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## Locusts, other migratory pests and emergency operations group

# DESERT LOCUST SITUATION SUMMARY AND FORECAST

NO. 123 NOVEMBER-EARLY DECEMBER 1988

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### SUMMARY

The summary period has been characterised by a further decline of locust populations in the Sahel and continued migration into the traditional winter breeding areas of the Red Sea Coast. Large scale control operations continued in Morocco, Senegal, Mauritania, Sudan and Saudi Arabia.

In West Africa control operations had virtually terminated in Chad, Mali and Niger by mid December. However, substantial control measures continued in Senegal, Mauritania and the Gambia during the summary period and in early December there were reports of immature swarms in Mali migrating towards the west. In northern Mauritania the situation remains unclear and it is possible that breeding may have occurred in this and adjacent areas during the summary period.

In North-West Africa there were further large scale invasions of Morocco and large scale control operations continued throughout the summary period. In late November there was a small to moderate scale invasion of Libya whilst, by the end of the summary period, the situation was calm in Algeria and Tunisia.

In Eastern Africa swarms continued to migrate to the Red Sea coastal areas of Sudan and breeding continued. Substantial locust populations also persisted east of the Nile in the interior of Sudan. West of the Nile populations declined substantially over the summary period. In general the situation in Sudan appears to have improved with only moderate scale infestations reported recently. In Ethiopia the situation has also improved with few recent reports of swarms, although significant populations may be present in northern Eritrea.

In the Near East there were further invasions of Saudi Arabia, Egypt, the Yemen Arab Republic and Yemen PDR during November and early December and breeding was reported. From late November onwards the Western Desert and Mediterranean coast of Egypt was invaded with locusts reaching south-west Turkey and the Mediterranean coasts of Syria and Lebanon. In mid December southern Jordan was invaded and swarms were also reported from the northern desert of Saudi Arabia.

South-West Asia remained calm with only low density populations reported from India and Pakistan.

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## WEST AFRICA

Meteorology

Analysis of Meteosat imagery indicates that light to moderate rain may have fallen in northern parts of Mauritania, Mali and Niger during November and the first decade of December. The prevailing wind throughout most of the Sahel during the summary period has been easterly. The Inter-Tropical Convergence Zone (ITCZ) continued to move southwards and by mid December was located between 5 degrees and 8 degrees North over Nigeria and between 8 and 12 degrees North over Benin and Guinea Bissau.

Breeding Conditions

Analysis of NOAA imagery indicates a continued decline in the suitability of breeding areas north of 15 degrees with the exception of the Central Delta region of Mali where suitable conditions persist. However, it is likely that significant rain fell in northern Mauritania, northern Mali and adjacent western parts of the Sahara on 19 and 20 December and conditions in these areas are likely to improve.

Locusts

## MAURITANIA

## Hodh Charki

Immature swarms were reported from Bassikounou, Timbedra and Nema in the second half of November with both mature and immature swarms and late instar hoppers reported at El Banoune.

## Gorgol and Guidimaka

Small early instar hopper bands were reported in the Selibaby area in the second half of November.

## Brakna

Maturing swarms, mating and laying was observed in the Boghe area in late November.

## Trarza

Both mature and immature swarms, late instar hopper bands and fledglings were reported in the Rosso area and swarms of mixed maturity in the Nouakchott area in the second half of November. In early December swarms were reported between Nouakchott and Rosso and one maturing swarm was seen west of Rosso together with a small area of early instar hoppers. Swarms were reported to have invaded the southern parts of the region in late November-early December.

## Tagant

There were unconfirmed reports of swarms in the Tidjikja area in late November.

## Adrar

There were unconfirmed reports of swarms in early December.

## Tiris Zemmour

Immature swarms and swarms of unknown maturity were reported from the region in early December. On 7 December there was an unconfirmed report that up to 150,000 ha was infested in the region and that breeding was in progress.

Moderate scale ground and aerial control continued throughout the summary period with 801,758 ha treated up to 5 December.

## SENEGAL

Large scale aerial control of major infestations, comprised of late instar hopper bands and immature swarms, was undertaken in the north-west of Senegal in the second half of November. In the east mature swarms were reported in the Matam area of the Senegal River Valley from mid November onwards and laying was observed. By early December a large proportion of the population in the north-west had been controlled or had migrated to the west and north. By mid December the north-east was reported and relatively calm whilst further laying was reported in the Matam area. In the south and central regions small to moderate scale infestations of late instar hopper bands were present in the Louga-Thies, Ziguinchor and Kolda areas and also in the Casamance area adjacent to the northern Gambian border. By 9 December 1,939,410 ha was treated.

## CAPE VERDE

Further swarm invasion of several islands was reported to have occurred on 23 November and 2 December. On 26 November small scale hatching was observed at Terrafal on Santiago island. On 29 November there was report that several swarms had been observed by fishing vessels near the island of Santo Antao. Aerial control of immigrant swarms and ground control of hoppers was undertaken in late November-early December. Further small scale hatching was reported from Terrafal, Santa Cruz and Praia in the first week of December and laying swarms were observed on Fogo on 2 December.

## ATLANTIC OCEAN

On 5 and 6 December a ship reported isolated immature adults off the coast of Senegal and Mauritania from (1954N/1736W) to (1519N/1749W). Wind was reported as north-easterly by easterly at 10 knots.

On 9 and 10 December isolated locusts of mixed maturity were reported between 1620N/1800W and 1120N/1800W. Wind was reported as north-easterly at 15 knots.

On 11 December immature adult groups were reported from a ship in mid Atlantic (2252N/3706E). Wind conditions were reported as calm.

## GAMBIA

In late November predominantly late instar hopper bands were reported in the Ndungu Kebbe, Kerewan, Farafenni, Kuntaur, Jenoi, Sapu, and Bricama areas (General coordinates 1339N to 1317N, 1638W to 1538W). In general the infested areas were small (10 to 2500 ha) and ground control was reported to be in progress.

## MALI

Fledging of hopper bands was reported to have been completed in the Central Delta, Lakes, Timetrine, Tamesna and Adrar regions by mid November and swarm formation was in progress in these areas. Two small immature swarms were reported from Dilly and Balle in late November and these were probably immigrants from south-west Mauritania. From 25 Novemebr to 10 December there were numerous reports of migrating swarms between Tombouctou in the east and Kayes in the west. Immature swarms were reported from Dire, Niono, Kolokani, Fallou, Kita, Yelimane, Kayes and Sebete with migration in a generally westward direction. Control operations were reported to be continuing with 497,519 ha treated to 10 December.

## CAMEROON

There was an unconfirmed report of adult groups or possibly low density swarms from the Fotocol area in the extreme north of Cameroon on 26 November.

## NIGER

Small to moderate scale control of small swarms and adult groups of mixed maturity continued in Air throughout November on a declining scale. Small scale breeding occurred in Air with small localised areas of early instar hoppers reported in the first decade of December. During November aerial control was undertaken in 40 sites covering 41,335 ha. By mid-December control operations finished and surveys were being unertaken in Air and Tamesna where small areas of low density adults of mixed maturity persisted.

## CHAD

Swarms were reported in the Faya (1755N/1907E) area of northern Chad in late November: no further details available.

## NORTH-WEST AFRICA

Meteorology

Analysis of Meteosat imagery indicates that significant rain fell throughout much of Morocco, central and northern Algeria and adjacent western parts of the Sahara in the first decade of Novemebr, Meteosat imagery for 19 and 20 December also suggests that significant rain fell in the extreme south of Morocco and adjacent western parts of the Sahara.

Breeding Conditions

Analysis of NOAA imagery indicates that suitable breeding conditions were present along the Atlas Mountains and coastal littorals of northern Morocco, Algeria, Tunisia and Libya in November. However, breeding in these areas would have been severely restricted by low temperatures. However, field reports from southern Morocco and adjacent areas in early December indicate that suitable breeding conditions were present and it is likely that these will persist following further rain in the second decade of December.

Locusts

## MOROCCO

Large scale swarm control continued in the Bouarfa, Errachidia, Guelmim, Ait Melloul, Tata, Oudja, Ouarzazate, Khenifera, Laayoune and Dakhla regions throughout November and early December. Further immigrant swarms from the south were reported during the summary period particularly in the Laayoune area in mid-December. No reports of breeding have been received. From 10 October to 14 December 1,568,321 ha were treated.

## ALGERIA

Small scale swarm control was undertaken in the Adrar, Tindouf, Bechar, Tamanrasset, El Bayadh during the summary period. A large swarm invaded the Tindouf area on 24 November but subsequently migrated to the south-east. In late November and early December there were reports of small adult populations invading the Illizi and Djanet areas from the south-west. By mid-December the situation was relatively calm and control operations had virtually ceased. To 13 December 137,639 ha were treated.

## TUNISIA

The situation is believed to be calm with no significant locust activity reported during the summary period.

## LIBYA

Swarms were reported to have invaded the Ghayt (2450N/1010E), Sebha (2701N/1427E), Mourzouk (2554N/1355E), Essara (2136N/2155E), Zilla (2833N/1733E) and Al Khofra (2409N/2317E) areas on 29 November. Control operations against immature adult groups were undertaken in the Sebha (8,300 ha), Mourzouk (15,333 ha), Wadi Elhaya (3,506 ha), Al Khofra (100 ha) and Sirte (3,930 ha) areas up to 6 December.

## EASTERN AFRICA

Meteorology

Analysis of Meteosat imagery suggests that only light localised rain fell in the region early in the summary period.

Breeding Conditions

Analysis of NOAA imagery indicates that breeding conditions along the Red Sea coastal regions of Sudan and northern Ethiopia are generally unsuitable. However, field reports indicate that suitable localised breeding areas were present during November in these regions. In the Ogaden vegetation is also beginning to dry and this region is becoming less favourable for breeding.

Locusts

## SUDAN

## Darfur

In the second half of November predominantly late instar hopper bands and immature swarms were reported from numerous locations in Northern

Darfur including Abu Zrueiga (1318N/2518E), Areay (1508N/2402E), Elptran (1513N/2413E), Kebkebiya, El Rabek (1526N/2442E) and Malha (1507/2613E). A mature swarm was also reported from Malha on 20 November. By early December the population had decreased as swarm formation and migration occurred and control operations continued. In South Darfur late instar hopper bands and immature swarms were reported from the Zalingei and Nyala areas in the second half of November.

#### Kordofan

In the second half of November and early December generally small immature swarms were reported from the Umm Sayala (1424N/3109E), Eagana (1512N/2839E), Abu Dom (1205N/3110E), Sodiri and Dilling areas.

#### White Nile

In the second half of November there were reports of small immature swarms from numerous localities including Elauge (1400N/3220E), Glee (1330N/3240E), Wusaa (1305N/3230E), Tura (1418N/3207E), Kenana (1308N/3238E) and Abu Arku (1354N/3220E) on 21 November.

#### Northern Province

Several mature swarms were reported in the Korti (1808N/3135E), Ed Debba (1805N/3056E) and Wadi Fakir (1607N/3311E) areas between 16 and 18 November. From 18 to 29 November there were reports of both immature and mature swarms from numerous localities within the region including Keli (1656N/3340E), Ed Damer, Atbara, Um Gterat (1745N/3115E) and El Hurar (1625N/3356E). Small areas of early instar hoppers were also reported from Kely on 21 November.

#### Khartoum

Small pockets of late instar hoppers were reported from several locations in the first decade of November. Small immature and mature swarms and swarmlets were reported from numerous localities throughout November including Abu Asush (1558N/3140E), Bir Hafaf (1604N/3145E), Eltrauss (1607N/3145E) and El Regaba (1602N/3140E).

#### Gezira

A large infestation on predominantly immature swarms was present in the region in the second half of November particularly in the Sennar-Kosti area and extensive control was undertaken.

#### Kassala

Between 14 and 21 November several large immature swarms were reported in the Tareet (1658N/3656E) and Hadallia (1610N/3607E) areas.

#### Red Sea

The overall situation along the Red Sea coast deteriorated throughout November and early December as large numbers of immature swarms continued to migrate into the region from the west and breeding continued. Heavy infestations of swarms were reported in the Sinkat, Durdeb and Tokar areas. Late instar bands were present in the Sinkat area in early December and in mid-December a substantial infestation of hopper bands was reported in the Wadi Oko-Diib area in the north. Fledging and swarm formation was reported to be in progress in the Sinkat area in mid-December.

Large scale control operations continued throughout the summary period with 1,040,802 ha treated up to 12 December.

#### ETHIOPIA

In late November the locust situation in the highlands of northern Ethiopia was reported as calm. One small swarm was controlled at Embatkalla (1525N/3906E) on 28 November but aerial surveys along the Red Sea coast in late November-early December failed to find locust populations. There were unconfirmed reports of swarms from several localities in Tigray province in late November. On 23 November swarms were also reported from Sulula Bore and Mendageba in Wollo Province.

#### DJIBOUTI

A swarm was reported to have been controlled west of Tadjoura on 24 November. Two swarms, estimated size 20 sq. km and 12 sq. km respectively, were controlled near Tadjoura (1150N/4250E) and Dorra (1209N/4228E) on 10 and 12 December.

#### SOMALIA

Surveys were undertaken in the northern coastal areas but no locusts were detected.

KENYA, UGANDA and TANZANIA were reported clear of locusts on 2 December.

#### EUROPE

##### UNITED KINGDOM

Scattered adults were reported from numerous localities in Cornwall, Devon and Somerset along the south-west coast of England between 26 October and 7 November.

##### TURKEY

A small scale invasion of south-west Turkey occurred in early December with locusts reported between Kale and Finike on 4 December. On 5 December locusts were reported from Kumluca and Antalya. Small scale control was reported to have been undertaken.

#### NEAR EAST

##### Meteorology

Analysis of Meteosat imagery indicates that light rain fell along the Tihama of Saudi Arabia and in the northern Desert during November. Further light to moderate rain was also believed to have fallen in these areas, central Egypt and southern Jordan in the first and second decades of December. There was a strong south-westerly air flow over the region in mid-December which was associated with a swarm invasion of northern Saudi Arabia and southern Jordan.

##### Breeding Conditions

Analysis of NOAA imagery for November indicates that in general breeding conditions were not favourable with the exception of the Tihama of

the Yemen Arab Republic. However, field reports indicate that localised areas suitable for breeding were present along the Tihama of Saudi Arabia during November.

### Locusts

#### KINGDOM OF SAUDI ARABIA

Large scale control of hopper bands was undertaken in the Qunfidah and Jizzan areas during November. Swarms continued to invade the costal Tihama from the west throughout November and early December with most reported to be immature. In the first half of December large scale swarm control was reported in the Gunfidah, Jizzan, Asir, Baha, Jeddah, Mecca, Taif and Medina areas and it was estimated that in excess of 1 million ha were infested. On 16 December swarms were reported from the Northern Desert at Tebuk, El Wejh and Halar Ammur near the Jordanian border.

#### EGYPT

On 13 November hatching was reported in the Elba Mountains area of the South-Eastern Desert and hopper bands subsequently formed. In the second half of November immature swarms were reported to have invaded the Western Desert from the south-west but these dispersed rapidly into large dense groups. Adult groups were reported from Frafra, Bahria and Siwa oases and also from the Mediterranean coast at Salloum, Alameen and Mersa Matrouh. Scattered immature adults were also reported from Asyut and Helwan in Giza province. Further invasion by immature swarms into the Western Desert oases described above and the Mediterranean coast was reported to have occurred between 2 and 12 December.

Between 2 and 12 December large immature swarms were reported from several localities between Shalateen and Mersa Alam on the Red Sea coast and dense immature groups from Wadi El Arish and Rafah North Sina.

Most infestations were reported to have been controlled but no details were available.

#### RED SEA

A ship reported scattered mature locusts at Jeddah between 8 and 13 December.

#### YEMEN ARAB REPUBLIC

Swarms continued to invade the Tihama throughout November and early December from the west and north. In late November swarms were reported from Al Zaidiah, Sada, Suhar (1653N/4341E), Majz (1708N/4330E), Bagim (1723N/4329E) and Sana'a. Several swarms migrated in a southerly direction in late November with swarms reported from Rada, Yarim and Arhab (1540N/4016E) on 26 November. Immature swarms were reported 20 km north of Sada on 7 December and near Albeida on 10 December. A laying swarm was also seen in Al Zaidia but no date was given. Hopper bands were reported to have been controlled in the Wadi Hayran and Bani Fayed on 8 December. A total of 8,281 ha was reported to have been treated on 8 December.

#### YEMEN PDR

On 4 December three swarms, varying in size from 25 to 90 sq. km, were reported from Wadi Hardaba (1333N/4453E) flying in a southerly direction. Local breeding was also reported in the Ahwar area where control operations were in progress.



KUWAIT, OMAN, BAHRAIN and QATAR were reported clear of locusts on 22 November.

#### SYRIA

On 1 December small immature low density groups were reported from Latakia. On 3 December further similar reports were received from Tartous (3453N/3553E) and Jableh (3522N/3555E). Small scale control was undertaken.

#### JORDAN

Swarms were reported in the Bayir and El Jejr (3020N/3625E) areas of south-east Jordan on 15 and 16 December. Control operations were in progress in mid to late December.

#### LEBANON

There were unconfirmed reports of locusts in the Beirut and Saida areas of southern Lebanon in early December.

ISRAEL was reported clear of locusts on 7 December.

### SOUTH-WEST ASIA

#### Meteorology

Light rain was reported in the Pasni, Khuzdar, Sukkur and Turbat areas of Pakistan in late November-early December.

#### Breeding Conditions

In general breeding conditions are not believed to be favourable due to lack of rainfall and/or low temperatures in the region.

#### Locusts

##### AFGHANISTAN

There was a report of scattered locusts from the Badghis province of western Afghanistan in late November but there was no confirmation of the species.

##### PAKISTAN

Scattered adults, density 750 per sq. km were reported at Lassal (2537N/6611E) on 11 November. On 25 November scattered adults, density 850 per sq. km, were observed at Nimla (2534N/7049E). In the first half of December low density adults (750 per sq. km) were reported from Rumra (2524N/6344E).

##### INDIA

In the first half of November low density adults were controlled at three localities in the Jaisalmer district of Rajasthan. Low density adults were also reported from 25 localities in the Bikaner, Jaisalmer and Jodhpur districts of Rajasthan and the Bhuj district of Gujarat. Maximum density reported was 1800 adults per sq. km at Jaisalmer on 2 November. In the second half of November low density adults persisted in the areas described above with 14,000 adults per sq. km reported at Lunar (2636N/7014E) on 19 November. Small scale ground control was undertaken with 156 ha treated to 15 November.

## CARIBBEAN AND SOUTH AMERICA

Locusts

## VENEZUELA

There was an unconfirmed report of locusts in the Sucre area in mid-November.

## FORECAST FOR JANUARY AND FEBRUARY 1989

The major area of concern over the winter will be both sides of the Red Sea coast where large scale breeding is likely to continue and substantial control will be necessary to limit populations and further extension of the plague in the spring. The situation in northern Mauritania and adjacent areas is unclear but it must be assumed that some breeding may be in progress. In West Africa swarms are likely to remain immature over the winter although migration to the south may occur.

In West Africa small scale swarm formation will be complete in Senegal, the Gambia and southern Mauritania by mid January. Swarm migration in a southerly direction with the retreating ITCZ may occur with small scale invasions of the Gulf of Guinea States. However, swarms are likely to remain immature and breeding is unlikely. In northern Mauritania and adjacent areas it is likely that breeding has occurred and swarms may form in these areas. Control operations are likely to decline further.

In North-West Africa further invasion of southern Morocco and possibly Algeria may occur in the first half of the forecast period. There is a moderate to high risk of breeding on a moderate to large scale in southern Morocco, adjacent areas of Mauritania and western parts of the Sahara with hopper band formation occurring during the forecast period.

In Eastern Africa winter breeding will continue along the Red Sea coast of Sudan and adjacent areas of northern Ethiopia throughout the forecast period. Band and swarm formation are likely to occur throughout the forecast period on a moderate scale in affected areas of Sudan and on a small to moderate scale on the Red Sea coast of Ethiopia. Continued control measures will be required throughout the forecast period.

In Europe the situation is expected to remain calm as low winter temperatures will restrict locust migration.

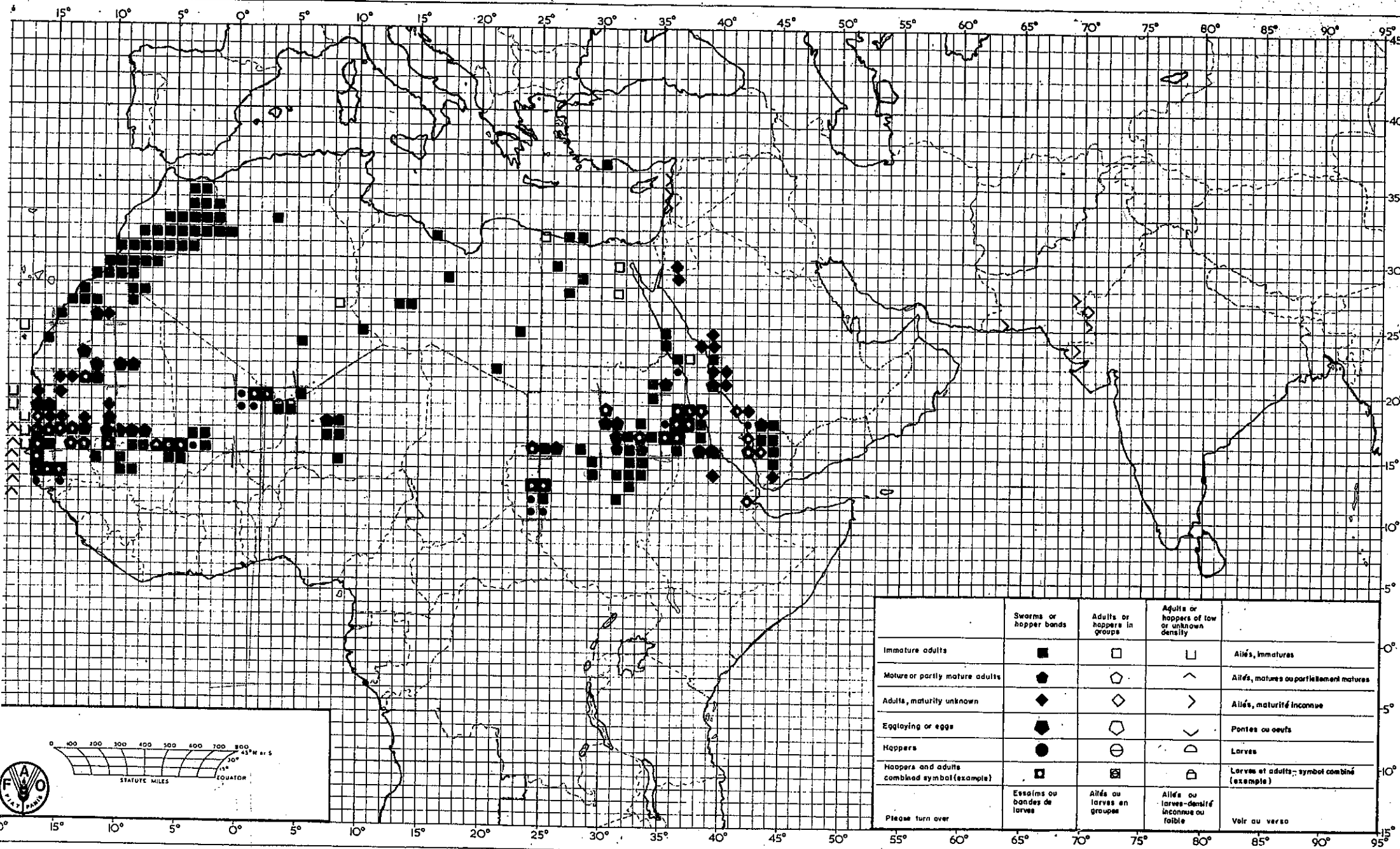
In the Near East winter breeding will continue along the Red Sea coast of Saudi Arabia, Egypt and the Yemen Arab Republic throughout the forecast period with moderate to large scale hopper band formation during December and January. Swarm formation is also likely to occur during the forecast period. Breeding in the northern desert of Saudi Arabia and Jordan is likely to be restricted by cool temperatures. Further invasions of Saudi Arabia, Egypt, the Yemen Arab Republic and Yemen PDR may occur particularly in the first half of the forecast period and continued moderate to large scale control measures will probably be required. Swarm migration from the Red Sea coast particularly in an easterly direction towards the Gulf States may occur during the forecast period. Swarm migration to the north will be restricted by low temperatures and the risk of invasion to Iraq, Syria, Jordan, Lebanon and Israel is assessed as low in the first half of the forecast period but as moderate to high in the second half.

In South-West Asia the situation is expected to remain calm with low density populations persisting throughout the forecast period.

In the Caribbean and South America adult numbers are expected to further decline over the forecast period and the situation is expected to remain calm.

Rome, 21 December 1988

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	Swarms or hopper bands	Adults or hoppers in groups	Adults or hoppers of low or unknown density	
Immature adults	■	□	◻	Ailéés, immatures
Mature or partly mature adults	●	◐	◑	Ailéés, matures ou partiellement matures
Adults, maturity unknown	◆	◊	◈	Ailéés, maturité inconnue
Egg laying or eggs	⬤	◑	◒	Pontes ou oeufs
Hoppers	●	◉	◓	Larves
Hoppers and adults combined symbol (example)	◼	◻	◻	Larves et adultes; symbol combiné (exemple)
Please turn over	Essaims ou bandes de larves	Ailéés ou larves en groupes	Ailéés ou larves-densité inconnue ou faible	Voir au verso

