are likely.



Announcement

All telephone numbers at FAO Headquarters (Rome) will change on 11 August 1997 from 522.xxxxx to 570.xxxxx (the 5-figure internal extension (xxxxx) remains the same). All fax numbers in the Organization will also change using the same formula.

Accordingly, the new telephone and fax numbers of the FAO Locust Group (preceded by +39-6 for country and city codes) are :

570-52420	(locust situation by telephone)
570-55271	(locust reporting by fax)
570-54021	(Mr. A. Hafraoui, Senior Officer)
570-53836	(Mr. C. Elliott, Migratory Pests)
570-52420	(Mr. K. Cressman, Survey/Forecast)
570-54595	(Mr. M. Cherlet, Remote Sensing)
570-53311	(Ms. A. Monard, Information)
570-54812	(Ms. D. Boland, Secretary)
570-53235	(Ms. C. D'Angelo, Operations)

NON-GREGARIOUS ADULTS AND HOPPERS

ISOLATED (FEW)

- very few present and no mutual reaction occurring;
- 0 - 1 adult per 400 m foot transect (or less than 25 per ha).

SCATTERED (SOME, LOW NUMBERS)

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

GROUP

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

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL

- swarm: less than 1 km² • band: 1 - 25 m²

SMALL

- swarm: 1 - 10 km² • band: 25 - 2,500 m²

MEDIUM

- swarm: 10 - 100 km² • band: 2,500 m² - 10 ha

LARGE

- swarm: 100 - 500 km² • band: 10 - 50 ha

VERY LARGE

- swarm: 500+ km² • band: 50+ ha

RAINFALL

LIGHT

- 1 - 20 mm of rainfall.

MODERATE

- 21 - 50 mm of rainfall.

HEAVY

- more than 50 mm of rainfall.

OTHER REPORTING TERMS

BREEDING

- the process of reproduction from copulation to fledging.

SUMMER RAINS AND BREEDING

- July - September/October

WINTER RAINS AND BREEDING

- October - January/February

SPRING RAINS AND BREEDING

- February - June/July

DECLINE

- a period characterised by breeding failure and/or successful control leading to the dissociation of swarming populations and the onset of recessions; can be regional or major.

OUTBREAK

- a marked increase in locust numbers due to concentration, multiplication and gregarisation which, unless checked, can lead to the formation of hopper bands and swarms.

PLAGUE

- a period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously.

RECESSION

- period without widespread and heavy infestations by swarms.

REMISSION

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

UPSURGE

- a period following a recession marked initially by a very large increase in locust numbers and contemporaneous outbreaks followed by the production of two or more successive seasons of transient-to-gregarious breeding in complimentary seasonal breeding areas in the same or neighbouring Desert Locust regions.



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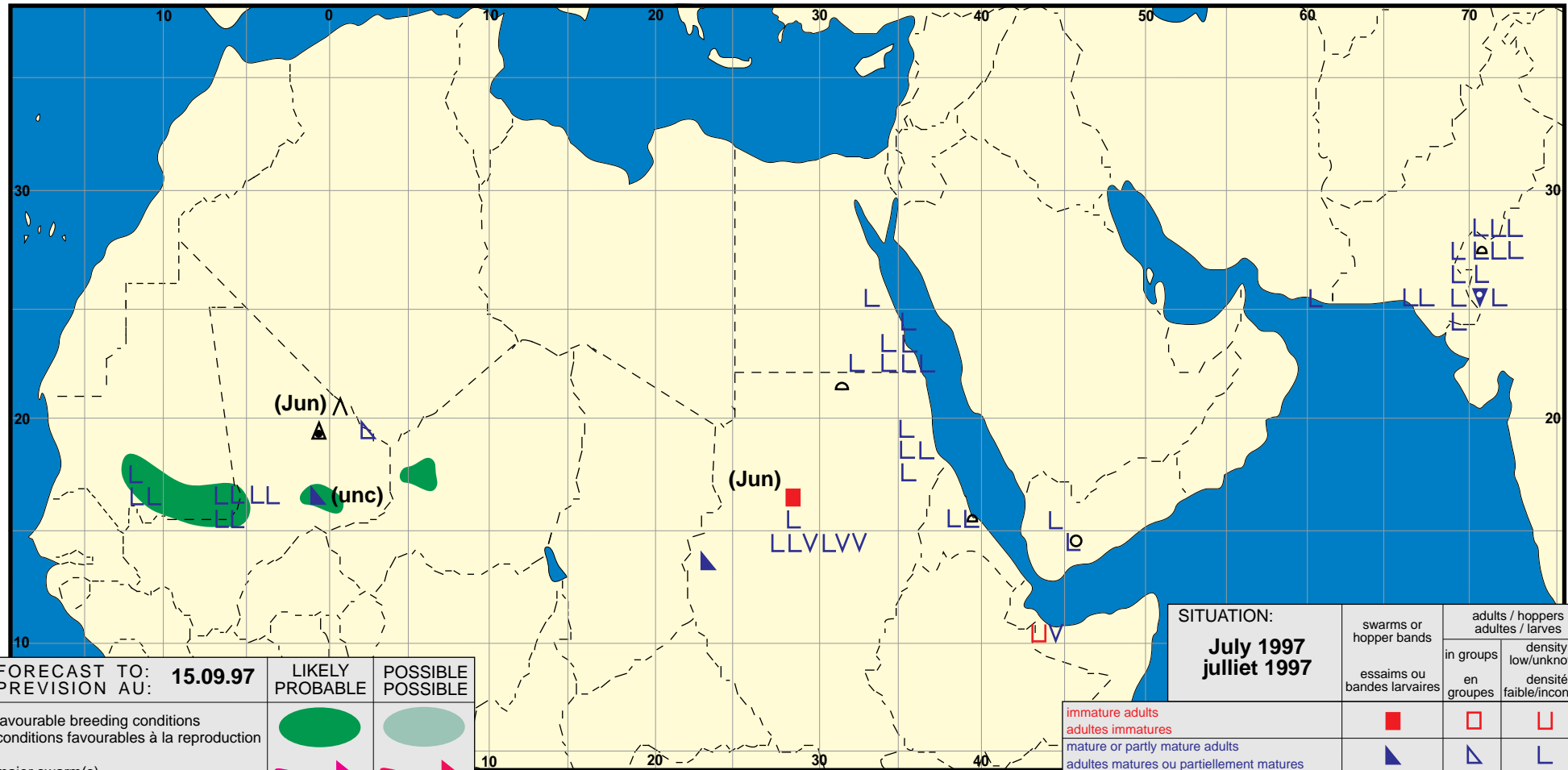
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FORECAST TO: PREVISION AU:	LIKELY PROBABLE	POSSIBLE POSSIBLE
15.09.97		
favourable breeding conditions conditions favorables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: July 1997 juillet 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)			