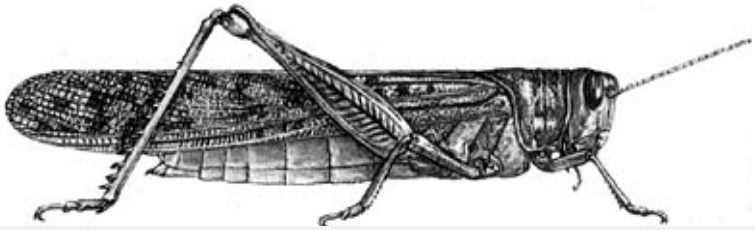

DESERT LOCUST UPDATE

FAO Emergency Centre for Locust Operations

(22 January 2004)

General Situation as of 22 January 2004
Forecast until mid-February 2004

More swarms are forming in Mauritania where the situation remains very critical. Control operations continue in southern Morocco and limited operations are in progress on the Red Sea coast of Sudan. Swarms are expected to form shortly in Saudi Arabia where aerial and ground control operations are in progress against hopper bands on the Red Sea coast. A few small swarms may move from there towards the spring breeding areas in the interior of the country.

The situation remains critical in **Mauritania** where conditions remain favourable and an estimated 300,000 hectares may be infested with hopper bands between Nouakchott and Bir Moghrein. Most of these have fledged and large, dense swarms are forming in the centre (Adrar), northwest (Inchiri, Dakhlett Nouadhibou) and north (Tiris-Zemmour) of the country. Additional breeding and hatching have been seen in the north where light rains fell on 7-8 January. Nearly 18,000 ha were treated on 1-10 January by 12 ground teams (8 Mauritanian, 2 Moroccan, 2 Algerian) and one aerial team. Additional control teams will be provided by Algeria.

In **Morocco**, different stages of hoppers and adults are present at densities up to 70 locusts/m^2 in the south from the Mauritanian border to Laayoune. Ground control teams treated 4,275 ha on 1-10 January. No information has been received from **Mali**, **Niger** or **Algeria** where locust infestations are currently present. Light rain fell in parts of central and southern Algeria and perhaps in northern Mali.

In **Sudan**, ground control operations continue against hoppers, fledglings and adults in cropping areas in the Tokar Delta on the Red Sea coast, and treated 319 ha on 1-18 January. So far, only one band has been seen. Light rain fell a few times on the southern coast. Low densities of early instar solitarious hoppers and isolated adults were present on the northern coastal plains. There were unconfirmed reports of locusts on the southern Red Sea coastal plains in **Egypt** near the Sudanese border where light rain may have recently fallen. Further details are awaited.

In **Saudi Arabia**, most of the current infestations on the Red Sea coast between Jeddah and Umm Lajj are late instar hopper bands. Fledging has started in all areas and small swarms will form by the end of the month. Most of these should stay on the coast because conditions remain favourable in most areas, but some may move towards the interior where several days of good rains occurred this month. More than 58,000 ha were treated by 31 ground control teams and four aircraft on 1-20 January.

The most up-to-date information on the situation and photos are available on the Internet (www.fao.org/news/global/locusts/locuhome.htm) as well as maps of the latest infestations (193.43.36.11/mapper).

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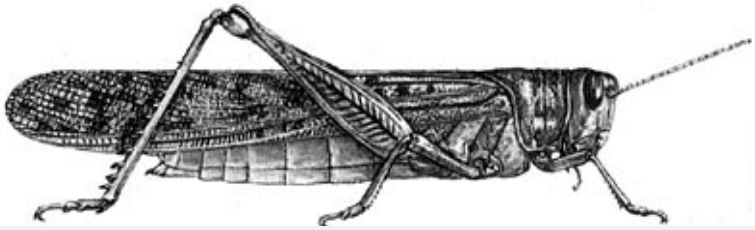

DESERT LOCUST UPDATE

FAO Emergency Centre for Locust Operations *(21 February 2004)*

General Situation as of 20 February 2004

More swarms are forming in Mauritania and, on a smaller scale, in Western Sahara and Niger. Another generation of breeding is in progress on the Red Sea coast in Saudi Arabia where swarms are forming and some adult groups have moved into the interior. A few hopper groups and bands are present on the Red Sea coastal plains near the Egyptian/Sudanese border. Overall, the situation remains extremely critical. Although control operations continue in all affected countries, swarms are expected to move into the spring breeding areas in Northwest Africa and in the Arabian Peninsula.

There is a severe shortage of pesticide in **Mauritania** where new swarms continue to form in the northwest and late instar hopper bands are maturing. Some swarms were seen moving northwards. Widespread hatching is in progress in the north where mainly late instar hopper bands are already present. More than 24,000 ha were treated (and another 11,500 ha using barriers) by 8 Mauritanian, 4 Mauritanian/Algerian, and 2 Mauritanian/Moroccan teams during 1-10 February. In **Western Sahara**, a few swarms started to form in early February, and groups of late instar hoppers and adults are present from the Mauritanian border to Laayoune. Ground and aerial teams treated 13,048 ha on 1-10 February. In **Algeria**, 200 ha of adult groups were treated near Tindouf during the same period. In **Niger**, hopper and adult groups continue to mature in the southeastern Air Mountains where swarm formation has commenced. Control operations treated 758 ha on 5-11 February. More laying is likely in northern Mauritania and in Niger. Additional swarms can be expected to form in the coming weeks in Mauritania, Western Sahara and, to a lesser extent, Niger. Some of these may move north towards the spring breeding area along the southern side of the Atlas Mountains in **Morocco** and Algeria.

In **Sudan**, adults are forming groups in the Tokar Delta where ground control operations treated 210 ha so far in February. Control was also carried out against 88 ha of late instar hopper groups on the northern Red Sea coast. Fledgling has occurred in nearby areas and adult groups were forming. In **Egypt**, 300 ha of small hopper bands were treated at three places on the Red Sea coastal plains near the Sudanese border during the first week of February. Only isolated adults were found during a joint survey on the coastal plains of northwestern **Somalia** and adjacent areas of **Djibouti**.

In **Saudi Arabia**, a few swarms were seen laying eggs on the Red Sea coast north of Jeddah where a second generation of breeding has started and hatchlings, first and second instar bands are present. Late instar bands continue to fledge and form adult groups on the plains. Some mature adults and groups moved into the interior at mid-month between Medinah and Buraydah where they are starting to breed. Ground and aerial teams treated nearly 19,000 ha on 1-18 February. More groups and swarms will form and some of these will move into the interior and lay eggs. There remains a low risk that a few could continue to western **Iran**.

The most up-to-date information on the situation and photos are available on the Internet (www.fao.org/news/global/locusts/locuhome.htm) as well as maps of the latest infestations (193.43.36.11/mapper).

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联合国粮食及农业组织

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Our Ref.:

Your Ref.:

Excellency,

I wish to bring to your attention the locust upsurge which is presently taking place in west Africa, in particular, in Mauritania. This is of serious concern to the Food and Agriculture Organization of the United Nations (FAO), given that the locust situation continues to deteriorate in centre, west and north of that country (Desert Locust winter/spring breeding areas). Furthermore, it could evolve into a major plague affecting the whole of the western region (west and north-west Africa) unless there is rapid reinforcement of control operations. This upsurge is taking place when the EMPRES (Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases) programme, which has been operational in the central region (the Red Sea area) since 1997, has not yet become fully operational in the western region.

In Mauritania, large populations of Desert Locust are present as swarms and hopper bands. As at the beginning of February, the infestation is reported to cover at least 500 000 hectares in Mauritania and western Sahara. Despite intensive control operations carried out by the Government of Mauritania since October 2003, with the help of FAO and with major bilateral assistance from Algeria and Morocco, the resources remaining immediately available are insufficient to combat the scale of infestation. The main constraint is the lack of pesticide. Ecological conditions continue to be favourable for breeding in Mauritania and the western Sahara, and there is a high-risk another generation will be produced. If control operations have to slow down or be interrupted because of lack of resources, another generation of locusts added to what is already there, could contribute to transforming the upsurge into a plague. This will make it highly likely that an invasion of neighbouring countries will occur during the next months, followed by a re-infestation of the front-line Sahelian countries during the summer rainy season of 2004. All these locust movements will constitute a major threat to agricultural production and food security in the region.

To limit the extent of the risk and given the damage already reported in crops and date palms, the reinforcement of the control resources in Mauritania through international donor assistance is urgent. The Minister of Rural Development and the Environment, with the support of the FAO Representation in Mauritania and of the EMPRES western region programme, has established an Emergency Steering Committee to which donor representatives are invited. FAO has already contributed to the operational costs through its own Regular Programme resources, as has the Commission for Controlling the Desert Locust in the Western Region (CLCPRO). The United States has provided funds from its emergency grant which is operated by FAO. An Emergency Technical Cooperation Project is under preparation following a request for assistance to FAO from the Mauritanian Government. Intra-regional solidarity has been quick to provide extra qualified staff, vehicles, sprayers, pesticides and aircraft both for spraying and transport. An international assistance is now necessary to cover additional purchases of pesticides and equipment and to fund the operational costs of locust surveys, support teams for aerial spraying and to ensure the technical coordination of the operations. Based on the available information, FAO's Plant Production and Protection Division (AGP) estimates that about US$6 million are needed to support control operations in Mauritania. In addition it is estimated that further US$3 million are needed to support operations in Chad, Mali and Niger.

I would be most grateful if you would transmit to the appropriate authorities in your country, our serious concerns about the locust situation and its probable worsening in west Africa, particularly in Mauritania and the western Sahara, together with our urgent request for assistance to complement what has already been provided for the control campaign.

I look forward to your rapid and positive response.

Accept, Excellency, the assurance of my highest consideration.

Henri Carsalade
Assistant Director-General
Technical Cooperation Department

Locust situation heads towards a plague, FAO warns

Reinforcement of control operations requires $9 million

23 February 2004, Rome - The UN Food and Agriculture Organization (FAO) launched today an appeal to donors for $6 million urgently needed to support desert locust control operations in Mauritania and another $3 million for Mali, Niger and Chad, in order to prevent the early stages of the current upsurge from developing into a plague.

In its appeal, FAO indicates that the locust situation continues to deteriorate in the western and northern areas of Mauritania, and in the Western Sahara.

Exceptional rains last summer initiated locust breeding over wide areas, and an even more exceptional rainfall in October 2003 in these areas, allowed further generations of locusts to breed sufficiently to produce swarms. Those that escape control are likely to move into Algeria and Morocco within a matter of weeks or even days, where a further cycle of breeding may take place in spring.

According to FAO, “swarms that are not sprayed will move south in June/July and, if this year’s summer rains are good, a plague affecting the whole of the Western Region (West and North-West Africa) could follow. A rapid reinforcement of control operations is needed now to try to break this cycle of events."

Mauritania mobilized its own resources to carry out intensive control operations since October 2003. FAO provided some support both from its own resources, from the FAO Commission for Controlling the Desert Locust in the Western Region and from a United States grant.

As the extent of the locust population became apparent, Algeria and Morocco came rapidly and effectively to Mauritania’s assistance. They have provided qualified staff, vehicles, pesticides and light aircraft with an estimated value of more than $2 million.

This assistance has been organized within the framework of the Commission.

Nevertheless, large populations of desert locust are still present as swarms and hopper bands, covering an estimated 500,000 hectares in Mauritania and the Western Sahara.

With a movement of swarms to the north being imminent, Algeria and Morocco have to keep their remaining resources ready to eliminate any threat to their own agriculture. In Mauritania, resources are running out, threatening to halt further operations, while ecological conditions continue to be favourable for breeding.

"If control operations have to slow down or be interrupted, more locusts added to those already there, could contribute to eventually transforming the current situation into a plague", warns FAO.

The Red Sea coast

A locust outbreak is also in progress on the Red Sea coast in Saudi Arabia where swarms are forming. Despite intensive control operations, some of these are expected to move into the central interior of the country where a further generation of breeding could occur in the spring.

It is possible that a few swarms could reach adjacent areas in Jordan, southern Iraq and Western Iran later in the spring.

Additional international assistance is now urgently needed to fund locust surveys, control operations and technical coordination during the next few months.

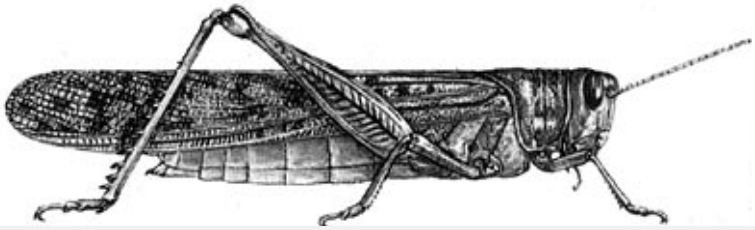
Control operations and external assistance are being coordinated by FAO’s Locust Group. The Group receives information and data from national locust units carrying out field surveys and control. It analyzes this information with meteorological, remote sensing and historical data and issues forecasts, alerts and special warnings.

A desert locust is a grasshopper that modifies its behaviour and appearance in response to environmental conditions. It is normally found in the solitary phase at very low densities in the desert in about 20 countries between Mauritania and India.

When rainfall creates favourable breeding conditions, the locusts can multiply rapidly, concentrate and gregarize. This means that they act collectively, forming swarms of adults and marching bands of hoppers (wingless immatures).

Swarms are highly mobile, flying many hundreds or thousands of kilometres between summer, winter and spring breeding areas.

When the locusts find ideal conditions in a sequence of seasonal breeding areas, upsurges can develop and lead to rapid multiplication and increasingly large swarms. If an upsurge is not controlled, a plague can occur in which swarms invade countries outside the traditional breeding areas. Crop damage by swarms can be devastating.



DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 304**

(4 February 2004)

General Situation during January 2004 Forecast until mid-March 2004

Despite intensive control efforts during January, the Desert Locust situation continued to deteriorate in Mauritania and Saudi Arabia. Large numbers of hopper bands were present and new swarms were beginning to form in both countries. Control operations continued in adjacent areas in southwestern Morocco and against smaller infestations in Algeria, Libya and Niger. During the forecast period, swarms are expected to move north into the spring breeding areas in Morocco and Algeria. A few hopper bands were reported on the coasts of Sudan and Eritrea. Some swarms may move from the Red Sea coastal plains in Saudi Arabia to spring breeding areas in the Saudi interior. There is a low risk that a few swarms may continue to Jordan, Iraq, Kuwait and Iran.

Western Region. The situation remains extremely critical in **Mauritania** where hopper bands were present within a large area of the northwest and north. Considerable damage to crops was reported in some areas. New swarms began forming from early January onwards, some of which were seen moving northwards. Groups of hoppers and adults were present in adjacent areas in southwestern **Morocco**. Aerial and ground control operations were underway in both countries. Small-scale breeding continued along the common border between **Algeria** and **Libya** during the first half of January and control was carried out in both countries. Locust numbers declined in Tamesna, **Niger** but breeding continued in the Air Mountains. The situation is less clear in northern **Mali** where a few small bands and swarms may be present. During the forecast period, swarms are expected to start moving towards the spring breeding areas south of the Atlas Mountains in Morocco and Algeria. Another generation of breeding could also occur in Mauritania if conditions remain favourable.

Central Region. Ground and aerial control continued against numerous hopper bands on the northern Red Sea coast of **Saudi Arabia** where new swarms are expected to form shortly. Although most of the swarms should remain on the coast where they will mature and breed, some may move into the spring breeding areas in northern and central Saudi Arabia. There is a low risk that a few swarms could continue to **Jordan**, **Iraq** and **Kuwait**. Control operations were underway in **Sudan** against hopper bands on the northern coast where infestations may be more widespread than previously reported, and in the Tokar Delta. Hopper bands were also reported on the northern coast of **Eritrea** near the Sudanese border. A few groups and swarms may form from the infestations in Sudan and Eritrea. Elsewhere, scattered adults were present on the Red Sea coasts of **Egypt** and **Yemen**, and on the coast of northwestern **Somalia**.

Eastern Region. No locusts were reported in the Region. Good rains fell in the spring breeding areas in western **Pakistan** where solitary adults are expected to appear and lay eggs in the coming weeks. There is a low risk that a few swarms may appear in western **Iran** from Saudi Arabia.

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No. 304

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in January 2004

Good rains fell in the spring breeding areas in the interior of Saudi Arabia and in western Pakistan. Vegetation was unusually green in Mauritania and southwestern Morocco but was drying out in Mali, Niger and Algeria. Although little rain fell along both sides of the Red Sea, conditions remained favourable on the northern coast of Saudi Arabia.

In the **Western Region**, light rain fell during January in parts of southern and eastern Algeria, in central Mauritania, in places along the coast in southwestern Morocco, and in northwestern Libya. Heavier rains occurred in southern Tunisia. As a result of rainfall in December, large areas of green vegetation were present in Mauritania in the northwest (Inchiri), centre (northern Trarza and Brakna, southwest Adrar) and north (Tiris Zemmour to 9W) where conditions were favourable for breeding. Similarly, green vegetation was present in southwestern Morocco from the Mauritanian border to Laayoune, about 700 km. In Algeria, vegetation was green in the east near Illizi, in the Sahara northwest of Tamanrasset and in the west south of Tindouf. Vegetation was reported to be dry north of Tindouf along the Moroccan border and drying out in northern Mali and Niger where only a few areas remained green. Conditions were improving in the Al Hamada Al Hamra region of northwestern Libya. Low temperatures at night prevailed throughout the Algerian Sahara.

In the **Central Region**, good rain fell throughout the spring breeding areas in the interior of Saudi Arabia where temperatures remained low and ecological conditions were starting to improve. Some of these showers extended to Kuwait, Bahrain and the United Arab Emirates. In Oman, heavy rain fell along the Batinah coast in the north and lighter showers were reported in many other areas during the second half of January. Despite unusually low temperatures, vegetation was starting to become green in some places. Isolated showers were reported on the northern Red Sea coast near Yenbo, Saudi Arabia. Heavier rain fell at mid month on the southern coastal plains from Jizan, along the Yemeni/Saudi border to Suq Abs, Yemen, and flooding occurred in some places. Breeding conditions remained favourable on the coastal plains north of Jeddah. Conditions continued to improve on the southeastern coast in Egypt where green vegetation was present in many of the wadis between Shalatyn and Halaib. In Sudan, no rain was reported on the coastal plains except for light showers in the Tokar Delta on 13 January. Consequently, natural vegetation was green in only a few places on the northern coast. In Eritrea, breeding conditions were improving on the northern coast. In Yemen, conditions were dry on the northern coast but greener in central areas near Hodeidah. Conditions were also dry along the Gulf of Aden coast. Good rains fell in mid January in eastern Ethiopia and at the end of the month in Djibouti. In Northern Somalia, vegetation was reported to be green on the coastal plains west of Berbera and dry to the east. Elsewhere, light rain fell in the Western Desert of Egypt at Siwa and Bahariya on the 21st.

In the **Eastern Region**, light to moderate rain fell in the spring breeding areas in Baluchistan, western Pakistan during the second half of January. Rainfall was heavier along the coast (Turbat 51 mm, Jiwani 48 mm, Gwadar 33 mm, Pasni 23 mm) than in the interior (Nushki 34 mm, Dalbandin 7 mm, Panjgur 5 mm). Consequently, ecological conditions will improve throughout most of Baluchistan. Conditions remained dry along the coastal plains and in the interior in southeastern Iran. Isolated showers were reported at times along both sides of the Indo-Pakistan border where vegetation is dry.

Area Treated

Since October, nearly 420,000 ha have been treated. Of this, control teams treated 242,200 ha in late December and during January as follows:

Algeria	348 ha	(26-28 December)
	59 ha	(7-12 January)
Libya	800 ha	(1-10 January)
Mauritania *	134,201 ha	(1-31 January)
Morocco	24,847 ha	(1-31 January)
Niger	615 ha	(28-29 December)
	1 ha	(3 January)
Saudi Arabia	80,787 ha	(1-28 January)
Sudan	542 ha	(1-28 January)

* includes barrier treatments protecting 52,127 ha

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **Situation**

Despite intensive control efforts, the situation continued to deteriorate throughout the country during January. Numerous hopper bands were present in several different areas: near Nouakchott, west of Bennichab (1932N/1512W) in southwestern Inchiri, between Akjoujt (1945N/1421W) and Atar (2032N/1308W), near Ouadane (2056N/1137W), in the north between Zouerate (2244N/1221W) and Bir Moghrein (2510N/1135W), and east of Bir Moghrein. Some of the bands were in agricultural areas and caused considerable damage to crops including fruit-bearing date palms. As the month progressed, hoppers continued to form bands at densities up to 1,300 hoppers/m^2, slowly matured and fledged. New immature adults formed an increasing number of swarms at densities up to 300 adults/m^2. During the second half of the month, some swarms were seen flying towards the north while others had become mature. Breeding continued in parts of Adrar where hatching was seen near Ouadane and in Tiris Zemmour where mature groups and swarms were reported. Elsewhere, groups of hoppers and adults were scattered south of the main infestations in southwestern Adrar, and border guards reported a swarm about mid month coming from the east along the Malian border some 200 km northeast of Nema (1632N/0712W).

Ground and aerial control operations treated 82,074 ha (full cover) and 52,127 ha (barrier) during January.

• **Forecast**

More swarms will continue to form in the north (Tiris Zemmour), northwest (Inchiri, Dakhlet Nouadhibou) and west (Adrar, Trarza) as the remaining hopper bands mature and fledge. Some of these swarms are likely to stay and slowly mature while others will move north towards the spring breeding areas on the southern side of the Atlas Mountains. Another generation of breeding is expected to occur in many of the areas currently infested as well elsewhere where conditions are favourable. Although low temperatures may initially delay hatching, the resulting hoppers are expected to start forming bands by March. There is a risk that additional swarms may arrive from northern Mali.

Mali

• **Situation**

The current situation is not very clear in the north and northeast because survey and control operations finished on 31 December 2003. Thereafter, no further operations were conducted and no locusts were reported.

• **Forecast**

Small groups of hoppers and adults, and perhaps a few bands and swarms, are almost certainly present in limited parts of Tamesna, the Adrar des Iforas and the Tilemsi Valley where vegetation remains green. As vegetation continues to dries out, low numbers of groups and perhaps a few swarms are likely to move towards northern Mauritania and to the spring breeding areas on the southern side of the Atlas Mountains in Morocco and Algeria.

Niger

• **Situation**

During January, groups of hoppers of all instars and immature adults were scattered in southeastern Air where hatching was still in progress. One small fifth instar hopper band was seen on 3 January in the Tafidet area (1817N/0923E). Ground control operations treated 616 ha in late December and early January.

There was a significant decline in locust populations in the Tezerzait area (ca. 1825N/0500E) in northwestern Tamesna where only small residual populations of solitarious and transiens hoppers and scattered adults were seen.

• **Forecast**

As vegetation dries out, adults will concentrate in areas that remain green in southeastern Air and form several small groups and perhaps a few swarms. While some of these may persist, most of locusts are expected to move to the spring breeding areas in Algeria and Morocco.

Chad

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Senegal

• **Situation**

No locusts were reported during December and January.

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

In early January, various stages of hoppers were slowly developing west of Tamanrasset (2250N/0528E) at densities up to 500 hoppers/bush and west of Illizi (2630N0825E) at densities up to 200 hoppers/bush. Scattered maturing adults were also present near Tamanrasset. Ground control operations treated 407 ha from 26 December to 12 January. In the west, isolated mature adults were present north of Tindouf (2742N/0810W) and southwest of Beni Abbes (3011N/014W) during the first week of January.

• **Forecast**

Locust numbers will increase near Tindouf where hatching is likely to occur once temperatures increase. Local populations may be supplemented by adult groups and swarms from neighbouring areas of northern Mauritania and Mali. In the east, hoppers will slowly mature near Illizi and Djanet where groups may eventually form. There is a risk that several adult groups and swarms may appear in the south during periods of warm southerly winds from Mali and Niger.

Morocco

• **Situation**

During January, small groups of hoppers of all instars mixed with immature and mature adults persisted within a large area of the southwest from the Mauritanian border to Guelta Zemmur (2508N/1223W). These were supplemented by mature adults coming from adjacent areas in Mauritania. Infestations varied from 3-1,000 ha in size with densities up to 70 locusts/m^2. Copulating adults were seen in some places. Similar infestations were also found near Oued Draa southwest of Guelmim (2859N/1003W). On the 28th, third and fourth instar hoppers at densities of 250/m^2 were seen near the Algerian border at Fydat Albagra (2957N/0628W). Ground and aerial control operations treated 24,847 ha during January.

• **Forecast**

Hoppers and adults will continue to develop in currently infested areas and are expected to form small bands and swarms. Adults are likely to move further north towards Oued Draa and the spring breeding areas south of the Atlas Mountains. If temperatures are warm enough and conditions are favourable, laying could start by the end of the forecast period. There is a risk that additional adult groups and swarms will arrive from northern Mauritania and Mali.

Libyan Arab Jamahiriya

• **Situation**

During January, groups of third to fifth instar hoppers and fledglings continued to develop northwest of Ghat (2459N/1011E). Most of the hoppers were fifth instar at densities up to 50 hoppers/m^2. Control operations treated 800 ha during the first decade of January.

• **Forecast**

A few small adult groups may form near Ghat where they will persist if conditions remain green. Otherwise, they could move further north into the Al Hamada Al Hamra, mature and eventually lay where good rains fell in January.

Tunisia

• **Situation**

No reports received.

• **Forecast**

A few adults may appear in the south during periods of warm southerly winds and breed in areas of recent rainfall. Low temperatures are likely to delay locust maturity and limit migration.

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

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

By the end of December, control operations had finished in the Atbara River area and no further locusts were reported from there.

During January, locust numbers increased on the Red Sea coastal plains, primarily in the Tokar Delta and on the northern plains between Port Sudan and Mohamed Qol (2054N/3709E) and near Oseif (2146N/3651E). In the Tokar Delta, immature and mature gregarious adults were present in millet and sorghum at densities of 3-7 adults/m^2 mixed with solitarious and transiens hoppers of all instars at densities up to 15/m^2. At mid month, one band had reportedly formed and many of the hoppers were fledging. By the end of the month, adult densities declined slightly. Ground control operations treated 465 ha on 1-28 January.

On the northern coast, first to third instar solitarious hoppers were present on 11 January at several places along the coast between Port Sudan and Mohamed Qol, and scattered mature adults were seen near the Egyptian border in Wadi Gabaneit (2156N/3650E). On the 24th, control operations treated 77 ha of late instar

gregarious hoppers at densities of 5000/ha and two small bands south of Mohamed Qol and near Oseif. Another dozen or so hopper groups and bands were seen in the same area up until 26 January suggesting that infestations may be more widespread than initially reported.

• **Forecast**

Unless further rains fall, breeding will decline on the northern coastal plains and in the Tokar Delta. Small hopper groups and bands are likely to continue to form in these places. Once hoppers fledge, adults are expected to form groups and perhaps a few small swarms, especially on the northern coast, that could move along the coast north towards Egypt, south towards Eritrea or across the Red Sea to Saudi Arabia.

Eritrea

• **Situation**

Scattered solitarious adults were seen at two places on the northern Red Sea coastal plains on 12-16 January. First to fourth instar hopper bands, mixed with adults, were present near the Sudanese border at Meleet (17230N/3847E) in about 5,000 ha of millet crops at densities of 20-25 hoppers/plant.

• **Forecast**

Locust numbers will increase on the Red Sea coastal plains between Massawa and the Sudanese border as small-scale breeding continues in favourable areas. Some populations could concentrate and start to gregarize, mainly in those places where green vegetation is limited, and form groups and perhaps a small swarm. There is a moderate risk of adult groups and perhaps a few small swarms arriving from the Sudanese coastal plains.

Somalia

• **Situation**

Isolated mature adults were seen on the northwestern coast at Awer Qalad (1050N/4327E) during surveys carried out on 13-19 January. No locusts were seen elsewhere along the coast or on the escarpment.

• **Forecast**

Locust numbers are likely to increase along the escarpment and coastal plains west of Berbera where small-scale breeding will occur in areas of recent rainfall.

Ethiopia

• **Situation**

No locusts were seen during surveys in the southeast near Harar (0919N/4206E) during January.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No reports received during January.

• **Forecast**

A few locusts may appear in areas of recent rainfall along the northern and eastern coastal plains. No significant developments are likely.

Egypt

• **Situation**

During January, scattered mature adults at densities up to 1,000/ha were present at two places on the Red Sea coastal plains near Halaib (2212N/3635E). Locust populations decreased along the Lake Nasser shoreline where only scattered mature solitarious adults, at densities up to 200/ha, persisted at five places.

• **Forecast**

Locust numbers will continue to decline along the shores of Lake Nasser but are likely to increase on southeastern coastal plains of the Red Sea between Shalatyn and Abu Ramad due to small-scale breeding in areas of recent rainfall. There is a moderate risk of adult groups and perhaps a few small swarms arriving from the Sudanese coastal plains.

Saudi Arabia

• **Situation**

During January, numerous hopper bands continued to be present on the Red Sea coastal plains between Jeddah and Umm Lajj (2501N/3716E). Most of the infestations consisted of small bands of late instar hoppers at densities up to 100 hoppers/m^2. Several of these were found in the hills adjacent to the coastal plains. Fledging commenced on 5 January and, by the end of the month, groups of immature adults were starting to form swarms. One small immature swarm was seen flying near Al Barzah (2157N/3942E) from the coastal plains into the hills on the 17th. Aerial and ground control operations treated 80,787 ha during January.

A few individual immature adults were seen on the southern coastal plains south of Jizan (1656N/4233E) near the Yemeni border during a joint Saudi/Yemeni survey carried out on 12-15 January.

• **Forecast**

Swarm formation will commence at the beginning of the forecast period between Jeddah and Umm Lajj.

Although most of the swarms are expected to remain on the northern Red Sea coast and mature, there is a risk that some swarms will move into the interior during February where they could lay by the end of the forecast period. Those that remain on the coast are likely to lay eggs during February, giving rise to another generation of hoppers that will form bands and start to fledge as early as mid-March. There is a moderate risk that some adult groups and perhaps a few small swarms may arrive from the Sudanese and Eritrean coastal plains.

Yemen

• **Situation**

During January, isolated immature and mature adults were present in a few places on the Red Sea coastal plains northeast of Hodeidah (1450N/4258E). No locusts were seen during surveys carried out along the Gulf of Aden coast.

• **Forecast**

Small-scale breeding is expected to occur on the Red Sea coastal plains near Hodeidah. A few adults may appear further north in the border area as vegetation becomes green. No significant developments are likely.

Oman

• **Situation**

No locusts were seen during surveys carried out in January.

• **Forecast**

A few isolated adults may appear on the Batinah coast by the end of the forecast period and breed on a small scale if conditions are favourable.

Jordan

• **Situation**

No reports received.

• **Forecast**

There is a low risk that a few swarms could appear in the south from the Red Sea coast and interior of northern Saudi Arabia. This will most likely occur during periods of warm southerly winds associated with depressions over northern Arabia.

Iraq

• **Situation**

No reports received.

• **Forecast**

There is a low risk that a few swarms could appear in the south from the Red Sea coast and interior of northern Saudi Arabia. This will most likely occur during periods of warm southwesterly and westerly winds associated with depressions over northern Arabia.

Kuwait

• **Situation**

No reports received.

• **Forecast**

There is a low risk that a few swarms could appear from the Red Sea coast and interior of northern Saudi Arabia. This will most likely occur during periods of warm southwesterly and westerly winds associated with depressions over northern Arabia.

Bahrain, Israel, Kenya, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

No locusts were seen during surveys carried out in the southeast on the coast near Jask and Chabahar and in the interior near Iranshahr and Saravan during January.

• **Forecast**

There is a low risk that a few swarms could appear in coastal areas of Bushehr Province from the Red Sea coast and interior of northern Saudi Arabia. This will most likely occur during periods of warm southwesterly and westerly winds associated with depressions over northern Arabia.

Pakistan

• **Situation**

No locusts were reported during January.

• **Forecast**

Low numbers of adults are expected to appear on the coast and in the interior of Baluchistan and breed on a small scale in areas of recent rainfall.

India

• **Situation**

No locusts were reported during January.

• **Forecast**

No significant developments are likely.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Announcements

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Reporting by e-mail. After each survey or control operation, affected countries should send completed *FAO Desert Locust Survey and Control Forms* with a brief interpretation of the results by e-mail to eclo@fao.org.

eLocust. Updated details of a new system for recording and transmitting locust survey and control data collected in the field as well as country maps can be found on the Internet at: www.fao.org/news/global/locusts/elocust.htm

Outbreak photos. Pictures of the recent outbreaks in the Western and Central Regions are available on the Internet at: www.fao.org/news/global/locusts/outbreakpix.htm

Publications on the Internet. New FAO publications are available for downloading at www.fao.org/news/global/locusts/pubslist.htm:

- *Technical Series No. 30: Population dynamics* (English)
- *Technical Series No. 31: Biogéographie du Criquet pèlerin en Mauritanie* (French)

Desert Locust Guidelines. The French and Arabic versions of the *Desert Locust Guidelines* are now available as well as the English version of *Volume VI. Safety and Environmental Precautions* and an updated index. These can be downloaded from the Internet at: www.fao.org/news/global/locusts/pubs1.htm. Please contact the Locust Group if you would like to receive hard copies.

Desert Locust research award. The FAO Commission for Controlling the Desert Locust in the Central Region (CRC) is pleased to announce a cash award for outstanding research on Desert Locust. For more details, please contact the CRC Office in Cairo (munir.butrous@fao.org).

2004 events. The following meetings are scheduled:

- **Pesticide Referee Group.** 8th meeting, Rome, postponed to later in 2004
- **Desert Locust Technical Group Workshop.** 8th meeting, Nouakchott (Mauritania), postponed (tba)
- **CRC.** 24th session of the Commission and 26th session of the Executive Committee, Jeddah (Saudi Arabia), 17-22 April
- **CLCPRO.** 1st Executive Committee, Niamey (Niger), 14-18 June
- **SW Asia Commission.** 24th session, Kabul (Afghanistan), October

Locust Group staff. Mr. Abderrahmane Hafraoui retired at the end of January 2004 after 17 years with the Group. His place as the Officer responsible for the Group has been taken by Mr. Clive Elliott with effect from 1 February 2004.

Iran earthquake victims. It is with great sadness that we have learnt of the deaths in the recent earthquake in Bam of two locust staff in the Plant Protection Organization: Mr. Mohammad Ali Hadizaden (technician) and his family, and Mr. Hossein Vahdati (driver). Our sincere condolences go to their families and to their Government.

Abdullahi Ould Mohammed Sidia. It is also with great sorrow that we have been informed that Mr. Abdullahi Ould Mohammed Sidia passed away on 7 January in Nouakchott, Mauritania. In the 1960s, he contributed to numerous ecological surveys that helped to improve our understanding of Desert Locust biotopes in West Africa and were published in the FAO Technical Series. In the mid 1970s, he was Director of OCLALAV. Our sincere condolences go to his family and his Government.

No. 304

DESERT LOCUST BULLETIN

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/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)

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

GROUP

- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL

- swarm: less than 1 km^2
- band: 1 - 25 m^2

SMALL

- swarm: 1 - 10 km^2
- band: 25 - 2,500 m^2

MEDIUM

- swarm: 10 - 100 km^2
- band: 2,500 m^2 - 10 ha

LARGE

- swarm: 100 - 500 km^2
- band: 10 - 50 ha

VERY LARGE

- swarm: 500+ km^2
- 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.

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.

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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guidea Bissau and Guinea Conakry.

CENTRAL

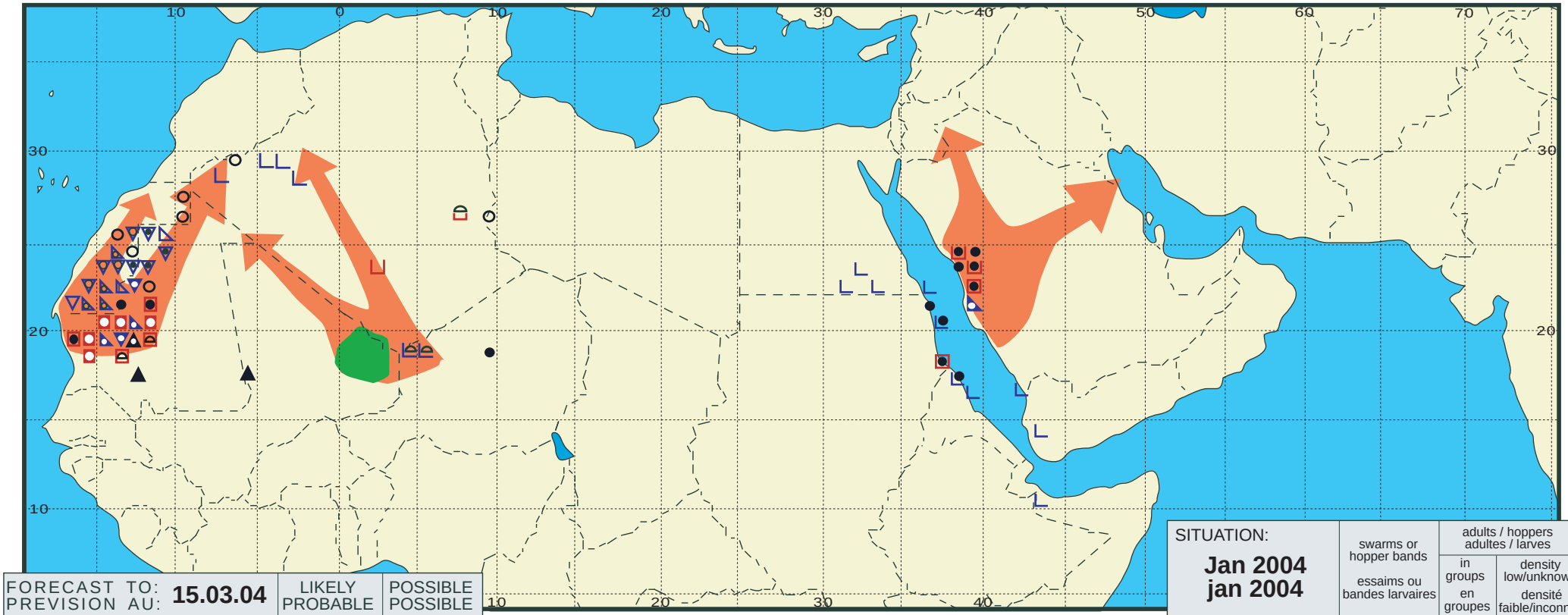
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.

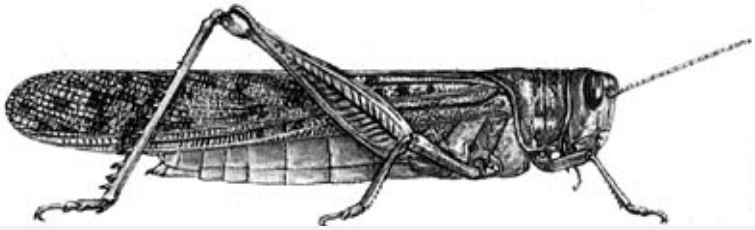
Desert Locust Summary
Criquet pèlerin - Situation résumée

304



FORECAST TO: PREVISION AU: **15.03.04**	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **Jan 2004 jan 2004**	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	◣	◺	L
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)	◘	◙	⊍



DESERT LOCUST UPDATE

FAO Emergency Centre for Locust Operations *(16 March 2004)*

General Situation as of 16 March 2004

The situation continues to be extremely serious in Northwest Africa. Despite intensive control operations, swarms are laying eggs in the spring breeding areas south of the Atlas Mountains in Morocco and perhaps in western Algeria. More swarms are expected to arrive in these areas from Mauritania and Western Sahara where swarms are forming. Control operations continue to be hampered in Mauritania due to a lack of resources, especially pesticides. The situation may be improving in Saudi Arabia where control operations declined on the Red Sea coast. A few swarms appeared in northern Sudan and southern Egypt, and hopper bands were treated on the coast near the Egyptian/Sudanese border.

During the first week of March, late instar hopper bands were fledging in the **Western Sahara** and an increasing number of immature and mature swarms were forming. In **Morocco**, mature swarms continued to lay eggs south of the Atlas Mountains in the Draa Valley. Ground and aerial control operations have intensified, treating up to 20,000 ha/day. During the first week of March, more than 113,000 ha were controlled. In **Mauritania**, widespread hatching and band formation continue in the north near Zouerate and to a lesser extent near Akjoujt and Atar. Adults are forming groups in parts of the north and northwest where vegetation is drying out, and a few swarms have been seen moving northwards. Control operations declined during the first ten days of March and treated only 775 ha (and another 145 ha using barriers) due to insufficient pesticide supplies. In **Niger**, adult densities are increasing in the southern Air Mountains where egg-laying and hatching are in progress. Many small swarms were seen moving northwards in early March. Control operations treated nearly 3,000 ha during the first week of the month. Isolated adults persisted in northern **Mali** where the situation is calm. Although no new information has been received from **Algeria**, locusts are almost certainly present in the west near the Moroccan border. More swarms are likely to arrive and lay eggs south of the Atlas Mountain in Morocco and Algeria. A few swarms may also appear in southern and central Algeria from Niger.

During the first week of March, locusts moved from the Red Sea coastal plains to the interior of northern **Sudan** and southern **Egypt**. In Sudan, groups of immature and mature adults and a few small mature swarms appeared near Dongola. The swarms were reported to be copulating. In Egypt, an immature swarm was seen near Lake Nasser and adults appeared in the New Valley. On the Red Sea coast, control operations continued on both sides of the Egyptian-Sudanese border against late instar hopper groups and bands. No locusts were reported in the Tokar Delta. Control operations treated 1,200 ha in Egypt and 45 ha in Sudan during 1-8 March.

In **Saudi Arabia**, locust numbers have reportedly declined along the Red Sea coastal plains where only low numbers of solitarious and gregarious adults were seen in early March. No information has been received about the situation in the spring breeding areas where adult groups were laying eggs last month. Control operations treated 1,900 ha on the coast during the first half of March.

The most up-to-date information on the situation and photos are available on the Internet (www.fao.org/news/global/locusts/locuhome.htm) as well as maps of the latest infestations (193.43.36.11/mapper).

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Internet: www.fao.org
DLIS: www.fao.org/news/global/locusts/locuhome.htm

Desert locust situation extremely serious in northwest Africa

23 March 2004 -- Despite control operations, the desert locust situation continues to be extremely serious in northwest Africa.

23 March 2004, Rome-- Despite control operations, the desert locust situation continues to be extremely serious in northwest Africa, according to the latest update by the United Nations Food and Agriculture Organization.

"There are signs that the situation is moving towards the early stages of an upsurge. International donor assistance is urgently required to prevent a plague from developing," warns FAO's Locust Group.

In Morocco, intensive aerial and ground control operations, treating up to 20 000 ha per day, are in progress against swarms that are laying eggs in the spring breeding areas in the Draa Valley on the southern side of the Atlas Mountains. It is likely that similar infestations extend into western Algeria, near the Moroccan border.

In the next few weeks, more swarms are expected to arrive in Morocco and Algeria from northern Mauritania and the Western Sahara.

In Mauritania, widespread hatching and band formation continue in the north near the borders of Morocco and the Western Sahara. Adults are forming swarms in parts of the north and northwest where vegetation is drying out, and some of these swarms have been seen moving northwards.

In Niger, adult densities are increasing in the southern Air Mountains, where egg-laying and hatching are in progress. Many small swarms were seen moving northwards in early March. They may appear in southern and central Algeria.

Control operations

Control operations are in progress in the affected countries, but national resources are rapidly being drained. During the first half of March, more than 250 000 ha were treated in Morocco, compared to about 2 000 ha in Mauritania, where a severe shortage of funds for pesticide and operations continues to limit the ability to reduce the number of swarms that will eventually move towards the spring breeding areas.

Last month, FAO launched an appeal to donors for $6 million urgently needed to support and maintain operations in Mauritania and another $3 million for Mali, Niger and Chad in order to avert a plague. The last plague in 1987-89 lasted several years and cost more than $300 million before it came to an end.

Sudan and Egypt

Across the continent, desert locust populations unexpectedly shifted from the Red Sea coastal plains to the interior of northern Sudan and southern Egypt during the first week of March, according to the latest FAO report.

In Saudi Arabia, locust numbers have reportedly declined along the Red Sea coastal plains as swarms moved across the Red Sea to northeast Africa.

In Sudan, a few small mature swarms appeared near Dongola and were reported to be copulating.

In Egypt, larger swarms were seen near Lake Nasser and locust adults appeared in the oases in the New Valley while, on the Red Sea coast, control operations continued on both sides of the Egyptian-Sudanese border.

FAO reiterated that if survey and control operations have to slow down or be interrupted during this spring in northwest Africa, more swarms will form and move to the Sahel in West Africa at the beginning of the summer growing season.

"If operations are not effective during the summer, this could not only have a dramatic impact on food security within the region but the current situation could develop into a plague by the end of the year," FAO warns.

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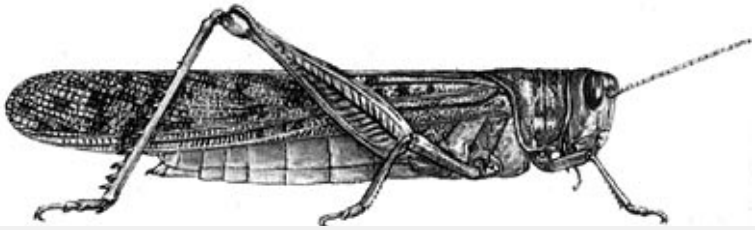
Related links

- **The latest report on desert locust**
  http://www.fao.org/news/global/locusts/locuhome.htm



DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 305**

(3 March 2004)

General Situation during February 2004 Forecast until mid-April 2004

There are signs that the situation may be moving towards the early stages of an upsurge as Desert Locust moved into the spring breeding areas in Northwest Africa and Saudi Arabia during February. Numerous swarms invaded the Draa Valley in Morocco and some adults crossed the Atlas Mountains while others may have reached the Canary and Madeira Islands. Despite intensive control efforts, another generation of breeding is in progress and swarms are forming in northern Mauritania, in Western Sahara and on the Red Sea coast in Saudi Arabia. More swarms are expected to move to the spring breeding areas in Morocco and Algeria and lay eggs, while those on the Red Sea coast will move into the interior of Saudi Arabia. Hatching and band formation will occur during the forecast period in these places.

Western Region. Widespread hatching occurred during February in northern **Mauritania** where control operations were hampered by a severe shortage of pesticides. New swarms formed in western Mauritania, in adjacent areas of **Western Sahara** and in **Niger**. Many of these swarms were seen moving northwards. After mid-month, swarms reached the southern side of the Atlas Mountains in **Morocco** and adult groups appeared in western **Algeria** carried on unusually strong winds. Egg laying started during the last week of February in Morocco. As temperatures warm up, hatching and band formation is likely to commence by late March. In **Mali**, small residual populations may be present in the north. Although control operations are in progress, more adult groups and swarms will almost certainly move northwards in the coming weeks and lay eggs over a large area south of the Atlas Mountains in Morocco and Algeria if rainfall occurs. Initially, the scale of this movement may be limited but could increase dramatically in April if more swarms form in Mauritania and Western Sahara.

Central Region. A second generation of breeding occurred on the northern Red Sea coastal plains in **Saudi Arabia** where hatchlings were forming hopper bands, and adults from earlier breeding continued to form groups and swarms. Some of the groups moved into the spring breeding areas in the interior and laid eggs. In the coming weeks, new swarms will form on the coast and could move inland where hatching and band formation should start shortly. Groups of hoppers were present on the northern coast in **Sudan** and hopper bands were reported in adjacent areas on the southeastern coast in **Egypt**. Hopper bands were also present on the coast of **Eritrea** near the Sudan border. There were a few unconfirmed swarms in northern Sudan that may have come from southern Egypt. Control operations were carried out in the four countries. Elsewhere, scattered adults were present on the Red Sea coast in **Yemen** and on the northwestern coast in northern **Somalia**.

Eastern Region. No locusts were reported and very little rain fell in the Region during February. Nevertheless, scattered adults are likely to be present and laying eggs in the spring breeding areas in western **Pakistan** where good rains fell in January. There is a low risk that a few swarms may appear in western **Iran** from Saudi Arabia during periods of southwesterly winds.

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DLIS: www.fao.org/news/global/locusts/locuhome.htm

No. 305

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in February 2004

Although little rain fell during February, breeding conditions remained favourable in northern Mauritania and Western Sahara. Conditions were also favourable in Saudi Arabia on the northern coastal plains of the Red Sea and in the central interior.

In the **Western Region**, light to moderate showers fell during the third week of February along the southern side of the Atlas Mountains in Morocco (Tata 30 mm) and parts of Algeria (Bechar 2 mm), extending from Dakhla (7 mm), Laayoune (18 mm) and Tan-tan (20 mm) on the Atlantic coast to Bir Moghrein (3 mm) in northern Mauritania, and Tindouf (6 mm) in western Algeria. These were associated with a low-pressure system over the Canary Islands that moved over the western Mediterranean and caused exceptionally strong southerly and southwesterly winds on the 17-20th. During the month, daytime temperatures increased throughout the region but temperatures at night remained low. Prevailing winds were mainly from the north, northwest and northeast except during atmospheric disturbances over the Mediterranean when they were from the south for brief periods. Vegetation remained green and conditions were favourable for breeding over large portions of northwestern and northern Mauritania, and in adjacent areas in Western Sahara and western Algeria. Vegetation dried out during the month in central and southwestern Mauritania (Brakna and Trarza). Green vegetation was present in the Algerian Sahara northwest of Tamanrasset (Adrar n Ahnet) and in Niger where favourable breeding conditions prevailed in the wadis in the eastern Air Mountains. Breeding conditions improved and became favourable during the month in the Draa Valley in Morocco. Vegetation continued to dry out in northern Mali due to hot easterly winds.

In the **Central Region**, breeding conditions remained favourable on the northern coastal plains of the Red Sea in Saudi Arabia during February. By the end of the month, vegetation was starting to dry out in a few places near Jeddah. As a result of good rains during January, breeding conditions improved within a large part of the central interior between the Hejaz Mountains and Riyadh and temperatures were starting to increase. Conditions were much less favourable on the western side of the Red Sea where vegetation was drying out in most areas from Massawa, Eritrea to Shalatyn, Egypt. Isolated showers were reported on the coast north of Port Sudan on the 8th and in the Tokar Delta on the 21st. Moderate to heavy rain fell early in February on the southern coastal plains of the Red Sea in Yemen. Light showers were reported during the same period along the Gulf of Aden coast in Yemen and in northwestern Somalia where vegetation was green.

In the **Eastern Region**, light to moderate rain fell in the northwestern part of the spring breeding area in Baluchistan, western Pakistan in early February (Nushki 4 mm, Quetta 16 mm). Nevertheless, breeding conditions improved throughout Baluchistan as a result of the good rains during the second half of January. Conditions may also be improving in adjacent areas of southeastern Iran.

Area Treated

Since October, 590,000 ha have been treated. Of this, control teams treated 164,000 ha in February as follows:

Algeria	1,908 ha	(1-24 February)
Egypt	895 ha	(2-27 February)
Eritrea	1,920 ha	(28-30 January)
Mauritania *	81,459 ha	(1-20 February)
Morocco	80,098 ha	(1-27 February)
Niger	758 ha	(5-11 February)
Saudi Arabia	8,940 ha	(29-31 January)
	24,287 ha	(5-24 February)
Sudan	308 ha	(6-23 February)

* includes barrier treatments protecting 27,222 ha

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During February, the situation remained extremely serious as locust infestations persisted in the northwest and north. Large infestations of late instar

hoppers, groups and several bands mixed with groups of fledglings and immature adults were present west of Bennichab (1932N/1512W), between Akjoujt (1945N/1421W) and Atar (2032N/1308W), and to the north, east and south of Atar. Adults continued to mature during the month, forming groups and swarms in some of these areas. Another generation of hatching was in progress in southwestern Adrar by mid-month. There were several reports of dense, medium to large sized maturing swarms moving northwards from Inchiri and southwestern Adrar. Late instar hopper bands, immature adult groups and mature swarms were seen in the Dakhlet Nouadhibou region. At the end of the month, adults were seen copulating in some places in Inchiri.

Further north in Tiris-Zemmour, widespread hatching occurred near Zouerate (2244N/1221W), Ghalamane (2456N/1124W) and M'haoudatt (2255N/1200W) where new early instar hopper bands were forming in addition to late instar bands, fledglings and adults that were already present. Adults were maturing and forming groups and several swarms, some of which were laying eggs, while others were seen flying northwards. Adult groups were also reported copulating southeast of Bir Moghrein in Oued El Ma area (2431N/0828W) in early February. Ground and aerial control operations treated 54,237 ha (full cover) and 27,222 ha (barrier) during February.

Elsewhere, isolated populations of solitarious immature adults were present northwest of Moudjeria (1751N/1228W) in northern Brakna. No locusts were seen in Trarza where vegetation is dry.

• **Forecast**

During March, more adult groups and swarms will form in the north (Adrar, Tiris Zemmour) and northwest (Inchiri, Dakhlet Nouadhibou) as older hopper bands fledge. Some of these swarms will stay, mature and lay eggs if conditions remain favourable while others will move north towards the spring breeding areas on the southern side of the Atlas Mountains. New hopper bands will also form in the north and northwest early in the forecast period from recent hatching. By April, many of these are expected to have fledged and start forming swarms.

Mali

• **Situation**

No surveys were carried out during February. Nevertheless, small residual populations of adults and groups are likely to be present in parts of the Tamesna and eastern Adrar des Iforas.

• **Forecast**

Small groups of adults are likely to persist in those areas that remain green in the Adrar des Iforas and Tamesna. As vegetation continues to dry out, further concentration is expected and a few small swarms could form. These swarms are likely to move towards northern Mauritania and to the spring breeding areas on the southern side of the Atlas Mountains in Morocco and Algeria.

Niger

• **Situation**

During the last days of January, there were reports of a few swarms moving from the Tafidet area (1817N/0923E) in the southeastern Air Mountains northwards to Arakaou (1858N/0940E) and Issaouane (1901N/0924E) where many high-density adult groups were seen.

During February, groups of hoppers (at densities up to 20 hoppers/m^2) and adults (up to 30,000 adults/ha) persisted in several wadis in the Tafidet area where they were maturing. Most of the hoppers had reached the fifth instar and many of the adult groups were seen laying eggs. On the 10th, a small low-density mature swarm was seen at 1814N/0940E. Ground control operations treated 758 ha during the month.

Although vegetation was still green in the Tezerzait area (ca. 1825N/0500E) in northwestern Tamesna, the locust situation was reported to be calm.

• **Forecast**

New hatching and band formation are likely to commence early in the forecast period. As temperatures warm up, hoppers will mature and fledge and, by mid-April, a few new swarms could start to form. Some of these may remain in place while others could move to the spring breeding areas in Algeria and Morocco.

Chad

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Senegal

• **Situation**

No locusts were reported during February.

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

During the first half of February, immature adults were forming groups in the west near Tindouf (2742N/

0810W) at densities up to 3,000 adults/ha. Isolated mature adults were seen at two places in the central Sahara between Tamanrasset (2250N/0528E) and In Salah (2712N/0229E). On the 19-20th, there was an influx of gregarious immature and mature adults near Tindouf from neighbouring areas in Western Sahara and Mauritania on strong southwesterly and southerly winds. Some adults reached as far north as 30N. Subsequently, groups of fledglings, at densities up to 6/m^2, and maturing adults, at densities up to 60,000/ha, were reported at several places between Tindouf and Beni Abbes (3011N/0214W). Control operations treated 1,908 ha during the month.

• **Forecast**

As temperatures warm up, hatching from earlier laying during the winter is expected to occur near Tindouf. Local populations are likely to be supplemented in the west by adult groups and swarms coming from neighbouring areas of northern Mauritania, Western Sahara and, to a lesser extent, Mali during periods of southwesterly and southerly winds. Initially, the scale of this movement may be limited but is likely to increase significantly during April when there is a risk that adult groups and swarms could spread over a large area south of the Atlas Mountains between Tindouf and Ghardaia and lay eggs, depending on rainfall. Groups of adults may already be present in some of these places west of Bechar and laying eggs in areas of recent rainfall. If so, spring hatching should start by the end of the forecast period.

Morocco

• **Situation**

Swarms started to form during the first week of February in Western Sahara, and hopper and adult groups continued to mature between the Mauritanian border and Laayoune (2708N/1313W) throughout the month. Copulating adult groups and first instar hoppers were also seen near Tichla (2135N/1458W). From mid-month onwards, numerous immature swarms moved northwards to the spring breeding areas south of the Atlas Mountains where they dispersed along a 600 km stretch of the Draa Valley from Tan-tan (2827N/1109W) to Zagora (3019N/0550W). Infested areas ranged from 5-3,700 ha in size and swarm densities were up to 80 adults/m^2. Most of these movements were associated with the strong southerly winds on 18-19 February. Some of these winds carried adults over the Atlas Mountains to the northwestern coastal plains where small groups were scattered between Essaouira (3126N/0958W) and El Jadida (3308N/0835W) as well as in the Middle Atlas near El Brouj (3243N/0405W). During the last week of the month, many of the adults in the Draa Valley were seen copulating.

• **Forecast**

Hatching is expected to occur in the Western Sahara as temperatures warm up, causing locust numbers to increase further. Current hopper and adult populations will continue to form bands and swarms. These are likely to be supplemented by additional adult groups and swarms from adjacent areas in Mauritania. In the Draa Valley, hatching is expected to commence during the second half of March and hopper bands may form. There is a high risk of additional adult groups and swarms moving into the Draa Valley and laying throughout the entire forecast period.

Libyan Arab Jamahiriya

• **Situation**

No reports received.

• **Forecast**

Low numbers of locusts may be present near Ghat and in the Al Hamada Al Hamra. There is a low risk of a few adult groups and swarms appearing from the west.

Tunisia

• **Situation**

No reports received.

• **Forecast**

There is a low risk that a few adult groups and swarms could appear in the south during periods of warm southerly and southwesterly winds and breed in areas of recent rainfall.

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

• **Forecast**

No significant developments are likely.

ATLANTIC OCEAN

Madeira Islands

• **Situation**

There was an unconfirmed report of locusts arriving from the northeast during the third week of February. It is possible that some adults may have been blown from Mauritania and Western Sahara out to sea towards the islands on strong winds associated with a depression over the Atlantic coast of Northwest Africa on 17-20 February.

• **Forecast**

No significant developments are likely.

Canary Islands

• **Situation**

There was an unconfirmed report of individual locusts on Fuerteventura on 28 February. These may have arrived from the Northwest African mainland on strong winds associated with a depression on 17-20 February.

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During February, ground control operations continued on the Red Sea coast in the Tokar Delta and treated 210 ha of groups of late instar hoppers, fledglings and maturing adults. Densities were as high as 2,700 adults/ha but had declined to 325 adults/ha by the last week of the month. On the northern coast, groups of gregarious late instar hoppers and immature adults were present at several places north of Port Sudan near Mageit (2016N/3705). Further north, similar populations were seen on the coast about 10 km south of the Egyptian border on the 21st. Control operations treated 98 ha in the two areas on the northern coast.

There was an unconfirmed report of three dense mature swarms in the northern interior near Dongola (1910N/3027E). They were seen flying from the north on 1 March, suggesting that they may have come from adjacent areas in southern Egypt.

• **Forecast**

Additional breeding on the Red Sea coast is unlikely unless further rainfall occurs. Consequently, locust numbers will decline as vegetation dries out. Those locusts that remain are expected to concentrate and continue to form small groups of adults.

Eritrea

• **Situation**

On 28-30 January, aerial control operations treated 1,920 ha of hopper bands mixed with adults in millet crops near the Sudanese border at Meleet (1730N/3846E). Low densities of scattered adults and gregarizing solitarious hoppers were seen in these same areas during follow-up surveys on 6 February. No locusts were seen elsewhere on the coast between the Sudanese border and Shieb (1551N/3903E), west of Massawa, during the first week of the month.

• **Forecast**

Locust numbers will decline on the Red Sea coastal plains between Massawa and the Sudanese border as vegetation dries out.

Somalia

• **Situation**

Isolated immature and mature adults were seen on the northwestern coast between Berbera (1028N/4502E) and the Djibouti border during a joint survey carried out on 14-18 February and again later in the month.

• **Forecast**

Limited breeding may occur along the northwestern coastal plains, especially if additional rains fall.

Ethiopia

• **Situation**

No locusts were seen during surveys carried out in the southeast near Harar (0919N/4206E) and Dire Dawa (0935N/4150E) during February.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No locusts were seen on the coastal plains between Djibouti city and the Somali border during a joint survey carried out on 14-18 February.

• **Forecast**

No significant developments are likely.

Egypt

• **Situation**

During February, hopper bands of all instars and fledglings (at densities up to 30 locusts/m^2), and immature and mature transiens adults (at densities up to 300 adults/tree), were present at several places on the Red Sea coastal plains west of Halaib (2212N/3635E) and near the Sudanese border. Control operations treated 895 ha during the month.

• **Forecast**

Small groups of adults will continue to form on the southeastern coastal plains of the Red Sea near Halaib and the Sudanese border. There is a moderate risk that some of these may form small swarms and perhaps move across the Red Sea.

Saudi Arabia

• **Situation**

During February, dense late instar hopper bands were present on the northern Red Sea coastal plains between Jeddah and Yenbo (2405N/3802E) where

fledging was in progress and many groups of adults were forming and maturing. Most of the adult groups and a few swarms were seen laying eggs in these areas. At mid-month, some mature adults and groups, at densities up to 70,000 adults/ha, moved into the spring breeding areas in the interior where they laid eggs in areas west of Buraydah (2620N/4359E) that had received good rains during January. Second generation hatching started on the Red Sea coast near Jeddah early in the month and small dense bands were forming in some places by mid-month.

• **Forecast**

A few more adult groups and small swarms will form on the northern Red Sea coastal plains in early March as the last of the remaining late instar hopper bands fledge. Second generation hatching and band formation will continue and new swarms could start forming from the second half of March onwards. In the spring breeding areas, hatching is expected to start about mid-March and hoppers will form groups and bands. As vegetation dries out on the coast, any swarms that form are expected to move into the interior and start to lay eggs by the end of the forecast period.

Yemen

• **Situation**

During February, isolated maturing adults were present on the central Red Sea coastal plains near Hodeidah (1450N/4258E). There was an unconfirmed report of locusts on Socotra Island although this is unlikely to be Desert Locust.

• **Forecast**

Small-scale breeding is expected to occur on the Red Sea coastal plains near Hodeidah. A few adults may appear further north in the border area as vegetation becomes green. No significant developments are likely.

Oman

• **Situation**

No locusts were seen during surveys carried out in February.

• **Forecast**

A few isolated adults may appear on the Batinah coast and breed on a small scale if conditions are favourable.

Jordan

• **Situation**

No reports received.

• **Forecast**

There is a low risk that a few swarms could appear in the south from the Red Sea coast and interior of northern Saudi Arabia. This will most likely occur during periods of warm southerly winds associated with depressions over northern Arabia.

Iraq

• **Situation**

No reports received.

• **Forecast**

There is a low risk that a few swarms could appear in the south from the Red Sea coast and interior of northern Saudi Arabia. This will most likely occur during periods of warm southwesterly and westerly winds associated with depressions over northern Arabia.

Kuwait

• **Situation**

No reports received.

• **Forecast**

There is a low risk that a few swarms could appear from the Red Sea coast and interior of northern Saudi Arabia. This will most likely occur during periods of warm southwesterly and westerly winds associated with depressions over northern Arabia.

Bahrain, Israel, Kenya, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

No locusts were seen during surveys carried out in the southeast on the coast near Jask and in the interior of Sistan-Baluchistan near during February.

• **Forecast**

There is a low risk that a few swarms could appear in coastal areas of Bushehr Province from the Red Sea coast and interior of northern Saudi Arabia. This will most likely occur during periods of warm southwesterly and westerly winds associated with depressions over northern Arabia.

Pakistan

• **Situation**

No locusts were reported during the first half of February.

• **Forecast**

Scattered adults are likely to be present and

breeding in areas of recent rainfall on the coast and in the interior of Baluchistan. Small-scale breeding will continue during the forecast period.

India

• **SITUATION**

No locusts were reported during the first half of February.

• **FORECAST**

No significant developments are likely.

Afghanistan

• **SITUATION**

No reports received.

• **FORECAST**

No significant developments are likely.

Announcements

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Reporting by e-mail. After each survey or control operation, affected countries should send completed *FAO Desert Locust Survey and Control Forms* with a brief interpretation of the results by e-mail to eclo@fao.org.

eLocust. Updated details of a new system for recording and transmitting locust survey and control data collected in the field as well as country maps can be found on the Internet at: www.fao.org/news/global/locusts/elocust.htm

Outbreak photos. Pictures of the recent outbreaks in the Western and Central Regions are available on the Internet at: www.fao.org/news/global/locusts/outbreakpix04.htm

Publications on the Internet. New FAO publications and meeting reports are available for downloading at www.fao.org/news/global/locusts/pubslist.htm:

- *EMPRES/CR Workshop on the Use of Green Muscle and PAN to control Desert Locust hopper bands* (English)
- *2nd EMPRES/WR Liaison Officer Meeting report* (French)

Desert Locust Guidelines. The French and Arabic versions of the *Desert Locust Guidelines* are now available as well as the English version of *Volume VI. Safety and Environmental Precautions* and an updated index. These can be downloaded from the Internet at: www.fao.org/news/global/locusts/pubs1.htm. Please contact the Locust Group if you would like to receive hard copies.

Desert Locust research award. The FAO Commission for Controlling the Desert Locust in the Central Region (CRC) is pleased to announce a cash award for outstanding research on Desert Locust. For more details, please contact the CRC Office in Cairo (crc-locust@fao.org).

2004 events. The following meetings are scheduled:

- **CRC.** 24th session of the Commission and 26th session of the Executive Committee, Jeddah (Saudi Arabia), 17-22 April
- **Desert Locust Technical Group Workshop.** 8th meeting, Nouakchott (Mauritania), 2-6 May
- **CLCPRO.** 1st Executive Committee, Niamey (Niger), 14-18 June
- **SW Asia Commission.** 24th session, Kabul (Afghanistan), October
- **Pesticide Referee Group.** 8th meeting, Rome, postponed to later in 2004

Urgent donor appeal. FAO launched an appeal to donors on 23 February for $6 million, which is urgently needed to support Desert Locust control operations in Mauritania, and another $3 million for Mali, Niger and Chad, in order to prevent the early stages of the current upsurge from developing into a plague. More details are available at: www.fao.org/news/global/locusts/040223AppealE.htm.

No. 305

DESERT LOCUST BULLETIN

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/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)

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

GROUP

- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL

- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL

- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM

- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE

- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE

- swarm: 500+ km^2 • 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.

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.

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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guidea Bissau and Guinea Conakry.

CENTRAL

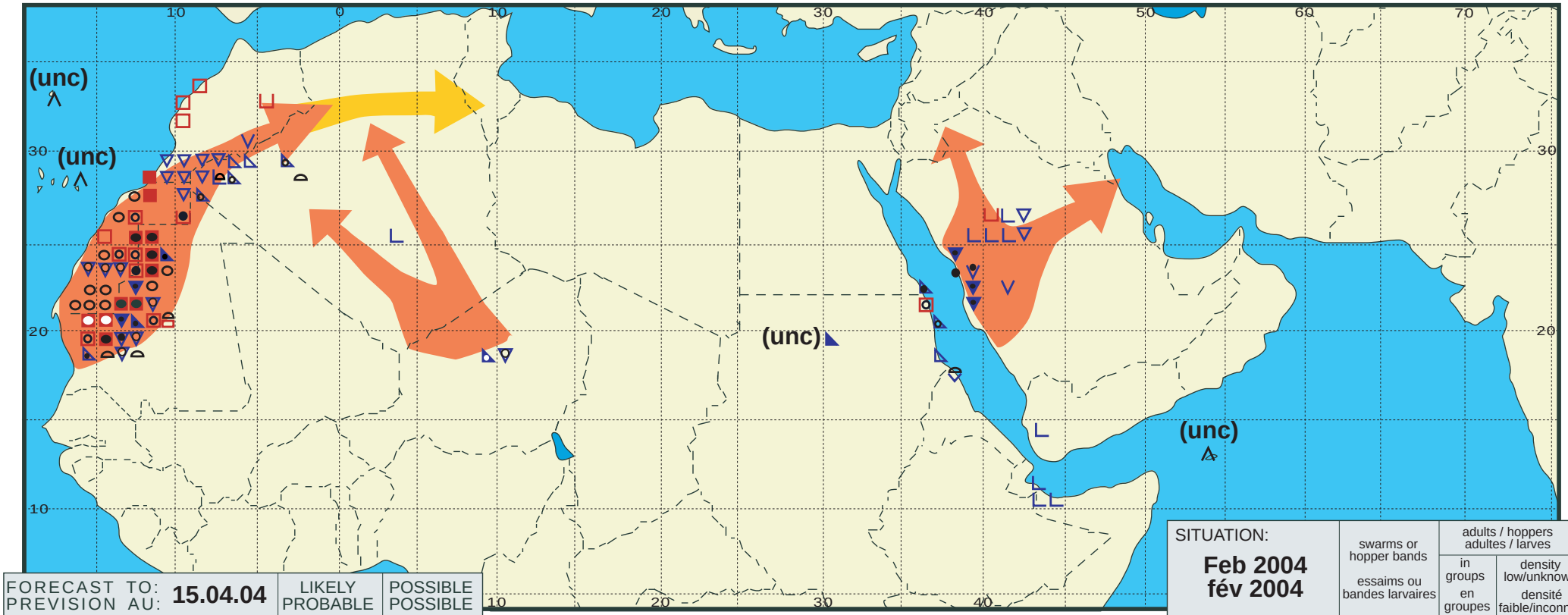
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.

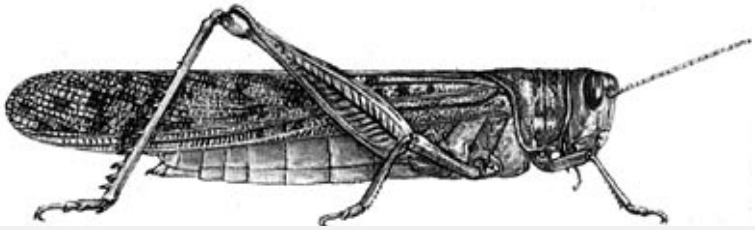
Desert Locust Summary
Criquet pèlerin - Situation résumée

305



FORECAST TO: PREVISION AU: **15.04.04**	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **Feb 2004 fév 2004**	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	◣	◺	L
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)	◘	◙	⊍



DESERT LOCUST UPDATE

FAO Emergency Centre for Locust Operations

(21 April 2004)

General Situation as of 20 April 2004

Despite intensive control operations, the situation remains extremely serious in Northwest Africa. Widespread laying, hatching and band formation are in progress in the spring breeding areas south of the Atlas Mountains in Morocco and Algeria. Some swarms have moved into western Libya. New swarms are forming in northern Mauritania where more crop damage was reported. The situation is less serious in the Central Region where only small hopper band infestations are present in northern Sudan and on the Red Sea coast in Saudi Arabia.

Hatching and band formation are in progress in the Draa Valley south of the Atlas Mountains in **Morocco**. By mid-month, hoppers had reached the third instar stage. Swarm laying continued further north in the Anti-Atlas Mountains and in the Souss Valley. Late instar bands and immature adults were present in the **Western Sahara**. Ground and aerial control operations treated nearly 300,000 ha on 1-18 April. In **Algeria**, control operations are in underway against swarms that laid eggs south of the Atlas Mountains between Morocco and Tunisia. Hatching and band formation may have commenced. Further details are awaited. During the first week of April, several mature swarms and adult groups moved further east across Algeria into western **Libya** and laid eggs between Nalut and Ghat. Ground control operations treated 3,647 ha on 1-10 April. Similar infestations may be present in southern **Tunisia**. Good rains fell for two days at mid-month in the spring breeding areas from Morocco to western Libya.

In **Mauritania**, new swarms have started to form in the north where hopper bands are present and additional damage was reported to dates palms. Control operations are hampered by limited resources and treated only 5,300 ha on 11-18 April. In **Niger**, many late instar hopper bands mixed with new hatchlings and fledglings are present on in the southeastern Air Mountains where 500 ha were treated. No locusts were seen in northern **Mali** except for one isolated adult.

In **Saudi Arabia**, a few small early instar hopper bands were reported on the northern Red Sea coast near Yenbo. Ground control operations treated 435 ha on 1-10 April. In northern **Sudan**, ground control operations continue against numerous small hopper bands near Dongola and Abu Hamed, treating 465 ha on 1-18 April. No locusts were seen on the Red Sea coastal plains in Sudan.

The most up-to-date information on the situation and photos are available on the Internet (www.fao.org/news/global/locusts/locuhome.htm) as well as maps of the latest infestations (193.43.36.11/mapper).

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 and Other Migratory Pests Group, AGP Division, FAO, 00100 Rome, Italy. It is also available on the Internet.
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E-mail: eclo@fao.org
Internet: www.fao.org
DLIS: www.fao.org/news/global/locusts/locuhome.htm

Locust threat in Northwest Africa extremely serious

27 April 2004 -- The threat of desert locusts in West and Northwest Africa remains "extremely serious", FAO warned today.

27 April 2004, Rome -- Despite intensive control efforts, the threat of desert locusts in West and Northwest Africa remains "extremely serious", FAO warned today.

"Widespread laying, hatching and band formation are in progress in the spring breeding areas south of the Atlas Mountains in Morocco and Algeria," said Keith Cressman, FAO Locust Information Officer.

"This is the most serious locust situation in the region for ten years," he added.

The citrus crops grown in Morocco and exported to Europe and North America, with an estimated value of $400 million, could be at risk in the coming months.

"There are also large locust populations in northern Mauritania and some in Niger as well," Cressman said.

"It is very difficult to find and treat all of the desert locust infestations because many of them are scattered in remote areas," Cressman said. "This is further compounded by insufficient resources being available in Mauritania and Niger, and a rapid drying up of funds in other countries."

So far in April, nearly 200 000 hectares of locust infestations have been treated in Morocco. In Algeria, locust control operations are under way against swarms that laid eggs in a broad swath of the country from its borders with Morocco in the west and with Tunisia in the east.

Swarms move across Northwest Africa

In early April, some swarms moved from Morocco across Algeria into western Libya, where around 3 700 hectares have been treated. Similar infestations may be present in southern Tunisia, FAO said.

In Mauritania, new swarms are forming in the north where date palms, sorghum and oat crops have been damaged. Control operations are hampered by limited resources; only 10 800 hectares have been treated so far this month.

The situation is now less serious in northern Sudan and on the Red Sea Coast in Saudi Arabia, following extensive control operations between December and March, when about 200 000 hectares of infestations were treated.

More than $17 million have been spent since October 2003 on locust control operations that have treated nearly 1.4 million hectares. Most of this money was provided from national budgets within the affected countries.

FAO has contributed an emergency project to Mauritania and Morocco to the value of $800 000.

FAO Director-General Dr Jacques Diouf has recently decided to more than double FAO's contribution, providing assistance additionally to Algeria, Chad, Mali, Niger and Sudan.

Donors such as the European Commission, Italy, Norway, Spain and the United States have contributed more than $5 million so far.

Morocco and Algeria have assisted Mali, Mauritania and Niger with pesticides, vehicles, equipment and experts, and Saudi Arabia has provided substantial support to Sudan.

$17 million needed

An additional $17 million is needed to continue the current campaign during the spring and extend it to breeding areas in the Sahel in West Africa during the summer, FAO said.

The last desert locust plague, in 1987-1989, took several years and more than $300 million before it was brought to an end.

Crop damage has been reported on pasture, date palm, cereal and vegetation crops in most of the countries, affecting local farmers and nomads.

A locust upsurge of such a dimension can only be controlled by using insecticides, the UN agency said. FAO is applying best practice methods to reduce risks to health and the environment.

At the same time, FAO is promoting increased use of environmentally friendly biological control.

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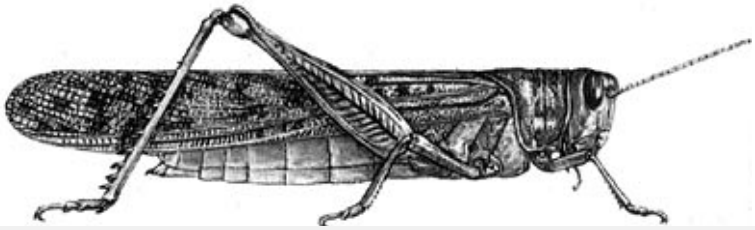
Related links

- **Desert locust information service**
  http://www.fao.org/NEWS/GLOBAL/LOCUSTS/Locuhome.htm
- **Plant Production and Protection Division**
  http://www.fao.org/ag/AGP/Default.htm

Audio

- **Interview with Keith Cressman, FAO Locust Information Officer (1min45sec)**
  ftp://ext-ftp.fao.org/Radio/RealAudio/2004/Locust-K-Cressman-e.rm
- **Interview with Keith Cressman (1min45sec)**
  ftp://ext-ftp.fao.org/Radio/MP3/2004/Locust-K-Cressman-e.mp3



DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 306**

(2 April 2004)

General Situation during March 2004
Forecast until mid-May 2004

The Desert Locust situation continues to remain extremely serious in Northwest Africa. During March, new hopper bands and swarms formed in northern Mauritania where limited resources hampered control operations. Consequently, numerous swarms moved to the spring breeding areas in Morocco and Algeria and laid eggs that started to hatch at the end of the month. Hopper bands will form during April and May in both countries and additional swarms are likely to arrive from Mauritania. Locusts declined along both sides of the Red Sea as a few swarms moved to northern Sudan and southern Egypt. Although control operations were in progress in all these countries, international assistance is urgently required to prevent the situation from deteriorating further.

Western Region. Hatching continued during March in northern **Mauritania** and numerous hopper bands and swarms formed. Significant damage to pasture, vegetable crops and date palms was reported from many places. More swarms moved to the spring breeding areas along the southern side of the Atlas Mountains in **Morocco** and **Algeria** in early March and again at the end of the month. Most of these laid eggs that began hatching in late March. Consequently numerous hopper bands will form in both countries during April and early May, and some swarms could develop by mid-May if temperatures are warm. More swarms are likely to arrive from northern Mauritania during April as band and swarm formation continue there. Some swarms could move towards **Tunisia** and **Libya** and lay eggs. Thereafter, the risk should decline as swarms in northern Mauritania start moving towards the summer breeding areas in the south. Small hopper bands and swarms are expected to form in **Niger** where breeding occurred during March. Additional international assistance is immediately required to reduce the number of swarms that develop and eventually invade the Sahel in the summer. Good summer rains and further expansion of the locust populations could result in a major impact on food production and security in the Region.

Central Region. Locust numbers dramatically declined along the Red Sea coastal plains in **Saudi Arabia** due to control operations and easterly winds that carried swarms to northern **Sudan** and southern **Egypt** during the first week of March where they laid eggs. Hatching and small hopper bands will form in both countries in April and, by mid-May, a few swarms could develop. A small number of hopper and adult groups were present on the Red Sea coast near the Egyptian/Sudanese border in early March. No locusts were seen in the spring breeding areas in the interior of Saudi Arabia or elsewhere in the Region.

Eastern Region. A few isolated adults were present in the spring breeding areas in western **Pakistan** where conditions remained mostly dry and unfavourable. No locusts were reported and very little rain fell elsewhere in the Region during March.

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 and Other Migratory Pests Group, AGP Division, FAO, 00100 Rome, Italy. It is also available on the Internet.
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DLIS: www.fao.org/news/global/locusts/locuhome.htm

Weather & Ecological Conditions in March 2004

Good rains fell in the spring breeding areas in Northwest Africa and in parts of northern Mauritania in March. This should allow breeding to continue in these areas. Vegetation has dried out along both sides of the Red Sea. So far, little rain has fallen in the spring breeding areas in Pakistan and Iran where it is dry.

In the **Western Region**, good rains occurred during the first and last week of March in the spring breeding areas in northwest Africa. In Morocco, light to moderate rain fell along the Atlantic coast in Morocco between Essaouira and Tan-tan. Similar rains were reported over a large area south of the Atlas Mountains from the Draa Valley in Morocco to Algeria and southern Tunisia. Light rain occurred in the Western Sahara between Laayoune and Smara, and along the Algerian/Libyan border. On 25-27 March, light rain fell in northwestern and northern Mauritania. Cold northerly winds prevailed over the region during the first three weeks of the month. During the last week, southerly and southwesterly winds over Mauritania and the Western Sahara may have carried locusts into Morocco and western Algeria where breeding conditions remained favourable along the southern side of the Atlas Mountains. Green vegetation was present in northern Mauritania where conditions were suitable for breeding and locust survival, but it was progressively becoming drier south of Zouerate to Nouakchott. Vegetation was mainly dry in northern Mali and Niger except for some localized patches of green vegetation that persisted in the wadis in the Adrar des Iforas and the Air Mountains. Although daytime temperatures slowly increased during the month, low temperatures at night probably delayed locust hatching and maturation.

In the **Central Region**, no rainfall was reported along the Red Sea coast during March. Although vegetation had dried out on the coastal plains in Egypt and Sudan, it remained green on the coast of Saudi Arabia between Jeddah and Yenbo. Light rain fell at times in the oases in the Western Desert in Egypt, on the plateau in northwestern Somalia, along the Persian Gulf, and on the Batinah coast in northern Oman. Green vegetation was reported along the Nile River in northern Sudan and in the spring breeding areas in the interior of Saudi Arabia. Prevailing winds over the Red Sea were from the north except during the first five days of March when they were from the east. During this period, locusts may have moved from the coastal plains to the interior of northern Sudan and southern Egypt. Dry conditions persisted in northern Oman and along the Gulf of Aden coast in Yemen.

In the **Eastern Region**, no significant rainfall was reported in the region. Consequently, conditions were not especially favourable for breeding in the spring breeding areas in Baluchistan in western Pakistan and southeastern Iran.

Area Treated

Since October, more than 1.15 million ha have been treated. Of this, control teams treated nearly 514,000 ha in March as follows:

Algeria	3,665 ha	(25-29 February)
	33,209 ha	(1-23 March)
Egypt	2,704 ha	(1-15 March)
Mauritania *	20,267 ha	(21-29 February)
	24,597 ha	(1-29 March)
Morocco	446,936 ha	(1-30 March)
Niger	330 ha	(29 February)
	2,930 ha	(1-5 March)
Saudi Arabia	285 ha	(25-29 February)
	2,375 ha	(1-30 March)
Sudan	959 ha	(4-21 March)

* includes barrier treatments protecting 12,170 ha

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

Although control operations continued during March against bands, swarms and groups of hoppers and adults in the north and northwest, not all of the infestations could be found and treated because of a lack of resources. More laying, hatching and band formation occurred throughout the month in Tiris-Zemmour near Bir Moghrein (2510N/1135W), Ghalamane (2456N/1124W), M'haoudatt (2255N/1200W) and Zouerate (2244N/1221W), and in parts

of Adrar and Inchiri near Ouadane (2056N/1137W), between Akjoujt (1945N/1421W) and Atar (2032N/1308W). Hoppers of all stages were present and continued to mature throughout the month. Band densities were higher in Tiris-Zemmour (up to 1,500 hoppers/m^2) compared to Adrar (350 hoppers/m^2). Although most of the adults were immature, groups of mature adults were forming in Tiris-Zemmour and Inchiri, some of which were seen laying eggs. Immature and mature swarms, at densities up to 800 adults/m^2, were reportedly flying northwards in Tiris-Zemmour, Adrar and Dakhlet Nouadhibou. Significant damage occurred to pasture crops in the north and to vegetables and date palms near Ouadane. Control operations treated 24,597 ha (full cover) and 233 ha (barrier) during March.

• **Forecast**

Hatching and the formation of groups, bands and swarms will continue throughout the forecast period in Tiris-Zemmour, Adrar and Inchiri. There is a still a risk that numerous swarms will form and move to the spring breeding areas in Morocco and Algeria primarily in April during periods of southerly and southwesterly winds. This risk should decline during May when some swarms could start to move south towards the summer breeding areas.

Mali

• **Situation**

During the first decade of March, isolated immature adults were present in a few places in the northern Adrar des Iforas, eastern Tamesna and, to a lesser extent, in the Tilemsi Valley and Timetrine. Thereafter, no locusts were reported.

• **Forecast**

Very low numbers of adults are likely to persist in the Adrar des Iforas, Tamesna, Tilemsi Valley and Timetrine where conditions remain favourable for survival. No significant developments are likely.

Niger

• **Situation**

During the first decade of March, hopper groups declined in the Tafidet area (1817N/0923E) in the southeastern Air Mountains as most of the hoppers fledged. Consequently, immature and mature adults increased, reaching densities up to 10 adults/m^2. Some of the adults were laying eggs. Hatching was reported in a few places and hoppers were forming groups at densities of 20-200 hoppers/m^2. Ground control operations could only treat about half of the 6,400 ha that were estimated to be infested and no further surveys could be conducted due to a severe shortage of resources.

There were unconfirmed reports of many small swarms up to 100 km to the north as well as east of the Air Mountains near Arishima (1930N/1030E). There were also unconfirmed swarm reports from Tamesna between Tahoua (1457N/0519E) and Agadez (1700N/0756E).

• **Forecast**

Hatching is almost certainly in progress in the southeastern Air Mountains and is likely to continue, causing small hopper groups and bands to form during April. These are expected to fledge and form small swarms by mid-May.

Chad

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Senegal

• **Situation**

No locusts were reported during March.

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

During the last decade of February, groups and swarms of immature adults appeared near Tindouf (2742N/0810W) and in the spring breeding areas in the northern Sahara near Bechar (3135N/0217W). From the second week of March onwards, more immature and mature swarms appeared near Bechar and moved further east along the southern side of the Atlas Mountains to El Bayadh (3340N/0100E), Laghouat (3349N/0255E) and Ghardaia (3220N/0340E) and north into the foothills of the Atlas near Naama (3318N/0200W) and Djelfa (3443N/0314E). Locusts were also reported in the central Sahara near Adrar (2753N/0016W) and in the south near Tamanrasset (2250N/0528E). By mid-month, most of the groups and swarms were mature and were laying eggs. In some places, densities were as high as 120 adults/m^2 and 6,000/tree. Control operations were carried out in all of these areas, treating 36,874 ha from 25 February to 23 March.

• **Forecast**

Widespread laying will continue in the northern Sahara between Tindouf and Ghardaia, in the central Sahara near Adrar and in the south near Tamanrasset. Hatching and the formation of numerous

hopper bands are expected to occur during April as temperatures warm up. There is a threat of additional swarms arriving into these areas during periods of westerly and southwesterly winds. Some of these swarms could spread further east towards Tunisia and Libya and lay eggs.

Morocco

• **Situation**

During March, numerous swarms continued to arrive from the south into the Draa Valley south of the Anti-Atlas Mountains, extending from the Atlantic coast near Tan-tan to the northeast of the country near Bouarfa (3230N/0159W). Most of the swarms were already mature and laid eggs upon arrival. From the second week onwards, swarms penetrated the Anti-Atlas Mountains and, by the third week, swarms were reported in the Souss Valley and near Ouarzazate (3057N/0650W). A few swarms were seen in the Atlas Mountains near Midelt (3241N/0443W) and on the northern side of the Atlas northeast of Marrakech (3149N/0800W). Swarm sizes were 1-6,000 ha and densities were as high as 200 locusts/m^2. Scattered adults were seen on the coast north of the Atlas near Essaouira (3126N/0958W) and Chichawa (3135N/0847W). On 22 March, the first hatching was reported in the Draa Valley.

In the Western Sahara, late instar hopper bands continued to mature, fledge and form several swarms between the Mauritanian border and Guelta Zemmur (2508N/1223W) during March. An increasing number of swarms were reported further north along the coast to Laayoune (2708N/1313W) and inland to Smara (2644N/1142W). Some of these swarms may have moved towards the Atlas Mountains during the last week of March on strong southerly and southwesterly winds.

Aerial and ground control operations treated 446,936 ha on 1-30 March.

• **Forecast**

Although breeding is expected to come to an end in the Western Sahara during the forecast period, a few more swarms are likely to form and move north towards the Atlas Mountains and lay eggs. Additional swarms from northern Mauritania are likely to arrive in the spring breeding areas during April; thereafter, the threat should be reduced. As temperatures warm up, hatching will increase in the Draa Valley and numerous hopper bands will form. If temperatures are unusually warm, fledging could commence at the end of the forecast period.

Libyan Arab Jamahiriya

• **Situation**

No reports received.

• **Forecast**

Low numbers of locusts may be present near Ghat and in the Al Hamada Al Hamra. There is a low risk of adult groups and swarms appearing from the west.

Tunisia

• **Situation**

No reports received.

• **Forecast**

There is a low risk of adult groups and swarms appearing from the west and breeding in areas of recent rainfall in the south.

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

• **Forecast**

No significant developments are likely.

ATLANTIC OCEAN

On the morning of 25 March, several dozen locusts were reported landing on a ship just off the coast of the Western Sahara at 2612N/1533W. It is not clear if these were Desert Locust. Nevertheless, winds associated with a low-pressure system in the same area may have brought them from the Canary Islands where there was an unconfirmed report of locusts in late February.

CENTRAL REGION

Sudan

• **Situation**

On the Red Sea coastal plains, a few groups of late instar hoppers and immature gregarious adults were present in the north a few kilometres south of the Egyptian border during the first week of March. Control operations treated 45 ha. No locusts were seen elsewhere on the coast during the month.

In northern Sudan, several groups and swarms of mature adults appeared in irrigated crops along the Nile River near Dongola (1910N/3027E) on 1 March and for several days afterwards. These probably came from the Red Sea coast on easterly winds up to 5 March. The swarms were 20-165 ha in size at densities up to 3 adults/m^2 and many were seen laying eggs. A mixture of immature and mature solitarious and transiens adults were also reported in the same area. By the end of the month, hatching was in progress and small high-density hopper bands were forming.

Southeast of Dongola, groups of fifth instar hoppers and fledglings mixed with laying swarms were present at several places along the Nile near Abu Hamed (1932N/3320E) at mid-month. This suggests that there was undetected egg laying in mid-January and hatching in early February in the area. Control operations were undertaken in both areas and treated 914 ha up to 28 March.

• **Forecast**

Hatching and band formation will continue near Dongola, and fledging and swarm formation will start during the first half of May. Hatching and band formation will commence near Abu Hamed in early April and, by the end of the forecast period, a few swarms could form. No further developments are expected on the Red Sea coastal plains.

Eritrea

• **Situation**

No reports received.

• **Forecast**

A few isolated adults may be present on the northern coastal plains near Shieb and Mehimet. No significant developments are likely.

Somalia

• **Situation**

There were several unconfirmed reports of locusts on the northwestern coastal plains west of Berbera (1028N/4502E) on 18 March. More details are awaited.

• **Forecast**

Limited breeding may occur along the northwestern coastal plains, especially if additional rains fall.

Ethiopia

• **Situation**

No surveys were carried out and no locusts were reported during March.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Egypt

• **Situation**

On the southeastern coast of the Red Sea, groups of late instar transiens hoppers and fledglings at densities of 10-30 hoppers/m^2 were present during the first decade of March near Abu Ramad (2224N/3624E). Solitarious and transiens adults at densities up to 4/m^2 were maturing in several nearby wadis. Control operations treated 140 ha up on 1-10 March.

Several immature and mature swarms appeared along the Lake Nasser shoreline and dispersed into many farms near Abu Simbel (2219N/3138E), Tushka (2254N/3135E), Garf Husein (2246N/3225E), Allaqi (2240N/3255E) and Adendad (2212N/3134E) during the first week of March. These probably came from the Red Sea coast and northern Sudan. Some of the swarms were copulating by mid-month. Control operations treated 2,162 ha up to 15 March.

In the Western Desert, solitarious mature adults appeared during the first half of March in several oases: Dakhla (2530N/2900E) from the 1st onwards, Kharga (2525N/3034E) on the 4th, south of Bahariya (2821N/2851E) on the 8th, and north of Darb Al-Arbain (2357N/3018E) on 13 March. Adult densities were up to 3/m^2 except at Bahariya where 750 adults/ha were reported. Copulating adults were reported from Kharga and Dakhla. Control operations treated 364 ha up to 15 March.

• **Forecast**

Locust numbers will decline on the Red Sea coast as vegetation dries out. Hatching will almost certainly occur near Lake Nasser and in the oases of Kharga and Dakhla in early April causing small hopper groups and bands to form. These are likely to fledge and small swarms could form by mid-May. Limited breeding may occur in the other oases in the Western Desert.

Saudi Arabia

• **Situation**

In late February and early March, there was a dramatic decline in locust infestations along the northern Red Sea coast between Jeddah and Yenbo (2405N/3802E). This coincided with several days of easterly winds that may have carried adult groups and a few swarms westwards across the Red Sea. Thereafter, only scattered immature and mature adults were reported on the coast between Jeddah and Rabigh (2247N/3901E) and near Yenbo. In the latter area, some adults were copulating during the first week of March and, at mid-month, a few very small first instar hopper bands at densities up to 80 hoppers/m^2 were present. By the end of the month, some of the hoppers had reached the third instar stage. Control operations treated 2,375 ha during March of which 1,890 ha were treated by air on 1-3 March.

No locusts were seen during surveys carried out in the spring breeding areas in the interior between Zalim (2248N/4210E) and Riyadh.

• **Forecast**

Locust numbers may increase slightly in areas of recent breeding near Yenbo where a few groups could form. Scattered adults will persist in a few places along the coast between Jeddah and Yenbo. Small-scale breeding may be in progress in the spring breeding areas in the interior where a few adult groups could form.

Yemen

• **Situation**

No locusts were seen during surveys carried out on the coastal plains west and east of Aden during March.

• **Forecast**

Small-scale breeding may occur on the Red Sea coastal plains near Hodeidah where scattered adults are probably present. No significant developments are likely.

Oman

• **Situation**

No locusts were seen during surveys carried out on the northern coast and interior during March.

• **Forecast**

A few isolated adults may appear on the Batinah coast and breed on a small scale if conditions become favourable.

Jordan

• **Situation**

No reports received.

• **Forecast**

There is a low risk that a few adult groups could appear from the interior of Saudi Arabia during periods of warm southwesterly winds associated with depressions over northern Arabia.

Iraq

• **Situation**

No reports received.

• **Forecast**

There is a low risk that a few adult groups could appear from the interior of Saudi Arabia during periods of warm southwesterly winds associated with depressions over northern Arabia.

Kuwait

• **Situation**

No reports received.

• **Forecast**

There is a low risk that a few adult groups could appear from the interior of Saudi Arabia during periods of warm southwesterly and westerly winds associated with depressions over northern Arabia.

Bahrain, Israel, Kenya, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

No locusts were seen during surveys carried out during the first half of March on the southern coast between Bushehr (2854N/5050E) and Bander-e Lengheh (2634N/5452E), the southeastern coast near Jask (2540N/5746E), in the interior of Kerman and east of Iranshahr (2715N/6141E) in Sistan-Baluchistan.

• **Forecast**

Although the risk of a few adult groups appearing in coastal areas of Bushehr Province from the interior of Saudi Arabia is now reduced, there is still a chance that this could occur during periods of warm southwesterly and westerly winds associated with depressions over northern Arabia. Scattered adults may be present in parts of Sistan-Baluchistan where breeding could occur if conditions are favourable.

Pakistan

• **Situation**

During the second half of February and first half of March, isolated adults were present in the spring breeding areas in Baluchistan along the coast near Gwadar (2508N/6219E) and in adjacent inland areas near Turbat (2600N/6303E). Isolated adults were also seen further east near Lasbela (2612N/6620E).

• **Forecast**

Scattered adults will persist and increase on the coast and in the interior of Baluchistan. Small-scale breeding will occur during the forecast period in areas where conditions are favourable.

India

• **Situation**

No locusts were reported from mid-February to 23 March.

• **Forecast**

No significant developments are likely.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Announcements

Reporting by e-mail. After each survey or control operation, affected countries should send completed *FAO Desert Locust Survey and Control Forms* with a brief interpretation of the results by e-mail to eclo@fao.org.

eLocust. Updated details of a new system for recording and transmitting locust survey and control data collected in the field as well as country maps can be found on the Internet at: www.fao.org/news/global/locusts/elocust.htm

Outbreak photos. Pictures of the recent outbreaks in the Western and Central Regions are available on the Internet at: www.fao.org/news/global/locusts/outbreakpix04.htm

Publications on the Internet. New FAO publications and meeting reports are available for downloading at www.fao.org/news/global/locusts/pubslist.htm:

- *EMPRES/CR Workshop on the Use of Green Muscle and PAN to control Desert Locust hopper bands* (English)
- *2nd EMPRES/WR Liaison Officer Meeting report* (French)

Desert Locust Guidelines. The French and Arabic versions of the *Desert Locust Guidelines* are now available as well as the English version of *Volume VI. Safety and Environmental Precautions* and an updated index. These can be downloaded from the Internet at: www.fao.org/news/global/locusts/pubs1.htm. Please contact the Locust Group if you would like to receive hard copies.

Desert Locust research award. The FAO Commission for Controlling the Desert Locust in the Central Region (CRC) is pleased to announce a cash award for outstanding research on Desert Locust. For more details, please contact the CRC Office in Cairo (munir.butrous@fao.org).

2004 events. The following meetings are scheduled:

- **Donors Meeting.** The urgent need for assistance in Northwest Africa, FAO Rome, 8 April
- **CRC.** 24th session of the Commission and 26th session of the Executive Committee, Jeddah (Saudi Arabia), 17-21 April
- **Desert Locust Technical Group Workshop.** 8th meeting, Nouakchott (Mauritania), 2-7 May
- **CLCPRO.** 1st Executive Committee, Niamey (Niger), 14-18 June
- **SW Asia Commission.** 24th session, Kabul (Afghanistan), October
- **Pesticide Referee Group.** 8th meeting, Rome, postponed to later in 2004

Urgent donor appeal. FAO launched an appeal to donors on 23 February for $6 million, which is urgently needed to support Desert Locust control operations in Mauritania, and another $3 million for Mali, Niger and Chad, in order to prevent the early stages of the current upsurge from developing into a plague. More details are available at: www.fao.org/news/global/locusts/040223AppealE.htm.

Press release. On 23 March, FAO issued a Press Release in English, French and Arabic on the extremely serious Desert Locust situation. More details are available at: http://www.fao.org/newsroom/en/news/2004/39481/index.html

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/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)

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

GROUP

- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL

- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL

- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM

- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE

- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE

- swarm: 500+ km^2 • 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.

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.

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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guidea Bissau and Guinea Conakry.

CENTRAL

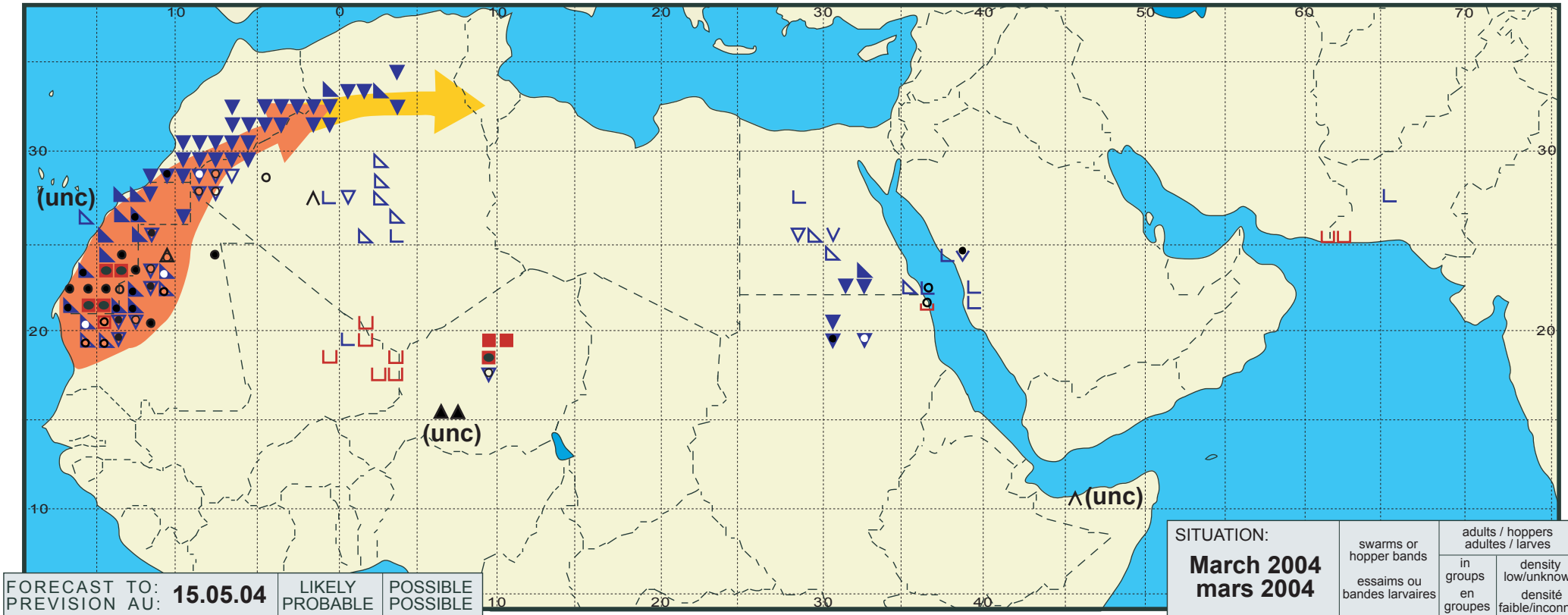
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.

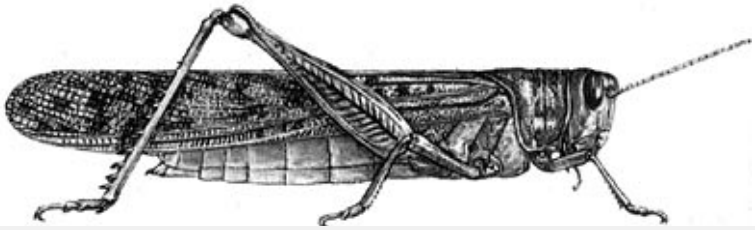
Desert Locust Summary
Criquet pèlerin - Situation résumée

306



FORECAST TO: PREVISION AU: **15.05.04**	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **March 2004 mars 2004**	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	◣	◺	L
adults, maturity unknown adultes, maturité inconnue	▲	△	Λ
egg laying or eggs pontes ou œufs	▼	▽	V
hoppers larves	●	○	⌓
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)	◘	◙	⊟



DESERT LOCUST UPDATE

FAO Emergency Centre for Locust Operations

(21 May 2004)

General Situation as of 21 May 2004

Despite intensive control operations in the spring breeding areas of Northwest Africa, breeding has occurred over large areas south of the Atlas Mountains in Morocco, Algeria and Tunisia. Being the second successful season of gregarious breeding, following that which occurred in Mauritania and the Western Sahara from October onwards, an upsurge can be considered as underway in the region. Swarms are expected to start forming by the end of May and continue to form during June in these countries as well as in Libya. Smaller-scale swarm formation has already started in northern Mauritania. Swarms will move south towards the Sahel in West Africa where they could start to appear from about the second week of June onwards.

Numerous hopper bands continue to develop along the southern side of the Atlas Mountains from the Atlantic coast to the Algerian border in **Morocco**. By mid-May, hoppers had reached the third to fifth instar stage and fledging had started. Some damage has been reported. In the **Western Sahara**, small hopper infestations were present in the north. Aerial and ground control operations treated more than 200,000 ha on 1-18 May. In **Algeria**, widespread hatching and band formation commenced in early May along the southern side of the Atlas Mountains from Morocco to Tunisia. More than half of the country's provinces were reportedly infested. Ground and aerial control operations treated 140,000 ha on 1-14 May. In **Tunisia**, nearly 80,000 ha of swarms and hopper bands were treated in the centre and south during April and up to 18 May. During late April and early May, mature swarms continued to arrive from the west in northwestern **Libya** and laid eggs. Some of the swarms reached the coastal plains and interior near Tripoli. Hatching and band formation have started near Ghadames and Nalut. Ground and aerial control operations treated 23,000 ha during the first decade of May. In mid-May, there was a report of two yellow locusts on a ship south of Sicily, suggesting that a few locusts may have been blown out to sea.

Swarms have started to form and some damage has been caused to oasis crops and pastures in northern and central **Mauritania**. Some swarms in the north in Tiris-Zemmour were seen moving towards the south. Hopper bands were present near Zouerate and in Inchiri. Control operations treated 921 ha on 1-10 May but have been hampered by shortages of pesticide. In **Niger**, fledging occurred in early May in the southeastern Air Mountains. Local populations have dispersed throughout the central and southern parts of the Air where immature transiens and gregarious adults and a few small immature swarms were seen.

Appropriate preparations should be made immediately in southern Mauritania, northern Senegal, Mali, Niger and Chad in response to the possibility of swarms arriving from Northwest Africa. These are likely to appear in those areas where the first summer rains occur. Although the scale of the invasion is difficult to estimate with precision because it depends on the success of survey and control operations in the spring breeding areas, there is a risk that a substantial number of swarms could appear in the Sahel in June and July.

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 and Other Migratory Pests Group, AGP Division, FAO, 00100 Rome, Italy. It is also available on the Internet.
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Internet: www.fao.org
DLIS: www.fao.org/news/global/locusts/locuhome.htm

Elsewhere, a few late instar hopper bands persisted in northern **Sudan** near Dongola where teams treated 6 ha on 9-11 May. No locusts were seen in the spring breeding areas in the interior of **Saudi Arabia** during April.

The most up-to-date information on the situation and photos are available on the Internet (www.fao.org/news/global/locusts/locuhome.htm) as well as maps of the latest infestations (193.43.36.11/mapper).

Locust situation in northwest Africa is very worrying

26 May 2004 -- The locust situation in northwest Africa is very worrying despite intensive control activities, FAO warned today. An upsurge is under way in the region.

26 May 2004, Rome -- The locust situation in northwest Africa is very worrying despite intensive control activities, FAO warned today.

"An upsurge is under way in the region," the UN agency said.

FAO called upon Chad, Mali, Mauritania, Niger and Senegal to prepare intensive survey and control operations against possible desert locust swarms arriving from the north and invading crop-producing areas in the Sahel.

Many breeding spots

"Locusts are breeding in thousands of spots over large areas south of the Atlas Mountains stretching from Morocco, Algeria and Tunisia to western Libya," said Clive Elliott, senior officer of the FAO locust group.

"Hoppers are forming bands and are at the last stage before they become adults. Swarms are likely to start forming from the end of this month. The winds are expected to carry a substantial number of locust adults and swarms south to the Sahel Region in West Africa where they could start to arrive in southern Mauritania, northern Senegal, Mali, Niger and Chad in about mid June," Elliott said.

Small swarms have already started forming in northern Mauritania, and localized damage to millet, sorghum, date palms and vegetables has been reported.

Race against time

A total area of 2.1 million hectares has been treated with insecticides since October 2003 in Algeria, Libya, Mauritania, Morocco and Tunisia.

"Despite intensive control operations on the ground and by air, it is very difficult to find and treat all of the locust infestations in the vast and often remote desert areas," Elliott said.

"Control teams are doing their best, but it is a race against time. In addition to the swarms that move south into the Sahel, it is possible that some swarms could move east into western Sudan," he added.

Chad, Mali, Mauritania, Niger and Senegal should immediately start preparing and equipping teams for field surveillance and should be prepared for control operations in those areas that receive the first summer rains and where the swarms may appear, FAO said.

Resources for sprayers, vehicles, pesticides and training should be mobilized. FAO is taking steps to assist affected countries and several donors have also offered their support.

FAO is encouraging best practice methods to reduce risks to health and the environment. At the same time, FAO is promoting increased use of environmentally friendly biological control.

However, a locust upsurge of the dimensions seen this year can only be controlled by using insecticides.

Avoiding a plague

More than $40 million have been spent since October 2003 on locust control operations. Most funds were provided by locust-affected countries.

International donors such as the European Commission, Italy, Norway, Spain and the United States have contributed more than $5 million so far.

A recent FAO emergency appeal for an additional $17 million has been launched to assist countries in eliminating hopper infestations and swarms. It has received some responses from donors but time is running out.

"If these funds are not made available quickly, it is possible that the whole region will be subjected to a full-scale plague by the end of 2004," Elliott said.

The last desert locust plague, in 1987-1989, took several years and more than $300 million before it was brought to an end.

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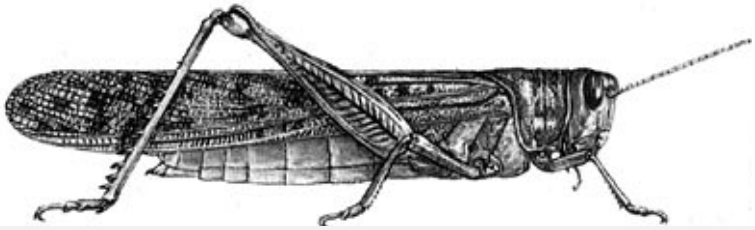
Related links

- **Desert locust information service**
  http://www.fao.org/NEWS/GLOBAL/LOCUSTS/Locuhome.htm



DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 307**

(30 April 2004)

General Situation during April 2004 Forecast until mid-June 2004

The Desert Locust situation remains extremely serious in Northwest Africa. Widespread hatching and band formation occurred during April in the spring breeding areas in Morocco and in parts of Algeria. Some swarms moved across the region and invaded western Libya whey they laid eggs. New swarms formed in Mauritania and in the Western Sahara. Smaller infestations of hopper bands were present in Niger, Sudan, Egypt and Saudi Arabia. A new generation of swarms is expected to form in Northwest Africa and, if not treated, some of these swarms could reach the summer breeding areas in the Sahel in West Africa in June. Although control operations were in progress in all these countries, international assistance is urgently required to supplement the major efforts already made and to prevent the situation from deteriorating further.

Western Region. Despite intensive control efforts, widespread hatching and band formation occurred in the spring breeding areas in **Morocco**. Egg laying and hatching were also reported in **Algeria**. This was compounded by good rainfall south of the Atlas Mountains. Numerous mature swarms moved into western **Libya** and laid eggs. Similar populations are likely to be present in southern **Tunisia**. New swarms started to form in **Mauritania** and in the **Western Sahara**. More laying and hatching occurred in northern Mauritania where damage was reported in oases and pastures and control operations were severely hampered by a lack of pesticide. Hopper bands and adult groups were reported in **Niger**. During the forecast period, hopper bands that escape detection and control will form swarms in Northwest Africa. Any swarms that are not treated are likely to move towards the summer breeding areas in the Sahelian countries.

Central Region. Control operations continued during April in northern **Sudan** and on the Red Sea coast in **Saudi Arabia** against hopper bands, and in southern **Egypt** against groups of adults and hoppers. Although the situation is less worrisome than in the Western Region, there is still a possibility that some adult groups and perhaps a few small swarms could form in Saudi Arabia and northern Sudan. Any infestations that are not detected or treated could move to the summer breeding areas in the interior of Sudan. Similarly, adults and perhaps a few groups could appear in the interior of **Yemen** from small-scale breeding that might be in progress in the interior of Saudi Arabia. There is also a low risk of groups and swarms arriving in western Sudan from the Western Region.

Eastern Region. Limited breeding occurred in the spring breeding areas in western **Pakistan** during April even though conditions remained mostly dry and unfavourable due to poor rainfall for the third consecutive month. A joint survey between Pakistan and **Iran** was undertaken in these areas. No locusts were reported elsewhere in the Region.

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Weather & Ecological Conditions in April 2004

Good rains fell for a second consecutive month in the spring breeding areas in Northwest Africa and in the interior of Saudi Arabia in April. Good rains also fell over the Horn of Africa and in the interior of Yemen. Consequently, ecological conditions are favourable for breeding in these areas.

In the **Western Region**, several strong depressions and frontal systems formed off the Atlantic coast of Morocco and moved east across northwest Africa and the Mediterranean during April. Consequently, good rains fell mainly during the first half of the month throughout the spring breeding areas south of the Atlas Mountains from Morocco and Algeria to southern Tunisia and western Libya. Rainfall was heaviest at mid-month in Algeria and Morocco when the Inter-Tropical Convergence Zone (ITCZ) reached 20N over northern Mali. Lighter rain fell at times in the Western Sahara. Westerly and southwesterly winds prevailed over much of Algeria and western Libya during the first decade of the month. Ecological conditions continued to be favourable for breeding over large parts of the spring breeding areas in Morocco (Draa Valley, Hamada du Guir), Algeria (northern Sahara), southern Tunisia and western Libya (Nalut to Ghadames, Al Hamada Al Hamra). Conditions were also favourable in northern Mauritania and in the Western Sahara. In Mali, conditions were dry and unfavourable between Nara and Tombouctou but there were small areas of sparse vegetation in the Adrar des Iforas. In Niger, favourable conditions persisted in the eastern Air Mountains but were starting to dry out further south. Light rain fell at Tillaberi and, at the end of the month, in the northern Air. During the last week of the month, the ITCZ was located at 15N in West Africa, which is much further north than usual at this time of the year.

In the **Central Region**, good rains fell in parts of the interior of the Arabian Peninsula during April. In Saudi Arabia, light to moderate rains fell in the central interior, extending further south into the Empty Quarter and reaching the interior of Yemen near Marib, Al-Jawf and Ataq. Light to moderate rains also fell on the Red Sea coast between Jizan, Saudi Arabia and Bayt Al Faqih, Yemen. Some of the rains were associated with a low-pressure system over northern Saudi Arabia at mid-month. Consequently, breeding conditions continued to be favourable in Saudi Arabia and were improving in Yemen. Light rain fell in parts of Oman where conditions remained dry. Good rains associated with the Short Rains (Belg) fell in eastern Ethiopia and on the northwestern Somali plateau where green vegetation and moist soil were reported. Significant clouds were present over the southern Red Sea coast of Eritrea and northern coast of Djibouti where light rains may have fallen. Light rain fell at mid-month on the central coast in Sudan but conditions continued to be dry and unfavourable. In the summer breeding areas in the interior of Sudan, light rain was reported in northern Kordofan at Sodori on 25 April.

In the **Eastern Region**, no significant rainfall was reported in the region for the third month in a row. Consequently, ecological conditions continued to be less favourable than usual for breeding in the spring breeding areas in Baluchistan in western Pakistan and southeastern Iran.

Area Treated

Since October, more than 1.8 million ha have been treated. Of this, control teams treated nearly 575,000 ha in April as follows:

Algeria	202,152 ha	(1-23 April)
Egypt	43 ha	(3-18 April)
Libya	9,864 ha	(1-20 April)
Mauritania	10,782 ha	(1-20 April)
Morocco	347,205 ha	(1-29 April)
Niger	1,550 ha	(7-29 April)
Saudi Arabia	1,040 ha	(1-19 April)
Sudan	596 ha	(1-24 April)

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During April, groups of adults and swarms formed, at densities up to 850 adults/m^2, in the centre and north of the country between Akjoujt (1945N/1421W) and Atar (2032N/1308W), and near Ouadane

(2056N/1137W), Zouerate (2244N/1221W) and Bir Moghrein (2510N/1135W). Most of the infestations also contained groups of hoppers, many of which had reached the fifth instar stage and were fledging by mid-month. Mature adult groups were seen laying eggs in Tiris-Zemmour during the second decade of the month, and hatching was also in progress in the region north of Zouerate. Crop damage was reported in oases and pastures. Control operations continued to be several hampered by a lack of pesticide and only treated 10,872 ha on 1-20 April.

• **Forecast**

Hopper bands will form in areas of recent hatching in Tiris Zemmour while swarms will continue to form throughout the centre and the north of the country. Some of these swarms are likely to move north and northeast during periods of southerly and southwesterly winds towards the spring breeding areas in Morocco and Algeria. From about mid-May onwards, an increasing number of adult groups and swarms are likely to start moving south towards the summer breeding areas in the two Hodhs, Tagant and Brakna.

Mali

• **Situation**

During April, an isolated immature adult was reported on the 2nd about 200 km west of Tombouctou (1649N/0259W) near the Mauritanian border. No locusts were seen elsewhere during surveys between Nara (1510N0717W) and Tombouctou up to mid-month.

• **Forecast**

Isolated adults may be present in parts of the Adrar des Iforas, Tamesna, Tilemsi Valley and Timetrine in areas where conditions remain favourable for survival. By the end of the forecast period groups and swarms could start to arrive in these areas from the north and lay eggs if early rains occur.

Niger

• **Situation**

During April, hoppers continued to form many groups and bands in the Tafidet area (1817N/0923E) on the southeastern side of the Air Mountains where breeding previously occurred. By mid-month, most of the hoppers had reached the fifth instar stage and were fledging and forming groups of immature adults at densities up to 150,000 adults/ha. The infestations were mixed with new hatchlings and hoppers of all instars. Scattered adults were seen laying in one area on the 10th. Ground teams treated 1,550 ha on 7-29 April.

• **Forecast**

Small swarms are expected to form in the southeastern Air Mountains and mature. By the end of the forecast period additional groups and swarms could start to arrive in Tamesna and Air from the north and lay eggs if early rains occur.

Chad

• **Situation**

No reports received.

• **Forecast**

There is a low risk of small adult groups or swarms appearing by the end of the forecast period in the summer breeding areas where egg laying could occur if early rains fall.

Senegal

• **Situation**

No locusts were reported during April.

• **Forecast**

There is a low risk of a few adult groups and perhaps swarms arriving in the north if there is an early movement of swarms from Northwest Africa.

Algeria

• **Situation**

A late report indicated that hatching commenced on 27 March near Tindouf (2741N/0811W), in the central Sahara near Adrar (2753N/0017W), and in the northern Sahara near Bechar (3135N/0217W), Naama (3318N/0200W), El Bayadh (3340N/0100E), Laghouat (3349N/0243E) and Ghardaia (3225N/0337E).

During April, there were many reports of immature and mature adult groups and small swarms in the spring breeding areas south of the Atlas Mountains from Bechar to Ouargla (3157N/0520E) and Biskra (3448N/0549E), a distance of some 700 km. Populations were also present in the Atlas Mountains near Djelfa (3440N/0314E). By the third decade, infestations appeared in the northeast near Khenchla (3526N/0706E) and the Tunisian border. Many of the mature adults were copulating. No locusts were reported in the south near Tamanrasset or in the southeast near Illizi.

Ground and aerial control operations treated 202,152 ha on 1-23 April.

• **Forecast**

Locust numbers are expected to increase as more hatching occurs in the northern Sahara south of the Atlas Mountains and, to a lesser extent, in the central Sahara. The new hatchlings are likely to form hopper groups and bands. Any hopper infestations

that escape detection and control will form swarms in June that, unless treated, will almost certainly move south towards the Sahelian countries. There is a low risk that some of these could also move further east across North Africa.

Morocco

• **Situation**

Widespread hatching occurred south of the Atlas Mountains and hopper groups and bands formed throughout April. Most of the hoppers were present in the Draa Valley but there were other infestations in the Hamada du Guir, north of Bouarfa (3230N/0159W) in the northwest and along the Atlantic coast between Tan-tan (2827N/1109W) and Sidi Ifni (2924N/1012W). By the 17th, a few of the hoppers had reached the fourth instar. Hopper densities were 2-800/m^2 and there were a few bands containing up to 2,000 hoppers/m^2. Laying swarms at densities up to 120 adults/m^2 were present in the Souss Valley, in the Anti-Atlas Mountains and near Bouarfa. There was one report of a mature swarm on the coastal plains north of the Atlas Mountains between Safi and El Jadida at Ait Ouassaih (3244N/0820W) on 4 April.

In the Western Sahara, fifth instar hopper groups and bands were present at densities up to 20 hoppers/m^2 between the Mauritanian border and Guelta Zemmur (2508N/1223W) and in a few places along the coast between Dakhla (2343N/1557W) and Laayoune (2708N/1313W). Most of the hoppers were fledging and the new adults were forming immature swarms at densities up to 40 adults/m^2 and 100 ha in size.

Aerial and ground control operations treated 347,205 ha on 1-29 April.

• **Forecast**

A few more swarms are likely to form in the Western Sahara and move either towards the north or the south. New hatching and band formation are likely to occur in the Souss Valley, the Anti-Atlas Mountains and near Bouarfa. As current hopper infestations south of the Atlas Mountains develop and fledge, swarms are expected to form from bands that are not treated. Any swarms that escape survey and control operations will almost certainly move south towards the Sahelian countries.

Libyan Arab Jamahiriya

• **Situation**

In early April, mature adult groups and small swarms began arriving from the west and laid eggs along the Algerian and Tunisian borders between Nalut (3152N/1058E) and Ghat (2459N/1011E). There were 32 reports of swarms during the first three weeks of the month. Most of the swarms were concentrated between Nalut and Ghadames (3010N/0930E) at densities of up to 25 adults/m^2. Ground and aerial control operations treated 9,864 ha up to 20 April.

• **Forecast**

Hatching will commence early in the forecast period and numerous hopper bands are likely to form between Ghat and Nalut. There is a low risk of additional adults and swarms arriving from the west. Breeding may have also occurred further east in the country towards Sebha and Hon. By the end of the forecast period, fledging should start and new adults are expected to form small swarms. Adults that are not detected or treated are expected to move south towards the Sahelian countries.

Tunisia

• **Situation**

Although no reports were received, swarms almost certainly arrived in southern Tunisia and laid eggs during April. If so, hatching may have already commenced and hoppers could be forming bands.

• **Forecast**

Breeding is likely to be in progress in the south where hoppers are expected to continue to mature and form bands. Small swarms may form during the forecast period.

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

• **Forecast**

No significant developments are likely.

ATLANTIC OCEAN

The ship report of locusts off the coast of Western Sahara on 25 March mentioned in Bulletin No. 306 was confirmed as solitarious Desert Locust adults.

CENTRAL REGION

Sudan

• **Situation**

During April, many small hopper bands of mixed instars at densities up to 500 hoppers/m^2 were present along the Nile in the northern interior near Dongola (1910N/3027E) where additional laying was reported in the first week. Hatching occurred near Abu Hamed (1932N/3320E) where first and second instar bands formed during the first half of the month. Ground control operations treated 570 ha near Dongola and

26 ha near Abu Hamed. Survey and control operations were concluded on 24 April. No locusts were seen on the northern coastal plains of the Red Sea during the first half of April.

• **Forecast**

Additional hatching may occur near Dongola. Low numbers of small adult groups and perhaps a few small swarms may form near Dongola and Abu Hamed. There is a risk that adults, groups and perhaps some small swarms could start to appear in the summer breeding areas near Atbara and west of the Nile from the north and northeast. If early rains occur, the adults are expected to mature rapidly and lay eggs. There is a low risk of adults and swarms arriving in western Sudan from the Northwest and West Africa in June.

Eritrea

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

No reports received.

• **Forecast**

Isolated adults may be present in a few places on the plateau between Hargeisa and Boroma where small-scale breeding could occur in areas of recent rainfall.

Ethiopia

• **Situation**

No locusts were seen during surveys carried out between Dire Dawa (0935N/4150E) and the northern Somali border in April.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Egypt

• **Situation**

In late March, isolated solitarious adults were present near Jebel Uweinat (2202N/2510E).

During April, low numbers of transiens adults were copulating and laying in a few places along the Lake Nasser shoreline near Allaqi (2240N/3255E), Tushka (2254N/3135E), Kalabasha (2328N/3232E), Sheniara (2340N/3231E) and Khor Galal (2355N/3241E). Patches of first to third instar hoppers at densities of 10-15/m^2 were seen in two places in the Western Desert near Dakhla Oasis (2530N/2900E). Ground control operations treated 43 ha on 3-18 April.

• **Forecast**

Locusts are likely to persist near Lake Nasser where further hatching will occur causing small hopper groups and bands to form. Small groups of adults may form in Dakhla from current hopper populations.

Saudi Arabia

• **Situation**

During April, low numbers of hopper bands at densities up to 50 hoppers/m^2 matured on the Red Sea coast near Yenbo (2405N/3802E) and fledging commenced during the second week. Ground teams treated 1,040 ha on 1-19 April.

• **Forecast**

Small adult groups and perhaps a few small swarms may form on the Red Sea coastal plains near Yenbo. As vegetation dries out, any adults that escape survey and control operations are likely to move towards the summer breeding areas in northeast Africa. Small-scale breeding may be in progress in the spring breeding areas in the interior where a few adult groups could form.

Yemen

• **Situation**

No locusts were seen during surveys carried out on the Red Sea coastal plains during April.

• **Forecast**

Locusts may appear in the interior between Marib and Ataq and lay eggs in areas of recent rainfall. Isolated adults may be present on the Red Sea coastal plains where small-scale breeding could occur.

Oman

• **Situation**

No locusts were present in the north during April.

• **Forecast**

A few isolated adults may appear on the Batinah coast or in the northern interior and breed on a small scale if conditions become favourable.

Iraq

• **Situation**

No reports received.

• **Forecast**

There is a low risk that a few adult groups could appear from the interior of Saudi Arabia during periods of warm southwesterly winds associated with depressions over northern Arabia.

Kuwait

• **Situation**

No reports received.

• **Forecast**

There is a low risk that a few adult groups could appear from the interior of Saudi Arabia during periods of warm southwesterly and westerly winds associated with depressions over northern Arabia.

Bahrain, Israel, Jordan, Kenya, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

No locusts were seen during surveys carried out on 14 April on the southwestern coast near Bushehr (2854N/5050E) and on the southeastern coast between Jask (2540N/5746E) and Chabahar (2517N/6036E), and in the interior near Iranshahr (2715N/6141E). A joint survey was in progress during the second half of April in many of the spring breeding areas.

• **Forecast**

There remains a slight risk of a few adult groups appearing in coastal areas of Bushehr Province from the interior of Saudi Arabia. This could occur during periods of warm southwesterly and westerly winds associated with depressions over northern Arabia. Scattered adults may be present in parts of Sistan-Baluchistan where breeding could occur if rains fall.

Pakistan

• **Situation**

During the second half of March, scattered mature adults at densities up to 750/ha were seen in the spring breeding areas in Baluchistan near Gwadar (2508N/6219E) and Turbat (2600N/6303E). Solitary first and second instar hoppers at densities of 1-2 per bush were present in a small area at Akra Band (2526N/6220E) on the 23rd.

During the first half of April, a joint Iran/Pakistan survey was carried out in the spring breeding areas where locust populations persisted in the above-mentioned places, and hoppers had reached the third instar. Isolated mature adults were seen at two places near Khuzdar (2749N/6639E).

• **Forecast**

Locust numbers are expected to decline in Baluchistan unless additional rainfall occurs. Consequently, no significant developments are likely.

India

• **Situation**

No locusts were reported from late March up to 22 April.

• **Forecast**

No significant developments are likely.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Announcements

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Reporting by e-mail. After each survey or control operation, affected countries should send completed *FAO Desert Locust Survey and Control Forms* with a brief interpretation of the results by e-mail to eclo@fao.org.

eLocust. Updated details of a new system for recording and transmitting locust survey and control data collected in the field as well as country maps can be found on the Internet at: www.fao.org/news/global/locusts/elocust.htm

Outbreak photos. Pictures of the recent outbreaks in the Western and Central Regions are available on the Internet at: www.fao.org/news/global/locusts/outbreakpix04.htm

Publications on the Internet. New FAO publications and meeting reports are available for

downloading at www.fao.org/news/global/locusts/pubslist.htm:

- *EMPRES/CR Workshop on the Use of Green Muscle and PAN to control Desert Locust hopper bands* (English)
- *2nd EMPRES/WR Liaison Officer Meeting report* (French)

Desert Locust Guidelines. The French and Arabic versions of the *Desert Locust Guidelines* are now available as well as the English version of *Volume VI. Safety and Environmental Precautions* and an updated index. These can be downloaded from the Internet at: www.fao.org/news/global/locusts/pubs1.htm. Please contact the Locust Group if you would like to receive hard copies.

Desert Locust research award. The FAO Commission for Controlling the Desert Locust in the Central Region (CRC) is pleased to announce a cash award for outstanding research on Desert Locust. For more details, please contact the CRC Office in Cairo (munir.butrous@fao.org).

2004 events. The following meetings are scheduled:

- **Desert Locust Control Committee Technical Group Workshop.** 8th meeting, Nouakchott (Mauritania), 2-7 May
- **CLCPRO.** 1st Executive Committee meeting, Niamey (Niger), 14-18 June
- **SW Asia Commission.** 24th session, Kabul (Afghanistan), October
- **Pesticide Referee Group.** 8th meeting, Rome, postponed to later in 2004

Urgent donor appeal. FAO launched an appeal to donors on 23 February for $6 million, which is urgently needed to support Desert Locust control operations in Mauritania, and another $3 million for Mali, Niger and Chad, in order to prevent the early stages of the current upsurge from developing into a plague. More details are available at: www.fao.org/news/global/locusts/040223AppealE.htm.

At a donor meeting held in Rome on 8 April and chaired by the Director-General, the original appeal for $9 million was increased by a further $8 million to provide further assistance to Northwest and West Africa. More details are available at: http://www.fao.org/news/global/locusts/presweb.pdf.

Press release. On 27 April, FAO issued a Press Release in English, French and Arabic on the extremely serious Desert Locust situation. More details are available at: http://www.fao.org/newsroom/en/news/2004/40887/index.htm

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/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)

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

GROUP

- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL

- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL

- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM

- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE

- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE

- swarm: 500+ km^2 • 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.

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.

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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guidea Bissau and Guinea Conakry.

CENTRAL

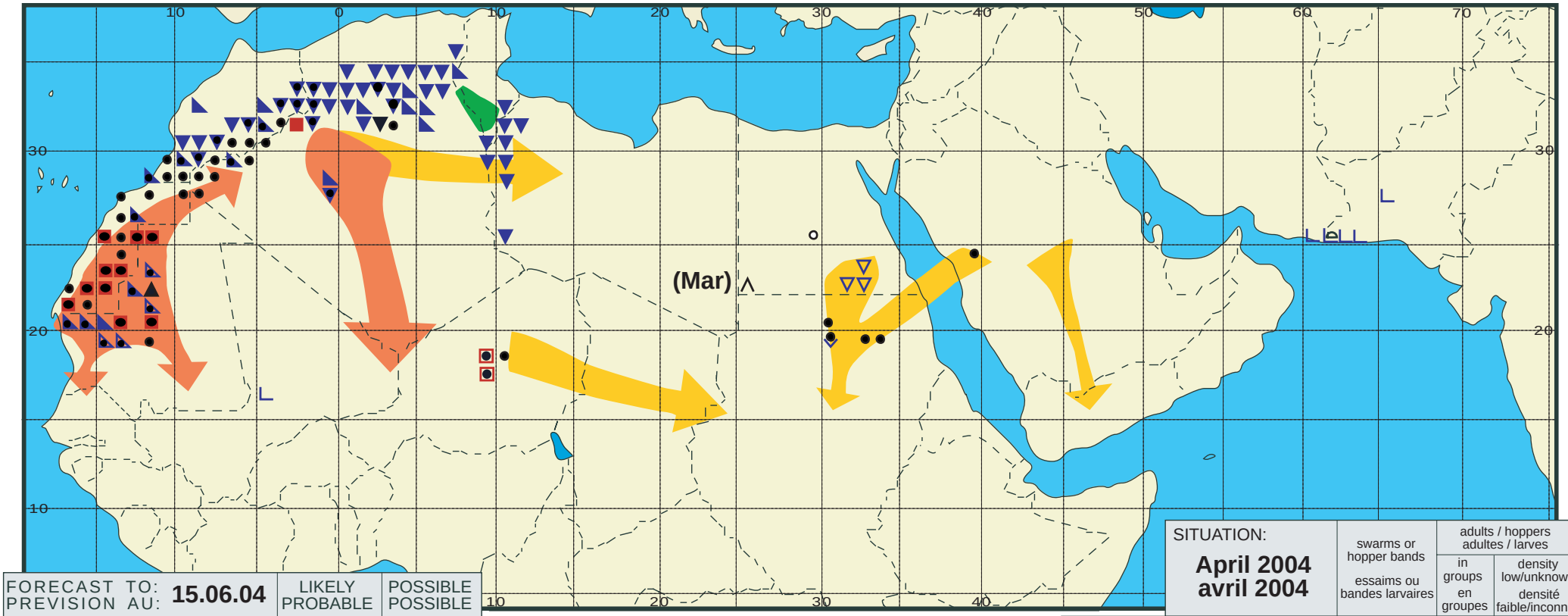
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.

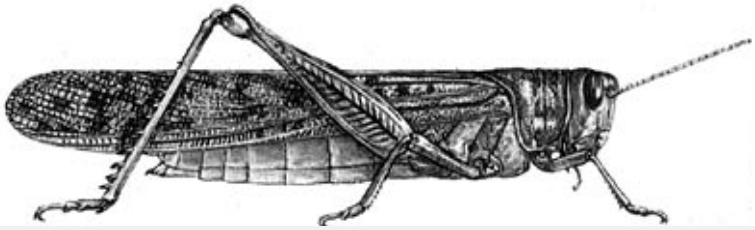
Desert Locust Summary
Criquet pèlerin - Situation résumée

307



FORECAST TO: PREVISION AU: **15.06.04**	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **April 2004 avril 2004**	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)			



DESERT LOCUST UPDATE

FAO Emergency Centre for Locust Operations

(14 June 2004)

General Situation as of 14 June 2004

The Desert Locust situation continues to remain extremely alarming despite intensive aerial and ground control operations against hopper bands in Northwest Africa. New groups of adults are forming in Morocco, Algeria and Libya. Several swarms were seen near the summer breeding areas in southern Mauritania. In the coming weeks, locust numbers are expected to increase dramatically in the Sahel in West Africa as swarms that form and escape current control operations in Northwest Africa move southwards and appear in areas of recent rainfall.

During the first decade of June, vegetation started to dry out south of the Atlas Mountains in **Morocco** where hopper bands at densities of up to 800 hoppers/m^2 continued to develop and fledge, and groups of adults were forming at densities of up to 120 adults/m^2. Ground and aerial control operations treated 183,422 ha from 31 May to 10 June. In **Algeria**, more hopper bands reached the fifth instar stage south of the Atlas Mountains during the same period as temperatures increased. The heaviest infestations were reported from Naama, El Bayadh, Djelfa, Laghouat, Biska and El Oued provinces. Hoppers were fledging and new adult groups were forming in many of the above provinces. Low-density hatching occurred in El Oued and Naama on 1-2 June, and a few residual populations of mature adults were present in other places. Ground and aerial control operations treated 175,872 ha on 1-9 June. Ground and aerial operations continue in southern **Tunisia** and northwestern **Libya** against late instar hopper bands and some adults. In Libya, 21,208 ha were treated on 1-10 June. No details were available from Tunisia.

In the past few days, several immature swarms were reported in western **Mauritania** where they were seen moving towards the south. One medium-sized swarm of 44 km^2 was observed between Nouakchott and Akjoujt on 8 June while another one was being confirmed near Boutilimit. These probably originated from previous breeding in northern Mauritania where groups of hoppers and adults, at densities up to 15 adults/m^2, are still present. In the summer breeding areas in the south, isolated adults were maturing northwest of Kiffa and southwest of Nema. Ground control operations treated 270 ha of late instar hopper groups in the north on 1-10 June. No new information has been received from **Mali** where scattered adults are likely to be present in the north. Although no new reports were received from **Niger**, new hatchlings and adult groups are probably present in the Air Mountains.

So far this month, light rains have fallen in southeastern Mauritania, western and northern Mali, southern Algeria and western Niger. Appropriate preparations should be made immediately in these countries for any swarms that arrive from Northwest Africa.

Elsewhere, no locusts were seen in the spring breeding areas in the interior of **Saudi Arabia** in late May. There was an unconfirmed report in early June of a locust swarm near Geneina in western Darfur, **Sudan**. This was probably Tree Locust rather than Desert Locust.

The most up-to-date information on the situation and photos are available on the Internet (www.fao.org/news/global/locusts/locuhome.htm) as well as maps of the latest infestations (193.43.36.11/mapper).

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 and Other Migratory Pests Group, AGP Division, FAO, 00100 Rome, Italy. It is also available on the Internet.
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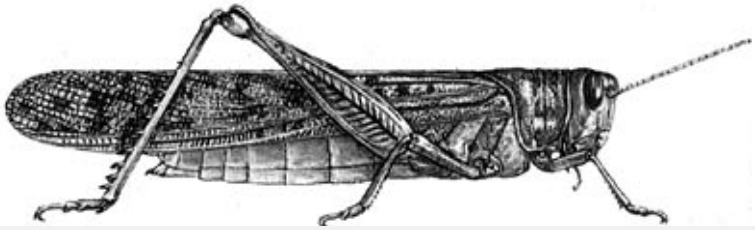

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 308**

(2 June 2004)

General Situation during May 2004 Forecast until mid-July 2004

The Desert Locust situation is very worrying despite intensive control operations carried out in Northwest Africa during May. So far in 2004, more hectares have been treated than in any year since the last plague of 1987-89. Nevertheless, a significant redistribution of populations is expected to occur in June as swarms that form in Morocco, Algeria, Tunisia and Libya move south and invade Mauritania, Mali, Niger, Chad and perhaps western Sudan. Although the scale of the invasion is difficult to estimate with precision because it depends on the success of survey and control operations in Northwest Africa, there is a risk that a substantial number of swarms could appear in the Sahel in June and July and threaten initial summer crops planted on the first rains. Appropriate preparations for locust survey and control should be made immediately in these countries. International assistance is urgently required to supplement the major efforts already made and to prevent the situation from developing into a plague.

Western Region. The spring breeding in Northwest Africa, being the second successful season of gregarious breeding, following that which occurred in Mauritania and Western Sahara from October onwards, means that an upsurge can be considered as underway in the region. Large-scale aerial and ground control operations continued during May in **Morocco**, **Algeria**, **Tunisia** and **Libya** where widespread hatching and band formation occurred south of the Atlas Mountains. By mid-month, hoppers had started to fledge and the immature adults were beginning to form new groups and swarms. This process is expected to continue during June while, at the same time, swarms will start to move south towards the summer breeding areas in the Sahel where they are likely to arrive from about mid-June onwards in **Mauritania**, **Mali**, **Niger**, **Chad** and perhaps northern **Senegal**. Adult groups and swarms that form in currently infested areas in central and northern Mauritania and in the Air Mountains in Niger will also move to the summer breeding areas. The swarms that arrive in the Sahel are expected to be highly mobile and may not be very cohesive. They could disperse over a large area, depending on rainfall distribution, rapidly mature and lay eggs. Consequently, it may be difficult to find and treat the initial populations before they breed.

Central Region. Limited control operations were undertaken against a few hopper bands along the Nile River in northern **Sudan** and small locust infestations were present in southern **Egypt** during May. Elsewhere in the region, the situation remained calm. During the forecast period, summer breeding will commence in the interior in Sudan with the onset of the seasonal rains. There is a moderate risk of swarms arriving from Northwest Africa, mainly in western Sudan and perhaps in northwestern Egypt.

Eastern Region. Drought conditions prevailed during May in the spring breeding areas in western **Pakistan** where only a few locusts were present and in eastern **Iran**. No significant developments are likely during the forecast period.

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No. 308

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in May 2004

Ecological conditions remained favourable in the spring breeding areas in Northwest Africa where good rains fell in some places during May. Dry conditions persisted in the summer breeding areas in the Sahel in West Africa and Sudan where seasonal rains had not yet started in most areas. No significant rainfall was reported in the Central and Eastern Regions where breeding conditions were unsuitable.

In the **Western Region**, good rains fell in several parts of Northwest Africa in conjunction with eastward-moving Mediterranean depressions during May. Unusually heavy rains fell at the end of the month along the southern side of the Atlas Mountains in Morocco at Figuig (100 mm) and lighter rains were reported between Ouarzazate and Bouarfa. Light rain fell a few times south of the Atlas Mountains in Algeria and Tunisia as well as in northwest and central Libya during the last decade of May. Consequently, ecological conditions remained favourable in the spring breeding areas but were starting to dry out by the end of the month south of 30N in Morocco. In northern and central Mauritania, vegetation was starting to dry out in some places by the end of May. The Inter-Tropical Convergence Zone (ITCZ) continued its seasonal movement northwards in the Sahel, oscillating between 10N and 15N and, at times, reaching 18N over eastern Mali and 19N over eastern Niger. As a result, light rain fell on 17 and 19 May on the edge of southern Tamesna, Niger (Tahoua and Agadez) and some wadis flooded in the southeastern Air. Heavy showers were reported in Niamey on 19 May (64 mm) in addition to the unusually heavy rains on 30 April (123 mm). In Chad, moderate rains fell in the east near Abeche on the 19th and significant clouds were present over Tibesti in the northwest on the 25th. By the end of the month, there were indications that seasonal rains were commencing in parts of the Sahel, namely Kiffa and Aioun El Atrous in southern Mauritania, Nara in western Mali and Tahoua in Niger. Nevertheless, dry vegetation persisted in most summer breeding areas except in parts of Timetrine in northern Mali and in the southeastern Air Mountains, Niger.

In the **Central Region**, good rains fell during May over coastal and interior areas of northwestern Somalia where vegetation was becoming green. In Sudan, moderate rainfall was reported in early May in the northern Red Sea Hills and light rain fell on the coast near Suakin. In Yemen, green vegetation was present in some parts of the summer breeding areas in the interior north of Ataq and Shabwah, in Wadi Hadhramaut and between Marib and Harib. Conditions were dry and unfavourable for breeding along the Red Sea coastal plains and in the summer breeding areas in the interior in Sudan. By the end of the first week of May, southwesterly winds associated with the Indian monsoon became established over the Horn of Africa and continued for the remainder of May.

In the **Eastern Region**, no significant rainfall was reported in the region for the fourth month in a row. Consequently, unfavourable ecological conditions persisted during May in the spring breeding areas in Baluchistan in western Pakistan and southeastern Iran.

Area Treated

Since October 2003, nearly 2.9 million ha have been treated. Of this, control teams treated 880,000 ha in May as follows:

Algeria	370,652 ha	(25 April - 24 May)
Egypt	1,433 ha	(May)
Libya	19,780 ha	(21-30 April)
	70,741 ha	(1-24 May)
Mauritania	3,046 ha	(21-30 April)
	1,844 ha	(1-20 May)
Morocco	452,593 ha	(1-30 May)
Sudan	6 ha	(9-11 May)

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During May, swarms started to form in the north and centre where some damage occurred to oasis crops and pastures. Small to medium-sized swarms were seen moving south in Tiris-Zemmour and small-scale

breeding was in progress near Zouerate (2244N/1221W) where mid-instar hopper bands at densities of up to 450 hoppers/m^2 were present mixed with immature and mature groups of adults at densities up to 20,000/ha. A few of these adults were copulating and laying eggs. Small hopper patches and adult groups, at densities up to 60,000 adults/ha, were present near Ouadane (2056N/1137W) and in Inchiri. A few small swarms were also reported near Ouadane coming from the north. In the summer breeding areas, solitarious adults at densities up to about 4,000/ha were seen at mid-month east of Nouakchott in the Aftout de Faye near Aguilal Faye (1827N/1444W) and isolated adults mixed with Tree Locust were present between Nema (1636N/0715W) and Oualata (1717N/0701W). Control operations treated 1,844 ha on 1-20 May.

• **Forecast**

Locust numbers will decrease in the north and centre as adults form groups and swarms that will move south to the summer breeding areas between Trarza and Hodh Chargui. From about mid-June onwards, a substantial number of adult groups and swarms from Northwest Africa are expected to appear in the south. The adults are likely to be highly mobile and could disperse over a large area, depending where rainfall occurs. Consequently, it may be difficult to treat the adults before egg laying. All efforts should be made to monitor the situation in the south.

Mali

• **Situation**

A late report indicated that isolated adults were present during the second half of April at two places in the Adrar des Iforas.

During May, isolated adults were seen near Aguelhoc (1927N/0052E) on the 3rd. Isolated immature adults were present at a few places in Timetrine near Ti-n-kar (1926N/0022W) during the last decade of the month.

• **Forecast**

A substantial number of adult groups and swarms are likely to arrive from Northwest Africa in Timetrine, Tilemsi Valley, Adrar des Iforas and Tamesna. Some of these populations may move further south to Gao, Tombouctou, Nara and Nioro. The adults are likely to be highly mobile and could disperse over a large area, depending where rainfall occurs. Consequently, it may be difficult to treat them before egg laying. All efforts should be made to monitor the situation in these areas.

Niger

• **Situation**

On 4 May, immature adults were seen flying in the Tamesna near In Abangharit (1754N/0559E). In the southeastern Air Mountains, fledging occurred in early May and immature transiens and gregarious adults dispersed throughout the central and southern parts of the Air. At least three swarms were reported and adult groups caused damage to crops near Tabelot (1736N/0856E). During the last decade of May, mature adult groups were seen copulating and laying in W. Baouet (1805N/0914E). No control operations were undertaken during May.

• **Forecast**

Small groups and perhaps a few swarms will form in the southeastern Air Mountains, mature and lay eggs where conditions remain favourable. Some of these could move to the Tamesna. A substantial number of adult groups and swarms are likely to arrive from Northwest Africa in Tamesna, the Air and, perhaps, in the west near Tillaberi. The adults are likely to be highly mobile and could disperse over a large area, depending on where rainfall occurs. Consequently, it may be difficult to treat them before egg laying. All efforts should be made to monitor the situation in these areas.

Chad

• **Situation**

No reports received.

• **Forecast**

There is a moderate risk of adult groups and swarms appearing from Northwest Africa in the Tibesti where recent rains may have fallen as well as in other summer breeding areas in Kanem, Batha, Biltine and the northeast. Once the summer rains commence, adults will mature rapidly and lay eggs. All efforts should be made to monitor the situation in these areas.

Senegal

• **Situation**

No locusts were reported during May.

• **Forecast**

There is a moderate risk of adult groups and swarms arriving in the north if the Inter-Tropical Convergence Zone remains south of 15N. This risk will decrease as the ITCZ moves north into Mauritania.

Algeria

• **Situation**

During May, widespread hatching and band formation commenced during the first week over

a large area along the southern side of the Atlas Mountains stretching from Morocco to Tunisia. Mature adults were also seen throughout this area. Breeding was heaviest near Tindouf (2741N/0811W), Bechar (3135N/0217W), Ghardaia (3225N/0337E) and El Oued (3323N/0649E). By mid-month, hoppers had reached fifth instar and more than half of the country's provinces were reportedly infested. Fledging and the first groups of immature adults were reported on 16 May near Tindouf and 22 May near Ghardaia. Elsewhere, the hoppers were mainly second and third instar. Aerial and ground control operations treated 370,652 ha from 25 April to 24 May.

• **Forecast**

Hopper bands that escape control will form swarms along the southern side of the Atlas Mountains. Most of the swarms are expected to move south towards the summer breeding areas in the Sahel in West Africa while some could move further east across North Africa. Some adult groups and swarms are likely to appear in the south of the country where they could mature and eventually lay eggs if conditions are favourable.

Morocco

• **Situation**

During May, hatching and band formation continued south of the Atlas Mountains in the Draa Valley, the Hamada du Guir and in the northeast near Bouarfa (3230N/0159W). By mid-month, many of the hoppers had reached the fifth instar and fledging had started in the Draa Valley and groups of immature adults were forming. Mature swarms at densities of up to 50 adults/m^2 were reported moving within the northeast and some were seen in the Haut Atlas near Beni Mathar (3400N/0201W). By the end of the month, fledging and the formation of immature groups at densities of up to 200 adults/m^2 were in progress in the Anti-Atlas between Zagora (3019N/0550W), Ouarzazate (3057N/0650W) and Irhrem 2957N/0830W).

In the Western Sahara, new adults continued to form small immature groups near Bir Gandouz (2136N/1628W) in early May. Small infestations of third and fifth instar hopper groups were present in the Saquia Al Hamra area near Laayoune (2708N/1313W) at the end of the month.

Aerial and ground control operations treated 452,593 ha during 1-30 May.

• **Forecast**

Hopper bands that escape control will form swarms along the southern side of the Atlas Mountains. Most of the swarms are expected to move south towards the summer breeding areas in the Sahel in West Africa while some could move further east across North Africa.

Libyan Arab Jamahiriya

• **Situation**

During the last decade of April and the first decade of May, mature swarms continued to arrive from the west and laid eggs in the northwest between Nalut (3152N/1058E) and Ghadames (3010N/0930E). Some swarms moved along the coastal plains east of Tripoli to Al Khums (3239N/1415E) while others moved inland to the northern Al Hamada Al Hamra, reaching Bani Waled (3143N/1401E). Hatching from previous laying started during the third week of April near the Tunisian border. Second instar hopper bands were first reported on the 26th near Nalut and on 2 May near Ghadames. Hoppers developed throughout May and, by the end of the month, some fifth instars were reported and new hatchlings were seen on the coast. Ground and aerial control operations treated 90,521 ha from 21 April to 24 May.

• **Forecast**

Hopper bands that escape control will form swarms in the northwest from early June onwards. As further breeding is extremely unlikely, the swarms are expected to move south towards the summer breeding areas in the Sahel in West Africa. There is a risk that some could also move east to Egypt and southeast to Sudan.

Tunisia

• **Situation**

Late reports indicated that swarms started arriving from the west on 28 March in the south near Tataouine (3256N/1027E) and Kebili (3342N/0858E). Other swarms reached Gabes (3353N/1007E), Medenine (3321N/1030E), Tozeur (3355N/0808E), Gafsa (3425N/0847E), Sidi Bouzid (3501N/0930E), and further north in the centre near Sfax (3444N/1045E), Kairouan (3540N/1006E) and Kasserine (3510N/0849E). Shortly after arrival, the swarms laid eggs that began hatching in late April and early May and hoppers formed numerous bands. Breeding was heaviest in the south near Tataouine and Kebili where, by the third decade of May, hoppers had reached third and fifth instar respectively. Control operations treated 79,943 ha up to 18 May.

• **Forecast**

Hopper bands that escape control will form swarms in the centre and south during June. As further breeding is extremely unlikely, the swarms are expected to move south towards the summer breeding areas in the Sahel in West Africa. There is a risk that some could also move east to Libya.

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

• **Forecast**

No significant developments are likely.

MEDITERRANEAN SEA

On 13 May, there was a report of two yellow locusts on a ship south of Sicily, Italy at 3628N/1452E, suggesting that a few locusts may have been blown out to sea from the northern coast of Africa.

CENTRAL REGION

Sudan

• **Situation**

During May, ten bands of fifth instar hoppers, at densities up to 20 hoppers/m^2, and fledglings were present in the north near Dongola at Beja (1958N/3035E). Ground control operations treated 6 ha on 9-11 May. No locusts were reported elsewhere in the north during the month.

• **Forecast**

Scattered adults and perhaps a few small groups will appear in the summer breeding areas in Northern Darfur, Northern Kordofan and White Nile States from the north and lay eggs with the onset of the seasonal rains. There is a moderate risk that adult groups and swarms will arrive in Northern Darfur from Northwest Africa during July. All efforts should be made to monitor the situation in these areas.

Eritrea

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

No locusts were seen during surveys carried out on the northwestern coast and escarpment on 16-20 April and between Hargeisa (0931N/4402E) and Burao (0931N/4533E) on 14-16 May.

• **Forecast**

Isolated adults may be present in a few places on the plateau between Hargeisa and Boroma where small-scale breeding could occur in areas of recent rainfall.

Ethiopia

• **Situation**

No locusts were seen during surveys carried out between Dire Dawa (0935N/4150E) and the northern Somali border in May.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Egypt

• **Situation**

During May, hatching occurred near Dakhla Oasis (2530N/2900E) and along the Lake Nasser shoreline near Garf Husein (2317N/3252E), Kalabasha (2328N/3232E) and Sheniara (2340N/3231E). Hoppers formed groups, at densities up to 30 hoppers/m^2. Scattered first to fourth instar hoppers and immature and mature adults mixed with African Migratory Locust were present in agricultural areas at Sh. Oweinat (2219N/2845E). Isolated mature adults were present in Garb El-Mawhoob (2546N/2837E). No locusts were seen on the northern coast, near Siwa and elsewhere in the Western Desert. Ground control operations treated 1,433 ha during May.

• **Forecast**

A few small groups of hoppers and adults are expected to form in Dakhla Oasis and along Lake Nasser. Most of the adults are likely to move south towards the summer breeding areas in Sudan. There is a low risk of swarms arriving in the northwest from Libya.

Saudi Arabia

• **Situation**

No reports received.

• **Forecast**

A few isolated adults may be present on the Red Sea coastal plains north of Jeddah in previously infested areas. Low numbers of adults may be present in the spring breeding areas. During the forecast period, locust numbers will decline in both areas and no significant developments are likely.

Yemen

• **Situation**

No locusts were seen during surveys carried out in the summer breeding areas in the interior between Marib, Ataq and Wadi Hadhramaut during May.

• **Forecast**

Locusts may appear in the interior between Marib and Ataq and lay eggs if conditions remain favourable.

Oman

• **Situation**

No locusts were seen during surveys carried out in the north in May.

• **Forecast**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

No locusts were seen during a joint Iran/Pakistan survey carried out in the spring breeding areas in the southeast during the second half of April.

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

During the second half of April and the first half of May, isolated mature adults at densities up to 40/ha were present in a few places along the coast of Baluchistan between Gwadar (2508N/6219E) and Pasni (2513N/6330E) and inland near Turbat (2600N/6303E).

• **Forecast**

Locust numbers will continue to decline in Baluchistan. A few locusts may start to appear in the summer breeding areas along the Indian border. No significant developments are likely.

India

• **Situation**

No locusts were reported from late April to mid-May.

• **Forecast**

No significant developments are likely.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Announcements

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Reporting by e-mail. After each survey or control operation, affected countries should send completed FAO Desert Locust Survey and Control Forms with a brief interpretation of the results by e-mail to eclo@fao.org.

eLocust. A new French version of eLocust for data collection and transmission in the Western Region is available at www.fao.org/news/global/locusts/eldown.htm. More details can be found at: www.fao.org/news/global/locusts/elocust.htm.

Upsurge photos. Pictures of the recent upsurge in the Western Region are available on the Internet at: www.fao.org/news/global/locusts/outbreakpix04.htm

Publications on the Internet. New FAO publications and meeting reports are available for downloading at www.fao.org/news/global/locusts/pubslist.htm:

- *FAO Desert Locust Standard Operating Procedures* (SOP) for survey, control and aerial operations (English, Arabic)
- *FAO Desert Locust Guidelines* – Arabic version in PDF is now available for downloading
- *Desert Locust Joint Survey in the Spring Breeding Areas of Pakistan and the I.R. Iran* (April 2004)

Desert Locust research award. The FAO Commission for Controlling the Desert Locust in the Central Region (CRC) is pleased to announce a cash award for outstanding research on Desert Locust. For more details, please contact the CRC Office in Cairo (munir.butrous@fao.org).

2004 events. The following meetings are scheduled:

- **CLCPRO.** 1st Executive Committee meeting, Niamey (Niger), 16-20 June
- **SW Asia Commission.** 24th session, Delhi (India), September
- **Pesticide Referee Group.** 9th meeting, Rome, postponed to later in 2004
- **Desert Locust Control Committee.** 38th session, Rome (November, under consideration)
- **EMPRES/CR.** 12th Liaison Officers meeting, Asmara (Eritrea), 6-10 December
- **EMPRES/WR.** 3rd Liaison Officers meeting, Dakar (Senegal), December

Urgent donor appeal. FAO launched an appeal to donors on 23 February for $6 million, which is urgently needed to support Desert Locust control operations in Mauritania, and another $3 million for Mali, Niger and Chad, in order to prevent the early stages of the current upsurge from developing into a plague. More details are available at: www.fao.org/news/global/locusts/040223AppealE.htm.

At a donor meeting held in Rome on 8 April and chaired by the Director-General, the original appeal for $9 million was increased by a further $8 million to provide further assistance to Northwest and West Africa. More details are available at: http://www.fao.org/news/global/locusts/presweb.pdf.

Visit of the President of Senegal, H.E. Mr. Abdoulaye Wade to FAO. The President of Senegal made an official visit to FAO on 12 May 2004. Various special programmes that are being carried out by FAO were presented to him, including the Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases Programme (EMPRES), which has two components, one on animal diseases and the other on the Desert Locust. The President asked several questions about the Desert Locust in respect of how preventive control might be achieved, the status of the current emergency upsurge in locust populations, and the possible side effects on the environment. The President suggested that in view of the seriousness of the situation, its likely developments and the potential threat to agricultural production in West and Northwest Africa, it might be appropriate if a summit meeting between Heads of State of the nine countries be held to discuss the measures that need to be taken to overcome the problem. FAO's Director-General has offered to provide technical assistance to any such event that the countries may agree on.

Press release. On 26 May, FAO issued a Press Release in English, French and Arabic on the very serious Desert Locust situation. More details are available at: http://www.fao.org/newsroom/en/news/2004/43347/index.html

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/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)

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

GROUP

- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL

- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL

- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM

- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE

- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE

- swarm: 500+ km^2 • 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

RECESSION

- period without widespread and heavy infestations by swarms.

REMISSION

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

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.

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.

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.

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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guidea Bissau and Guinea Conakry.

CENTRAL

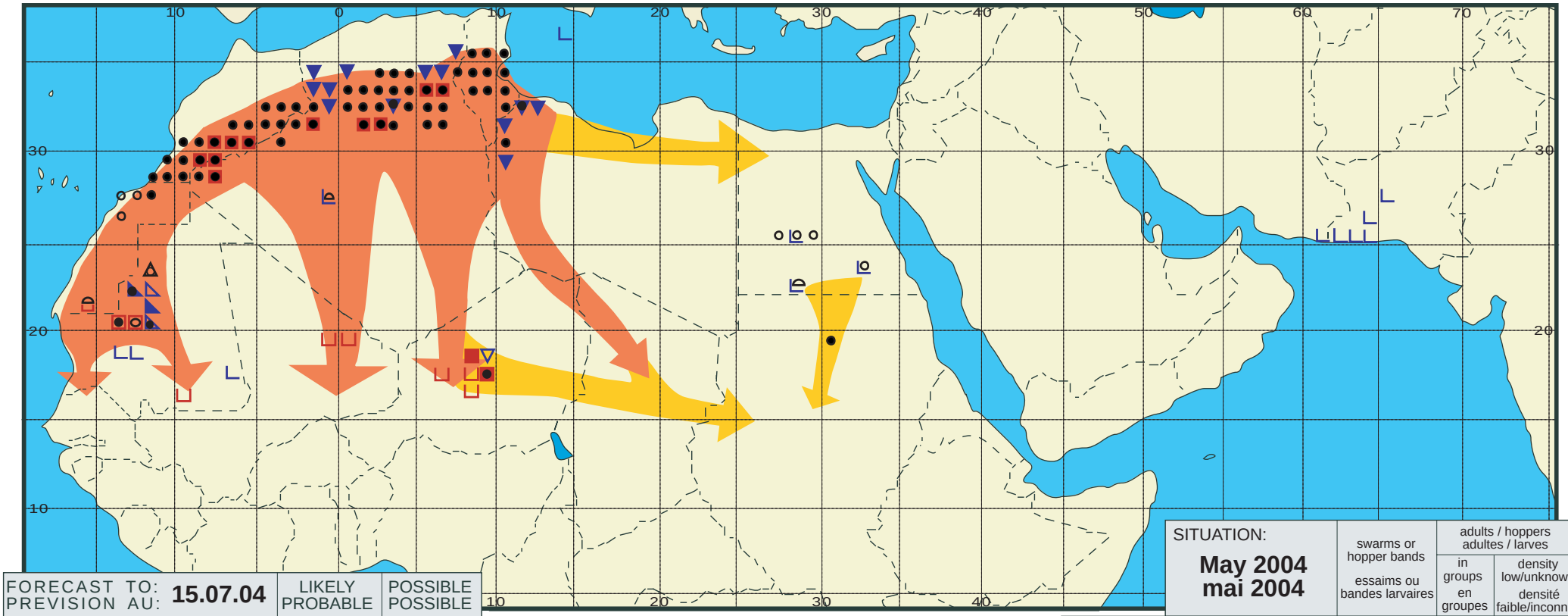
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.

Desert Locust Summary
Criquet pèlerin - Situation résumée

308



FORECAST TO: PREVISION AU: **15.07.04**	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **May 2004 mai 2004**	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	◣	◺	L
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)	◘	◙	⊍

Locust swarms invade West Africa

5 July 2004 -- The first desert locust swarms have moved from their spring breeding areas in Northwest Africa to several Sahelian countries in West Africa, FAO said today, calling for urgent international assistance to avoid a plague.

5 July 2004, Rome -- The first desert locust swarms have moved from their spring breeding areas in Northwest Africa to several Sahelian countries in West Africa, specifically Mauritania, Senegal and Mali, FAO said today.

"Many more swarms are expected in these countries as well as in Niger and Chad in the coming weeks," the UN agency warned.

As summer rains have already started in the Sahel, egg-laying is likely to occur within a vast area that stretches from the Atlantic coast in Mauritania to Chad. This could extend further into Darfur in western Sudan.

"A dramatic increase in locusts could threaten crop production during the coming months," FAO said, calling for additional international assistance.

Aid needed

"Additional international aid is urgently needed to supplement the major efforts already made, in particular by the countries concerned, and to prevent the situation from developing into a plague," FAO said.

The current desert locust upsurge is the most serious since the last plague of 1987-89.

Due to the size and number of the current locust infestations, effective control can only be carried out by conventional pesticides. More than 4 million hectares have been treated so far in Algeria, Morocco, Tunisia, Libya and Mauritania.

Monitor and control

Well-directed control measures and careful monitoring on the ground need to continue, FAO emphasized.

All efforts should be made to use the most environmentally friendly products and properly calibrated spray equipment to minimize risks to the environment and human and animal health. FAO is actively encouraging field trials on the use of alternative products such as biological pesticides.

So far, $9 million of emergency assistance has been pledged. FAO has contributed nearly $2 million from its own resources and donors have provided $7 million. In addition, each affected country has contributed substantially to the locust campaign.

To respond better to future emergencies, longer-term support is also needed to strengthen national capacities in early warning, early reaction and research within FAO's Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases (EMPRES).

The costs of the last locust plague in 1987-89 amounted to more than $300 million and control operations were carried out in 28 countries.

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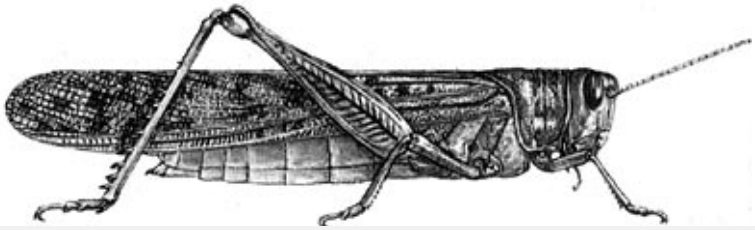
Related links

- **FAO desert locust information service**
  http://www.fao.org/NEWS/GLOBAL/LOCUSTS/Locuhome.htm



DESERT LOCUST UPDATE

FAO Emergency Centre for Locust Operations

(13 July 2004)

General Situation as of 13 July 2004

A major redistribution of Desert Locust populations is in progress as swarms move from the spring breeding areas in Northwest Africa to the summer breeding areas in the Sahel in West Africa. Numerous swarms continue to arrive in Mauritania and a few have reached the Cape Verde Islands. More swarms are expected to appear in Mauritania, Mali and Niger in the coming weeks. A few could also reach Chad and western Sudan. Significant damage has occurred in Mauritania. In Northwest Africa, intensive control operations have continued against newly formed swarms in Morocco, Algeria, Tunisia and Libya. International assistance is urgently required to supplement the major efforts already made and to prevent the situation from developing into a plague.

During the past two weeks, a substantial number of immature swarms up to 10 km^2 each in size continued to arrive and disperse throughout central and southern **Mauritania** from Northwest Africa. There have been at least 45 reports of swarms since early June in the summer breeding areas where good rains, more than 80 mm in many places, have fallen recently and ecological conditions are favourable. This will allow the swarms to mature rapidly and lay eggs, leading to hatching and the formation of hopper bands in the coming weeks. Although damage has been reported in oases and to dune-fixing trees, only a few swarms could be treated because they are high-flying and mobile, making them difficult to follow. In **Mali**, a survey team found only traces of the highly mobile swarms that were reported in late June in the north where conditions are now favourable for breeding. In **Senegal**, there were no new reports of swarms entering the country and the swarms that arrived in June are thought to have dispersed. On 7 July, Desert Locusts, at densities up to 60 adults/m^2, were reported from the **Cape Verde Islands** on Boa Vista, Santiago and Fogo. These probably arrived from the West African coast between Senegal and Western Sahara on unusual easterly and northeasterly winds on 5-6 July. More swarms are expected to arrive in Mauritania, Mali and **Niger** from Northwest Africa. Some of these could extend to **Chad** and reach western **Sudan**. The probability of additional swarms arriving in Senegal and Cape Verde Islands is much lower.

Intensive ground and aerial control operations continued in **Morocco** and **Algeria** against numerous immature swarms that were forming at densities up to 150 adults/m^2. In Morocco, the heaviest infestations were reported in the northeast near Bouarfa and along the southern side of the Atlas Mountains near Ouarzazate and Errachidia while in Algeria the largest populations were in the north near El Bayadh, Djelfa and M'Sila. During the first decade of July, Morocco treated nearly 454,000 ha and Algeria 326,000 ha. Late instar hoppers were still present in a few places in both countries. Control is also in progress in **Tunisia** and **Libya** but more details are awaited. While these efforts are likely to have made a considerable impact on the number of swarms that will migrate south, spring breeding this year has been so widespread that substantial numbers of escaping swarms are inevitable.

The most up-to-date information on the situation and photos are available on the Internet (www.fao.org/news/global/locusts/locuhome.htm) as well as maps of the latest infestations (193.43.36.11/mapper).

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 and Other Migratory Pests Group, AGP Division, FAO, 00100 Rome, Italy. It is also available on the Internet.
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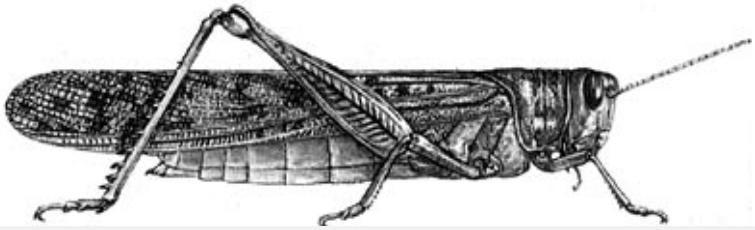

DESERT LOCUST UPDATE

FAO Emergency Centre for Locust Operations *(26 July 2004)*

General Situation as of 26 July 2004

More swarms have arrived in Mauritania, Senegal and Mali from Northwest Africa in the past two weeks. Reports were also received of the first swarms arriving in Niger. Egg laying has started in some places in the Sahel. No swarms have been reported in Chad or Sudan yet. There are signs that the situation is starting to calm down in Northwest Africa where intensive control operations continue. Control efforts in the Sahel are hampered by a lack of resources and the difficulty of locating and treating the highly mobile swarms. Several countries have made new appeals for international assistance that is urgently required to supplement the major efforts already made and to prevent the situation from developing into a plague.

In mid-July, numerous swarms were seen moving south in the Adrar region of central **Mauritania**, causing damage to date palms. Most of the swarms dispersed throughout the summer breeding areas in southern Mauritania between Boutilimit and Kiffa. Other swarms continued east into the two Hodhs and south into northeastern **Senegal** (the Senegal River Valley between Matam and the Malian border) and western **Mali** (near Kayes and Nioro). Egg laying has commenced much further south than normal in Mauritania, near the Senegal River in Guidimaka. Breeding has also started in Assaba. Consequently, hatching and band formation are expected to start by the end of July and could threaten summer agriculture. Ground control operations treated 1,731 ha in Mauritania (11-20 July) and 872 ha in Senegal.

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In northern Mali, numerous swarms arrived in the Adrar des Iforas at mid-month and some of these continued south towards the Niger River. Although the Inter-Tropical Convergence Zone is currently oscillating between 15N and 20N, there is a potential risk that a few swarms could appear in **Burkina Faso** and western Niger if the ITCZ descends below 15N. In northern Niger, a large swarm was seen in the Tamesna west of Agadez on 20 July, suggesting that the first swarms from Northwest Africa have started to arrive. Local breeding is in progress in the Air Mountains where hatching was reported, and mature adults were seen in the south near Zinder. As good rains have fallen throughout the Sahel and ecological conditions are favourable, large-scale breeding will commence shortly, causing locust numbers to increase further in West Africa.

Intensive ground and aerial control operations continued in **Morocco** and **Algeria** against numerous immature swarms that persist along the southern side of the Atlas Mountains. Crop damage, locally heavy in some places, has occurred in both countries. During the second decade of July, there was a decline in the number of hectares treated in Morocco (194,430 ha) and **Libya** (213 ha), indicating that the situation is starting to improve in both countries. Control operations are thought to be in progress in **Tunisia** but details are not forthcoming. The situation should become calm in the Region in the next few weeks.

So far, no swarms from Northwest Africa have been reported in **Sudan** where only scattered adults are present in the summer breeding areas west of the Nile.

The most up-to-date information on the situation and photos are available on the Internet (www.fao.org/news/global/locusts/locuhome.htm) as well as maps of the latest infestations (193.43.36.11/mapper).

More locust swarms are invading Sahel countries

27 July 2004 -- The number of desert locust swarms invading Mauritania, Senegal and Mali has increased in the past two weeks, FAO said.

27 July 2004, Rome -- The number of desert locust swarms invading cropping areas in Mauritania, Senegal and Mali from Northwest Africa has increased in the past two weeks, according to the latest locust update published by FAO today.

In Northwest Africa, where intensive control operations have been in progress since February, there are signs that the situation is improving, FAO said.

No swarms have been reported in Chad or Darfur, Sudan, but the risk there remains high. There is a potential danger that swarms could also reach Burkina Faso, FAO warned.

More aid needed

So far, $9 million of emergency assistance has been pledged. FAO has contributed nearly $2 million from its own resources and donors have provided $7 million. In addition, each affected country has contributed substantially to the locust campaign.

Several countries have appealed for additional international assistance that is urgently required to supplement the major national efforts already made and to prevent the situation from developing into a plague.

Locusts in the Sahel

In mid-July, numerous swarms were seen moving south in the Adrar region of central Mauritania, causing damage to date palms. Most of the swarms dispersed throughout summer breeding areas in southern Mauritania. Others continued east and south into northeastern Senegal and western Mali.

As good rains have fallen throughout the Sahel and ecological conditions are favourable, large-scale breeding will commence shortly, causing locust numbers to increase further in West Africa.

Control campaigns in the Sahel are being organized, but are hampered by a lack of available resources and the difficulty of locating and treating the highly mobile swarms. In 2004, control operations treated a total of 182 000 hectares (ha) in Mauritania and 900 ha in Senegal.

Nine countries are meeting today (27 July) in Algiers to discuss regional locust control campaigns that are required this summer.

Northwest Africa

Intensive ground and aerial control operations continued in Northwest Africa where more than 5 million ha have been treated so far this year.

However, by mid July, there has been a decline in the number of hectares treated in Morocco and Libya. This suggests that the situation is starting to get better in both countries and should become calm in the region over the next few weeks.

Facts about locusts

All efforts should be made to use the most environmentally friendly products and properly calibrated spray equipment to minimize risks to the environment and human and animal health, FAO said. FAO is actively encouraging field trials on the use of alternative products such as biological pesticides.

A desert locust eats its own weight (2 grams) of food every day. Desert locust swarms range from less than one square kilometre (km²) to hundreds of square kilometres in size. There are about 50 million locusts per km² of medium-density swarm. The total number of locusts in a swarm varies from a few hundred millions to several billions.

Desert locust swarms travel a few kilometres to over 100 km per day, or as much as 3500 km in a month. One tonne of locusts (a very small portion of an average swarm) eat as much food in one day as about 10 elephants or 25 camels or 2500 people.

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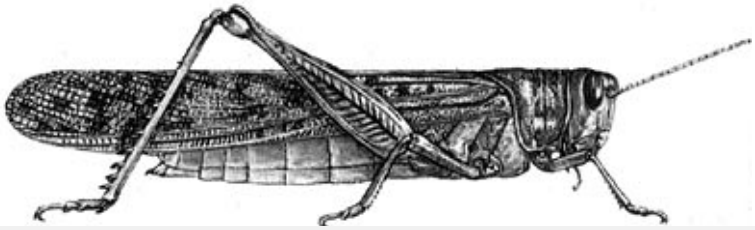
Related links

- **Update on the locust situation**
  http://www.fao.org/NEWS/GLOBAL/LOCUSTS/Locuhome.htm



DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 309**

(5 July 2004)

General Situation during July 2004
Forecast until mid-August 2004

The Desert Locust upsurge remains extremely critical in Northwest Africa where intensive control operations continued during June for the fourth consecutive month. Nevertheless, swarms started to form and several of these moved south and invaded Mauritania, Senegal and Mali. A substantial number of swarms could follow in the coming weeks. As summer rains have already started in the Sahel, breeding will occur and there may be a dramatic increase in locusts that could threaten crop production during the summer. Additional international assistance is urgently required to supplement the major efforts already made and to prevent the situation from developing into a plague.

Western Region. An increasing number of swarms formed in **Morocco**, **Algeria**, **Tunisia** and **Libya** where intensive aerial and ground control operations treated nearly 1.3 million ha during June. Smaller infestations were also present in northern **Mauritania** and in **Niger**. Swarms have started to move from the spring breeding areas to the summer areas. Some swarms were seen in southwestern Libya and may also be present in southern Algeria. During the second half of the month, immature swarms arrived in southern Mauritania, northern **Senegal** and northern **Mali** where rains recently fell. The swarms are highly mobile and it may be difficult to treat them before they mature and lay eggs. Many more swarms are expected to migrate from Northwest Africa to the Sahel where they will disperse and breed within a large area between Mauritania and Chad. Consequently, hatching and hopper band formation are likely to occur during the forecast period, causing a further increase in locust numbers.

Central Region. No significant locust infestations were reported in the Region during June. Only a few hopper and adult groups mixed with other locusts were present in cropping areas in southern **Egypt**. Ecological conditions are slowly improving in the summer breeding areas in the interior of **Sudan** where seasonal rains have started. There is a moderate risk of swarms arriving from Northwest Africa, mainly in western Sudan and perhaps in northwestern Egypt. If so, breeding and hopper band formation will occur in Sudan during the forecast period. All efforts should be made to regularly monitor these areas.

Eastern Region. The monsoon rains commenced during June in the summer breeding areas along the **Indo-Pakistan** border where a few isolated adults were reported. No significant developments are likely during the forecast period.

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No. 309

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in June 2004

Seasonal rains started in many of the summer breeding areas in the Sahel in West Africa and Sudan where ecological conditions were slowly improving. Vegetation was drying out in the spring breeding areas in Northwest Africa. Summer rains associated with the monsoon commenced along the Indo-Pakistan border.

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) continued its seasonal movement northwards in the Sahel, oscillating between 15N and 18N, occasionally reaching 20-21N over Niger. As a result, summer rains started in many places in the Sahel of West Africa during June. The first rains fell in the Adrar des Iforas (Tessalit) in northern Mali on the 1st, in southeastern Mauritania (Nema) and adjacent areas of western and central Mali (Nara, Tombouctou) on the 6th, and in southwestern Mauritania (Boutilimit) and northern Senegal on the 28th. Light rains also fell in other summer breeding areas in Mali (Gao), Niger (Tahoua and Agadez), Chad (Abeche) and southern Algeria (Tamanrasset and Bordj Mokhtar). Consequently, ecological conditions were improving in all of these places. In the spring breeding areas in Northwest Africa, moderate rains fell in the Atlas foothills in Algeria near Laghouat, El Bayadh, Ghadaia and Batna during the second week of June. Light rain occurred in northeastern Morocco where ecological conditions remained favourable in the upper plateaux of the Atlas Mountains. Elsewhere in Morocco, annual vegetation was drying out in most places south of 32N including the Draa Valley. Rain fell at times in southern Tunisia. The prevailing northerly winds over the region were disrupted by numerous atmospheric disturbances during the month.

In the **Central Region**, summer rains started to fall in parts of the interior in Sudan during June. Rains first fell in Western Kordofan (En Nahud) on the 7th, followed by light to moderate rainfall in Western Darfur (Geneina), southern portions of Northern Kordofan (El Obeid, Umm Rawaba), White Nile (Ed Dueim) and in the Eastern Region near Kassala at times during the month. Some rains may have also fallen in the western lowlands in Eritrea. Consequently, ecological conditions were slowly improving in many places. Moderate rains, unusual at this time of year, were reported on the central and southern coastal plains of the Red Sea in Sudan on 23 and 25 June. In northwestern Somalia, summer rains started on the plateau between Hargeisa and Borama where vegetation was green. In Yemen, green vegetation was limited to a few wadis in the interior near Ataq. At the end of the month, light to moderate rains fell on the Red Sea coastal plains and light showers were reported in the interior near Marib and Ataq. In southern Oman, light rains associated with the monsoon started in the Dhofar region on 20 June.

In the **Eastern Region**, the monsoon rains commenced in summer breeding areas of Rajasthan, India during the second week of June when light rainfall was reported at Barmer, Jaisalmer and Jodhpur. Rains also fell in a few places in the summer breeding areas in the Cholistan and Tharparkar Deserts, Pakistan at Rahimyar Khan and Mirpurkhas.

Area Treated

There was a sharp increase in control operations in June when more than 1.6 million ha were treated, bringing the total area treated since October 2003 to 4.5 million ha.

Algeria	828,364 ha	(25 May – 24 June)
Egypt (1)	1,672 ha	(2-18 June)
Libya	16,934 ha	(25-31 May)
	59,147 ha	(1-30 June)
Mauritania	205 ha	(21-31 May)
	1,292 ha	(1-20 June)
Morocco	736,750 ha	(1-30 June)
Niger	200 ha	(June)
Senegal	30 ha	(29 June)
Tunisia	110,085 ha	(up to 31 May)
	no details	(June)

(1) mixed with other grasshopper and locust species

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

In the north, groups of late instar hoppers, fledglings and immature adults at densities up to 40 locusts/m^2

were present near Zouerate (2244N/1221W) in June. Mature adult groups at densities of 300-3000 locusts/ha were seen to the south near Ouadane (2056N/1137W). On 8-10 June, several high-density immature flying swarms were reported in Inchiri south of Akjoujt (1945N/1421W) and northeast of Nouakchott (1809N/1558W). One swarm was 44 km^2 in size. During the third decade of the month, more swarms were seen passing through the Adrar region heading to the south.

In the south, locusts gradually appeared in many of the summer breeding areas during June. Isolated immature adults were first reported near Kiffa (1638N/1124W) on the 1st. Scattered immature and mature adults were seen from the 9th onwards south of Aioun El Atrous (1639N/0936W) to the Malian border. Immature adult groups, at densities up to 5,000 locusts/ha, were reported near Boutilimit on 13 June. During the second half of June, several swarms arrived in the south. A 1.5 km^2 mature swarm at a density of 400 adults/m^2 was seen just east of Magta Lahjar (1730N/1305W) on the 14th. Mature groups at densities up to 1,700 adults/ha were reported south of Aioun on the 18th. A large immature swarm with a density of 250 adults/m^2 was treated in the Senegal River Valley near Rosso (1629N/1553W) on the 20th and another one was seen near Kaedi (1612N/1332W) on the 23rd. A swarm was seen near Aioun on the 21st. Swarms were also reported in Trarza and Brakna. Ground teams treated 1,497 ha from 21 May to 30 June.

• **Forecast**

Locusts will continue to shift from the winter to the summer breeding areas. As a result, the situation will become calm in the north but locusts are likely to increase dramatically in the south as additional adult groups and swarms arrive from the north. The immigrant populations are likely to be highly mobile and could reach the Senegal River Valley and the Malian border. Consequently, it may be difficult to treat the adults before egg laying. Depending on the amount and distribution of rainfall, moderate-scale breeding will occur causing hopper bands to form from late July onwards.

Mali

• **Situation**

Although no surveys were conducted during June, reports were received from nomads, guides and locals of swarms arriving from the north on 18-23 June. The swarms were highly mobile and caused damage to vegetation. They dispersed throughout the northern and central Adrar des Iforas between Kidal (1827N/0125E) and Tessalit (2011N0102E). Several swarms were also seen in the Timetrine near Ti-n-kar (1926N/0022W) and in the Tilemsi Valley. One swarm took an hour to pass over Aguelhoc (1927N/0052E) on the 19th. Most of the swarms were immature but a significant number of adults were seen copulating on the 22nd at two places in the Adrar des Iforas and Timetrine.

• **Forecast**

Swarms will continue to disperse throughout the Adrar des Iforas, Tilemsi Valley and Timetrine. These populations are likely to be supplemented by a substantial number of adult groups and swarms arriving from Northwest Africa. The immigrant populations are likely to be highly mobile and could extend into other areas between Tombouctou and Tamesna and in the west between Nioro and Nara, according to where rainfall occurs. Consequently, it may be difficult to treat the adults before egg laying. Depending on the amount and distribution of rainfall, moderate-scale breeding will occur causing hopper bands to form and locust numbers to increase further. All efforts should be made to monitor the situation in these areas.

Niger

• **Situation**

During June, small groups of immature and mature adults were scattered throughout the southern and southeastern Air because of local breeding during the previous months. There was one report of first and second instar hopper groups on the 15th. Control operations were conducted at one place, Alleleka (1823N/0959E), where adults were seen laying on 10-16 June. Some of the adult groups moved west, reaching the Irhazer Plains west of Agadez (1700N/0756E). There were no reports of incoming swarms during the month.

• **Forecast**

Adult groups are likely to continue to disperse throughout the Air Mountains and more will appear in Tamesna. Locust numbers will increase in both areas as egg-laying, hatching and band formation occur during the forecast period. It is expected that these infestations will be supplemented by a substantial number of adult groups and swarms arriving from Northwest Africa. The immigrant populations are likely to be highly mobile and could disperse over a large area, depending on where rainfall occurs. Consequently, it may be difficult to treat them before egg laying. All efforts should be made to monitor the situation in these areas.

Chad

• **Situation**

No reports received.

• **Forecast**

There is a moderate risk of adult groups and swarms appearing from Northwest Africa in the north (B.E.T.) and northeast as well as in parts of Kanem, Batha and Biltine in the centre. Adults will mature rapidly and lay eggs that will hatch and could give rise to hopper bands. All efforts should be made to monitor the situation in these areas.

Senegal

• **Situation**

On 23 June, three low-density small immature swarms were seen close to the Senegal River Valley near Richard Toll (1626N/1541W). On the 25th, a 1 km^2 immature swarm was reported in the centre of the country near Mbake (1448N/1555W). In the northeast, control operations treated 30 ha of a maturing swarm near Matam (1540N/1318W) on the 28th. All of the swarms were said to be arriving from the north.

• **Forecast**

There is a moderate risk of additional adult groups and swarms arriving from the north during periods when the Inter-Tropical Convergence Zone is south of 15N. This risk will decrease as the ITCZ moves north into Mauritania. Breeding could occur, giving rise to hopper bands during the forecast period.

Algeria

• **Situation**

Although intensive ground and aerial control operations treated more than 800,000 ha in June, the situation remains extremely critical over a large portion of the country. Band formation and fledging continued along the southern side of the Atlas Mountains between Morocco and Tunisia. Breeding was heaviest in the provinces of Naama (3318N/0200W), El Bayadh (3341N/0102E), Laghouat (3349N/0243E), Djelfa (3440N/0314E), Biskra (3448N/0549E) and El Oued (3323N/0649E) where mainly fifth instar bands and groups of immature adults were present. Swarms were forming in many of these areas. Late hatching was reported on 1-2 June in El Oued, Naama and M'Sila (3541N/0431E).

During the second half of the month, swarms continued to form in the above areas and there were new reports from Tindouf (2741N/0811W) and Bechar (3135N/0217W). Adult numbers increased in the centre and south near Adrar (2753N/0017W), Tamanrasset (2250N/0528E) and Illizi (2630N0825E), suggesting that movement towards the summer breeding areas had commenced.

• **Forecast**

Locusts that escape control operations are likely to form a substantial number of swarms in the spring breeding areas in the north. Locust infestations will decline as most of the swarms move south towards the summer breeding areas in the Sahel in West Africa. Some swarms may only reach central and southern parts of the country where they could mature and eventually lay eggs if conditions are favourable. A few swarms could move further east across North Africa.

Morocco

• **Situation**

During June, late instar hopper bands at densities of up to 800 hoppers/m^2 continued to develop and fledge. Groups of adults and some swarms were forming at densities of up to 120 adults/m^2 south of the Atlas Mountains in the Draa and Souss Valleys as well as in the foothills of the Atlas. New hatching and band formation occurred on the Upper Plateau in the northeast between Ain Beni Mathar (3400N/0201W) and Bouarfa (3232N/0159W) where late instar bands, fledglings and immature adult groups were also reported. At mid-month, immature adults were seen flying southwards in the Hamada du Draa near Farcia (2644N/0950W) and Mahbes (2659N/0849W). By the end of the month, many immature swarms were reported near Ouarzazate (3057N/0650W), Errachidia (3154N/0425W), on the southeastern side and in the interior of the Haut Atlas, and in the Anti-Atlas. Smaller infestations were present in northern Western Sahara where immature groups were moving towards the south. Aerial and ground control operations treated 736,750 ha on 1-30 June.

• **Forecast**

Hopper bands that escape control will form swarms along the southern side of the Atlas Mountains. Locust infestations will decline as most of the swarms move south towards the summer breeding areas in the Sahel in West Africa while a few may move further east across North Africa.

Libyan Arab Jamahiriya

• **Situation**

During June, hopper bands at densities up to 500 hoppers/m^2 continued to develop and fledge, causing new swarms to form in the northwest between Nalut (3152N/1058E), Ghadames (3010N/0930E) and Bani Waled (3143N/1401E). During the second half of

the month, immature swarms at densities up to 60 adults/m^2 were reported in these areas as well as in Al Hamada Al Hamra and Ghat (2459N/1011E). Some mature adult groups were reported near Ghat and in the centre near Sabha (2704N/1425E). Ground and aerial control operations treated 76,000 ha of late instar hoppers and adults from 25 May to 27 June.

• **Forecast**

Hopper bands and adults that escape control will form additional swarms in the northwest. Locust infestations will decline as these swarms move south towards the summer breeding areas in the Sahel in West Africa. There is a risk that a few swarms could appear from Tunisia and Algeria in the west and centre of the country.

Tunisia

• **Situation**

Although reports were not received, intensive control operations continued during June in the south where breeding previously occurred. Further details are awaited.

• **Forecast**

Hopper bands and adults that escape control will form swarms in the centre and south. Locust infestations will decline as these swarms move south towards southern Algeria and the summer breeding areas in the Sahel in West Africa. There is a risk that some could also move east to Libya.

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

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

In late May, a report of a locust swarm near Geneina (1327N2230E) in western Darfur was confirmed as Tree Locust. During June, the situation remained calm and no reports of locusts were received from the summer breeding areas.

• **Forecast**

Scattered adults and perhaps a few small groups will appear in the summer breeding areas in Northern Darfur, Northern Kordofan and White Nile States and lay eggs with the onset of the seasonal rains. There is a moderate risk that adult groups and swarms will arrive in Northern Darfur from Northwest Africa. All efforts should be made to monitor the situation in these areas.

Eritrea

• **Situation**

No locusts were seen on the Red Sea coast during surveys carried out 17-22 June.

• **Forecast**

No significant developments are likely.

Somalia

• **Situation**

Isolated mature adults were seen at two places east of Boroma (0956N/4313E) during surveys carried out on the plateau between Boroma and Burao (0931N/4533E) on 14-20 June.

• **Forecast**

Isolated adults will persist and breed on a small-scale in a few places on the plateau between Burao and Hargeisa.

Ethiopia

• **Situation**

No surveys were carried out and no locusts were reported during June.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Egypt

• **Situation**

During June, ground control operations treated mainly grasshopper, Tree Locust and African Migratory Locust infestations mixed with a few Desert Locust hoppers and immature adults in cropping areas in the Western Desert at Sh. Oweinat (2219N/2845E), Baris (2448N/3035E) and Darb Al-Arbain (2357N/3018E). Densities were highest at Sh. Oweinat where groups of up 15 locusts/m^2 were present. Isolated mature adults mixed with other locusts were reported on a farm near Lake Nasser at Tushka (2247N/3126E). No locusts were seen elsewhere along the Lake Nasser shoreline. A total of 1,672 ha were treated on 2-18 June.

• **Forecast**

Low numbers of Desert Locust may persist in some cropping areas and farms in the Western Desert and along the Lake Nasser shoreline. There is a low risk of a few swarms arriving in the Western Desert from Northwest Africa.

Saudi Arabia

• **Situation**

No locusts were seen during surveys in the spring breeding areas in the interior from mid May to the first week of June.

• **Forecast**

No significant developments are likely.

Yemen

• **Situation**

Individual immature and mature adults were seen on the northern Red Sea coast near Midi (1619N/4248E) on 9 June. No locusts were seen during surveys in the interior between Marib and Wadi Hadhramaut on 21-25 June.

• **Forecast**

Locusts may appear in the interior between Marib and Ataq and lay eggs if conditions remain favourable. Isolated adults may persist in a few places on the Red Sea coastal plains.

Oman

• **Situation**

No locusts were seen during surveys carried out on the northern coast and in the interior on 8-15 June.

• **Forecast**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

No locusts were seen along the southeastern coast near Jask (2540N/5746E) in early June.

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

During the second half of May, locust numbers declined in the spring breeding areas in Baluchistan where isolated mature adults at densities up to 25/ha were present on the coast between Gwadar (2508N/6219E) and Pasni (2513N/6330E) and inland near Turbat (2600N/6303E).

During the first half of June, isolated immature adults first appeared in the summer breeding areas at several places along the Indian border in Cholistan at densities up to 12/ha. Similar infestations persisted during the remainder of the month.

• **Forecast**

Locust numbers will increase in the summer breeding areas along the Indian border where small-scale breeding is expected to occur in areas of rainfall. No significant developments are likely.

India

• **Situation**

No locusts were reported during the second half of May and first half of June.

• **Forecast**

Scattered adults are likely to appear and breed on a small-scale in areas of recent rainfall in Rajasthan. No significant developments are likely.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Announcements

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Reporting by e-mail. After each survey or control operation, affected countries should send completed *FAO Desert Locust Survey and Control Forms* or the RAMSES output file with a brief interpretation of the results by e-mail to eclo@fao.org.

eLocust. A new French version of eLocust for data collection and transmission in the Western Region is available at www.fao.org/news/global/locusts/eldown.htm. More details can be found at: www.fao.org/news/global/locusts/elocust.htm.

Upsurge photos. Pictures of the recent upsurge in the Western Region are available on the Internet at: www.fao.org/news/global/locusts/outbreakpix04.htm

Publications on the Internet. New FAO publications and meeting reports are available for downloading at www.fao.org/news/global/locusts/pubslist.htm:

- Contingency planning spreadsheets and simulations for outbreaks, upsurges and plagues (English, French)
- 24th Central Region Commission meeting report (English, Arabic)
- 8th Desert Locust Control Committee Technical Group meeting report (English, French)
- FAO Desert Locust Standard Operating Procedures (SOP) for survey, control and aerial operations (English, Arabic)
- FAO Desert Locust Guidelines – Arabic version in PDF is now available for downloading
- Desert Locust Joint Survey in the Spring Breeding Areas of Pakistan and the I.R. Iran (April 2004)

Desert Locust research award. The FAO Commission for Controlling the Desert Locust in the Central Region (CRC) is pleased to announce a cash award for outstanding research on Desert Locust. For more details, please contact the CRC Office in Cairo (munir.butrous@fao.org).

2004 events. The following meetings are scheduled:

- **Pesticide Referee Group.** 9th meeting, Rome, postponed
- **EMPRES/CR.** 12th Liaison Officers meeting, Asmara (Eritrea), 4-8 October
- **SW Asia Commission.** 24th session, Delhi (India), 11-15 October
- **Desert Locust Control Committee.** 38th session, Rome 29 November – 3 December
- **EMPRES/WR.** 3rd Liaison Officers meeting, Dakar (Senegal), 13-17 December

Urgent donor appeal. FAO launched an appeal to donors on 23 February for $6 million, which continues to be urgently needed to support Desert Locust control operations in Mauritania, and another $3 million for Mali, Niger and Chad, in order to prevent the early stages of the current upsurge from developing into a plague. More details are available at: www.fao.org/news/global/locusts/040223AppealE.htm.

At a donor meeting held in Rome on 8 April and chaired by the Director-General, the original appeal for $9 million was increased by a further $8 million to provide further assistance to Northwest and West Africa. More details are available at: http://www.fao.org/news/global/locusts/presweb.pdf.

Press release. A press release on the current Desert Locust emergency was issued by FAO on 5 July. It is available at: http://www.fao.org/newsroom/en/index.html.

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/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)

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

GROUP

- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL

- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL

- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM

- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE

- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE

- swarm: 500+ km^2 • 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

RECESSION

- period without widespread and heavy infestations by swarms.

REMISSION

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

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.

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.

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.

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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guidea Bissau and Guinea Conakry.

CENTRAL

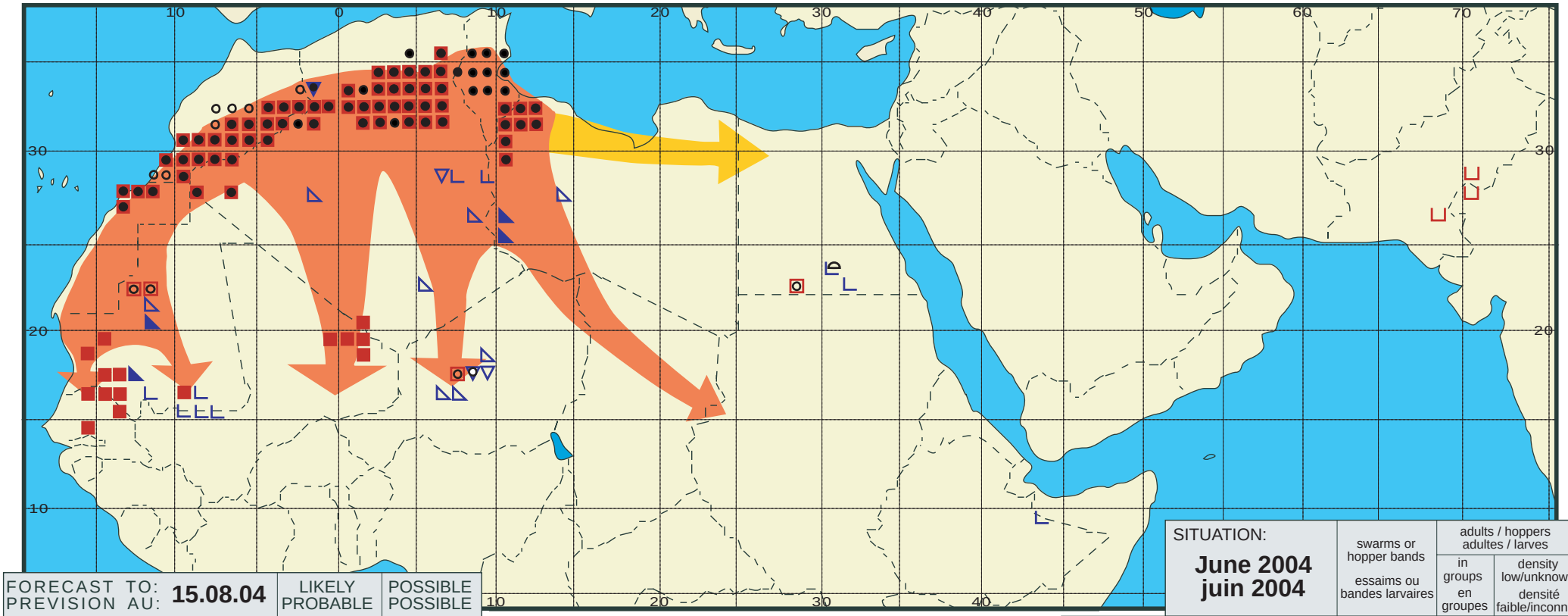
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.

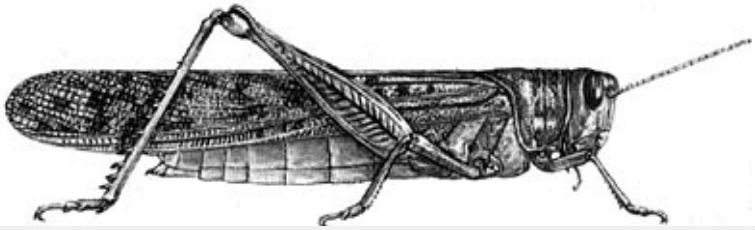
Desert Locust Summary
Criquet pèlerin - Situation résumée

309



FORECAST TO: PREVISION AU: **15.08.04**	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **June 2004 juin 2004**	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	◣	◺	L
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)	◘	◙	⊎



DESERT LOCUST UPDATE

FAO Emergency Centre for Locust Operations *(13 August 2004)*

General Situation as of 13 August 2004

The overall situation in West Africa is further deteriorating with more swarms arriving in Mauritania and Mali and maturation, egg-laying and hopper development occurring there and in some other Sahelian countries. Serious damage was reported locally. Arrival of swarms was confirmed in Chad. A few swarms again reached the Cape Verde Islands and there was an unconfirmed report of yellow adults in northern Burkina Faso. By contrast, the situation is becoming calm in Northwest Africa where less than 7,000 ha were treated in Algeria. No reports were received from other Northwest African countries. Control efforts in the Sahel are still hampered by a lack of resources although the funding situation is beginning to improve. International assistance continues to be urgently required to supplement the major efforts already made and to prevent the situation from developing into a plague.

In **Mauritania**, swarms moving from the North towards the South were reported in Tiris Zemmour, Adrar, Inchiri and Nouakchott. South of 18N, maturation and copulation continued mainly in Trarza and Brakna causing severe local damage to crops. Hopper bands up the 3rd instar were present in Guidimaka where damage was reported on crops and pasture. Swarms and hopper bands were also reported in Assaba and Hodh El Gharbi, where some hoppers already reached the 4th instar. Consequently, the first adults of the summer generation could start to appear by the end of the month. Control operations treated 6,029 ha on 1-10 August. In **Senegal**, immature, mature, copulating and egg-laying adults and swarms were continuing to be reported along the Senegal River Valley and were also reported in the Ferlo Valley, at Linguere. More than 16,000 ha were treated from 18 July to date. In **Mali**, 45 small hopper bands were reported in the West, at Nara, where swarms appeared during the second half of July. In the Adrar, mobile as well as copulating incoming swarms were mixed with resident populations. Immature and mature adults and hoppers were present near Gao, and maturing swarms, at a density up to 60/m², were reported at Douentza. About 700 ha were treated during the first decade of August. There was an unconfirmed report of yellow adults at low density in northern **Burkina Faso** on 9-10 August. No report was received from **Niger** where hopper development may be occurring. Late reports received from **Chad** indicate that three swarms entered from the West during the last decade of July causing some local damage. As good rains have fallen throughout the Sahel, ecological conditions are favourable for hopper development in West Africa. On 5th August, a few swarms at a density of up to 50 adults/m², again reached the **Cape Verde Islands** on Boa Vista, Santiago, Fogo and Maio during another brief period of northeasterly winds. Numerous dead locusts were seen on the beach.

The situation was becoming calm during the first decade of August in **Algeria** where immature adult groups were only reported from a few locations. Less than 7,000 ha were treated. As the vegetation is drying out in the south, no further development is expected in the forthcoming weeks.

No report for the first decade of August was received from any other country including Sudan.

Up-to-date information on the situation and photos are available on the Internet (www.fao.org/news/global/locusts/locuhome.htm).

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 and Other Migratory Pests Group, AGP Division, FAO, 00100 Rome, Italy. It is also available on the Internet.
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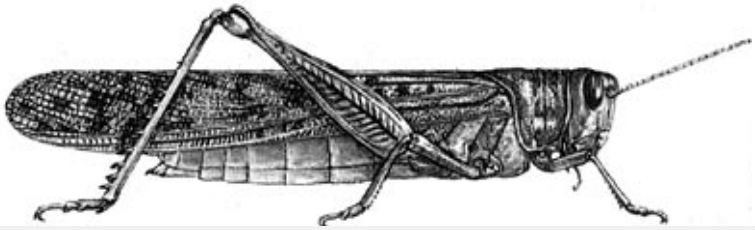
E-mail: eclo@fao.org
Internet: www.fao.org
DLIS: www.fao.org/news/global/locusts/locuhome.htm



DESERT LOCUST UPDATE

FAO Emergency Centre for Locust Operations *(26 Aug 2004)*

General Situation as of 25 August 2004

The Desert Locust situation continues to be extremely worrying in West Africa where large-scale breeding is in progress in Mauritania, Senegal, Mali and Niger. This is expected to lead to a substantial increase in locust numbers and new swarms are likely to start forming in southern Mauritania by the end of August. Significant crop damage has been reported in several countries but quantitative data are lacking. A swarm was reported in northeastern Chad. The risk remains that some swarms could reach Darfur, Sudan. Although additional funds have been forthcoming, control operations are still hampered by insufficient resources. Consequently, international assistance is urgently required to increase efforts that are underway in order to protect crops and try to prevent the situation from developing into a plague.

In **Mauritania**, swarms continue to mature and lay eggs throughout the summer breeding areas south of 18N from the Atlantic coast to the Malian border in the east. Mainly second instar hopper bands are present in Trarza, Brakna and Gorgol while second to fifth instar bands were reported in Guidimaka and Hodh El Chargui. New swarms are expected to start forming in the latter two areas by the end of the month. Control operations treated 6,055 ha from 11 to 20 August. In **Senegal**, more mature swarms are laying eggs in the Senegal River Valley near Saint Louis and Matam as well as in the centre of the country northeast of Dakar. Hoppers are forming bands in some places and have reached the second instar by mid-month. Control operations treated 16,700 ha from 11 to 20 August. In **Mali**, breeding is in progress over a large area of the Sahel (from Kayes in the west to Tombouctou in the centre and Gao in the east) and in parts of the north (Timetrine) where first to third instar hopper bands are present. Mature swarms and adults were also reported in these areas. Control operations treated 5,413 from 11 to 20 August. A few mature swarms, at densities up to 50 adults/m^2, were confirmed in northeastern **Burkina Faso** near the borders of Mali and Niger. Control teams are being mobilized. In **Niger**, numerous small swarms continued to arrive in southern Tamesna and lay eggs near Tassara during the first decade of August. By mid-month, hatching and band formation had commenced. Scattered adults were reported in the Air Mountains. Control operations treated 1,940 ha from 1 to 8 August. A late report indicated that a swarm was seen in northeast **Chad** south of Fada near the Sudanese border on 4 August, and scattered adults were seen nearby. There was an unconfirmed report of locusts in the extreme northwest in **Nigeria** near the Niger border. More details are awaited.

So far, no swarms have been reported in Darfur, western **Sudan**. Small-scale breeding is likely to be in progress in parts of the summer breeding areas west of the Nile.

The situation continued to improve in Northwest Africa where control operations have nearly come to a halt. During the second decade of August, no locusts were reported in **Morocco**. Only small residual populations remained in the spring breeding areas in north-central **Algeria** where 287 ha were treated, and numerous solitarious adults were present in the south near the border with Niger and Mali.

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E-mail: eclo@fao.org
Internet: www.fao.org
DLIS: www.fao.org/news/global/locusts/locuhome.htm

Elsewhere, small-scale breeding is in progress in the interior of **Yemen** where first to fourth instar solitary hoppers were present at mid-month.

The most up-to-date information on the situation and photos are available on the Internet (www.fao.org/news/global/locusts/locuhome.htm) as well as maps of the latest infestations (193.43.36.11/mapper).

Dramatic locust situation in West Africa - donor response positive

26 August 2004 -- The international community has responded positively to an appeal launched by FAO to assist countries in west and northwest Africa in their fight against desert locusts, FAO said today.

26 August 2004, Rome -- The international community has responded positively to an appeal launched by FAO to assist countries in west and northwest Africa in their fight against desert locusts, FAO said today.

The UN agency warned, however, that the locust situation in the countries affected remains dramatic and that more international support is urgently needed.

So far, a total of $32 million from the international community have been approved or are in the pipeline. Some of the funds have been provided bilaterally direct to the countries, but the great majority has been routed through FAO.

An additional $5 million have been provided from FAO's own resources.

Affected countries have mobilized their own resources for national locust control campaigns. Maghreb countries, namely Morocco and Algeria, are sending survey and control teams as well as vehicles and sprayers to Mauritania, Mali and Niger to bolster their control efforts.

Lack of funds

But many African countries do not have sufficient funds to finance national control campaigns fully and avoid crop losses, FAO said.

Aircraft, pesticides, vehicles, sprayers, monitoring capacity and technical support are lacking in all affected countries.

"Additional donor support is urgently needed for targeted aerial and ground spraying and for environmental monitoring," the UN agency said.

The worst affected country is currently Mauritania, with large areas of locust infestations requiring control. The situation is also deteriorating in Mali and Niger. Locust swarms have also been reported in Burkina Faso, Cape Verde, Chad and Senegal.

There are unconfirmed reports from northwestern Nigeria, and there is a moderate risk that swarms will also reach Darfur, Sudan, though none have so far.

Crops at risk

FAO warned that the locust situation could further deteriorate in the next few weeks with new swarms starting to form in September, seriously threatening crops that will be ready for harvest in the affected countries.

"The main effort should be now to protect as much as possible of the next harvest, which is crucial for the food security situation of millions of people in the region," FAO said.

FAO estimated that up to around $100 million are needed to control the current locust upsurge and stop it from developing into a full-scale plague.

The main donors supporting the locust control campaign are the Arab Organization for Agricultural Development, the Common Development Fund (FCD), Canada, the European Community, France, Islamic Development Bank, Italy, the Netherlands, Norway, Saudi Arabia, South Korea, Spain, Taiwan Province of China, the United Kingdom, and the United States.

In the pipeline is assistance from the African Development Bank, the Arab Bank for Economic Development in Africa (BADEA), the European Community, Germany, the International Fund for Agriculture Development (IFAD), Italy, and Japan.

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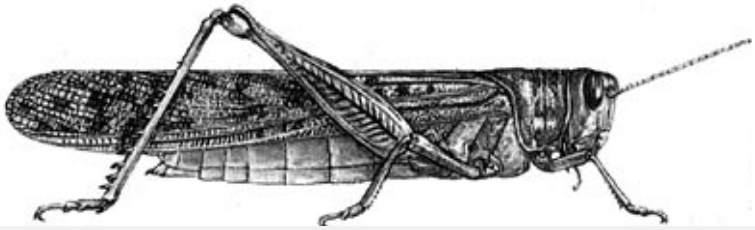
Related links

- **Latest locust update**
  http://www.fao.org/news/global/locusts/locuhome.htm
- **Locust threat in Mauritania - feature**
  http://www.fao.org/newsroom/en/news/2004/49307/index.html



DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 310**

(4 Aug 2004)

General Situation during July 2004
Forecast until mid-September 2004

The Desert Locust situation worsened during July as a substantial number of swarms from Northwest Africa invaded West Africa and laid eggs. Swarms were reported in Mauritania, Senegal, Mali and Niger, disrupting the summer planting season. Hatching has started in most of these countries and hopper bands are forming. In the coming weeks, more swarms are likely to appear in West Africa, including Chad, and some may reach western Sudan. Thereafter, breeding will cause locust numbers to increase further and new swarms could start to form by mid-September. In Northwest Africa, control operations declined in Morocco, Algeria and Libya where the situation was becoming calm by the end of July.

Western Region. Numerous swarms escaped control operations in the spring breeding areas in Northwest Africa and migrated to West Africa where they reached the pastures and cropping areas of the Sahel and dispersed within a large area, extending from **Senegal** to **Niger** and probably **Chad**. More swarms are likely to appear in the coming weeks in these countries and there is a slight risk that some could reach northern **Burkina Faso**. It was reported that some farmers were no longer planting seeds due to the locust threat. A few swarms were reported in the **Cape Verde Islands**. Favourable ecological conditions allowed the swarms to mature quickly and lay eggs in southern **Mauritania**, northern Senegal, **Mali** and Niger. By the end of July, large-scale hatching started along the Senegal River and in southern Mauritania, and hoppers were forming many dense bands. More breeding will occur during August and September, and new swarms could start to form by mid-September. Soon after this, the swarms are likely to move towards the north and northwest unless conditions remain unusually favourable in the Sahel to allow another generation of breeding. Swarms are not expected to move further south in West Africa until about October on winds associated with the southern movement of the Inter-Tropical Convergence Zone. Intensive control operations continued in early July against swarms in **Morocco**, **Algeria** and **Libya** but declined thereafter as the situation improved**.** No reports were received from **Tunisia**.

Central Region. Scattered adults were present in the summer breeding areas in the interior of **Sudan** and **Yemen** during July. Small-scale breeding is expected to occur in both areas during August. So far, no locusts have been reported from Darfur in western Sudan but the threat of swarms arriving from Northwest Africa remains high until the end of August. Limited control operations were carried out in several farms in southern **Egypt** against Desert Locust adults mixed with other locust and grasshopper species.

Eastern Region. Breeding conditions improved during July along both sides of the Indo-Pakistan border where monsoon rains continued in some areas. Only a few isolated adults were reported in **Pakistan**. No significant developments are likely 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 and Other Migratory Pests Group, AGP Division, FAO, 00100 Rome, Italy. It is also available on the Internet.
Telephone: +39 06 570 52420 (7 days/week, 24 hr)
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DLIS: www.fao.org/news/global/locusts/locuhome.htm

Weather & Ecological Conditions in July 2004

Good rains fell and ecological conditions improved throughout the summer breeding areas in the Sahel in West Africa and Sudan during July. Conditions also improved on both sides of the Indo-Pakistan border.

In the **Western Region**, the position of the Inter-Tropical Convergence Zone (ITCZ) over the Sahel fluctuated more than usual during July, generally oscillating between 16N and 20N and occasionally reaching northern Mauritania (25N), northwestern Mali (24N) and southern Algeria (23N). Consequently, light to moderate rain fell throughout the summer breeding areas in the Sahel from Mauritania to Chad as well as in southern Algeria. Rainfall was heaviest in southern Mauritania (Boutilimit-Kiffa), in western and central Mali (Kayes-Nioro, Tombouctou) and in Niger (Agadez, Air Mountains). Moderate to heavy rain fell at times in northern Senegal. Showers may have also occurred in remote areas where rain rarely falls such as along the Mauritanian/Malian border (north of Ouargla and Tombouctou to 20N), the Algerian/Malian border, eastern Niger (Termit-Bilma), Tibesti in northwestern Chad and the Mourdi Depression in northeastern Chad. By the end of the month, breeding conditions had become favourable in most areas in the Sahel. In Northwest Africa, only a few localized showers fell and ecological conditions continued to dry out and become unfavourable.

In the **Central Region**, light to moderate rain fell in the summer breeding areas in the interior of Sudan (White Nile, Northern Kordofan, Darfur) and Yemen (Marib to Ataq), and on the Red Sea coast in Yemen and Jizan, Saudi Arabia during July. Moderate to heavy rain associated with the Karan (summer) season fell on the plateau in northwestern Somalia between Hargeisa and Boroma. Consequently, breeding conditions improved in all of these areas throughout the month. Unusual rainfall occurred on the Red Sea coast in Sudan where some wadis were reported to be flooded.

In the **Eastern Region**, the monsoon rains continued in parts of the summer breeding areas in Rajasthan, India during July. Light rainfall was reported at Barmer and moderate rains fell in Jodhpur. In the adjacent areas of Cholistan and Tharparkar Deserts, Pakistan, hot and dry weather prevailed in most places during the first half of the month.

Area Treated

More than 1.75 million ha were treated in July, bringing the total area treated since October 2003 to nearly 6.4 million ha.

Algeria	1,013,823 ha	(25 June - 24 July)
Cape Verde	16 ha	(8-9 July)
Egypt (1)	1,793 ha	(1-24 July)
Libya	3,095 ha	(1-31 July)
Mauritania	845 ha	(21-30 June)
	5,071 ha	(1-31 July)
Morocco	724,913 ha	(1-31 July)
Niger	1,075 ha	(25-31 July)
Senegal	872 ha	(14-17 July)
Tunisia	no details	(18 May - 31 July)

(1) mixed with other grasshopper and locust species

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During July, a substantial number of swarms moved southwards through the western and central parts of the country where there were numerous reports of flying swarms near Akjoujt (1945N/1421W) and in the Adrar region. Most of the swarms arrived in the summer breeding areas between Boutilimit (1732N/1441W), Kiffa (1638N/1124W) and the Senegal River Valley near Kaedi (1612N/1332W), and south of Aioun El Atrous (1639N/0936W) and Nema (1636N/0715W). Some swarms were nearly 20 km^2 in size with densities up to 400 adults/m^2. The swarms were highly mobile and were difficult to locate and treat. The swarms matured rapidly because of favourable conditions and, by mid-month, were copulating and laying eggs. The first occurrence of hatching was reported on 30 July southwest of Nema near Timbedra (1614N/0810W) where large first and second instar hopper bands were forming at densities

up to 150 hoppers/m^2. This was followed by large-scale hatching in the two Hodhs, Gorgol, Guidimaka and Assaba. At the end of the month, more immature swarms arrived in the north (Adrar, Inchiri and Tiris Zemmour) from Northwest Africa. Ground and aerial control operations treated 5,071 ha during July.

• **Forecast**

Additional swarms are likely to arrive from the north and disperse in the summer breeding areas early in the forecast period. Moderate to large-scale hatching and band formation will occur in the south during August. Fledging is likely to commence by the end of the month and new swarms could start forming in early September. Unless conditions remain unusually favourable to allow a second generation, most of the swarms are likely to move towards the northwest and north from October onwards. Breeding could also extend to the centre of the country near Tidjikja and to the northwest near Akjoujt.

Mali

• **Situation**

In late June and during the first decade of July, scattered immature and mature adults at densities up to 3,600/ha were present in the Timetrine and in the eastern Adrar des Iforas.

During the second decade of July, several swarms arrived in the north from Northwest Africa. Most of these were highly mobile and were seen moving southwards in the Adrar des Iforas between Tessalit (2011N0102E) and Gao (1616N/0003W). One swarm was seen laying on the 11th near Tessalit. On the 18th, a swarm reached the Niger River near Ansongo (1539N/0030W), less than 100 km from the Niger and Burkina Faso border. In the western part of the country, several swarms appeared just south of the Mauritanian border near Kayes (1426N/1128W), Nioro (1512N/0935W) and Nara (1510N/0717W) on 16-23 July.

• **Forecast**

Additional swarms are likely to arrive and disperse in the Adrar des Iforas, Tilemsi Valley, Timetrine and Tamesna from Northwest Africa early in the forecast period. Other swarms are likely to appear in western Mali near the Mauritanian border. There is a risk that some swarms could move south of the Niger River. Hatching may have already occurred in some places and will certainly increase during August, causing bands to form on a moderate to large scale. Fledging is likely to commence by the end of the month and new swarms could start forming in early September. If more rain falls from September onwards, most of the new swarms will probably remain in place, mature and a second generation of breeding could eventually occur in the north.

Niger

• **Situation**

During July, small adult groups were present in the eastern Air where they continued to mature. Hatching was reported at the beginning of the second decade at Agar-Aagar (1758N/0850E). Elsewhere, locusts at densities up to 500 adults/ha were seen in crops near Arlit (1843N/0721E) where some damage occurred.

From 20 July onwards, many mature swarms from Northwest Africa invaded the Tamesna Plains west of the Air Mountains. Reports of swarms flying south were received from Assamaka (1921N/0538E) on the Algerian border, Madaouela (1840N/0736E) and Tassara (1651N/0542E). The swarms split into numerous smaller swarmlets and groups, at densities of up to 20 adults/m^2, and laid eggs along the western side of the Air Mountains (Irhazer to Talak), throughout Tamesna and in the northern Sahel between Abalak (1522N/0621E) and Tanout (1505N/0850E). Many mature adult groups and swarms were also seen moving south in the western Air Mountains. Ground control operations treated 1,075 ha on 25-31 July.

• **Forecast**

Additional mature swarms are likely to arrive and lay eggs throughout Tamesna and perhaps in the west near Tillaberi. Moderate to large-scale hatching and band formation will commence early in the forecast period with fledging and the formation of new swarms starting from mid-September onwards. If more rain falls from September onwards, most of the new swarms will probably remain in Tamesna, mature and a second generation of breeding could eventually occur. Breeding could also extend further south into the northern Sahelian zone.

Chad

• **Situation**

No reports received.

• **Forecast**

Adult groups and swarms from Northwest Africa may already be present or are likely to appear in the next few weeks in the north (B.E.T.) and northeast as well as in parts of Kanem, Batha and Biltine in the centre. Adults will mature rapidly and lay eggs that will hatch and could give rise to hopper bands. Every effort should be made to monitor the situation in these areas.

Senegal

• **Situation**

On 14 July, two swarms were reported in the Senegal River Valley near Matam (1540N/1318W) and a third one was seen further east near Bakel (1454N/1226W). One 40 ha swarm, at a density of 20 adults/m^2, was seen laying eggs near Matam. During the last week of July, hatching commenced in the Senegal River Valley between Matam and Bakel where first instar hoppers were forming numerous small bands at densities up to 600 hoppers/m^2. On the 28th, a high density 12 km^2 mature swarm crossed the Senegal River Valley from Kaedi, Mauritania and was seen copulating nearby. Control operations treated 872 ha on 14-17 July.

• **Forecast**

Hatching and band formation will continue during August along the Senegal River Valley and may extend to adjacent areas in the north. Fledging is likely to commence by the end of the month and new swarms could start forming in early September. If more rain falls from September onwards, most of the new swarms will probably remain in place, mature and a second generation of breeding could eventually occur.

Cape Verde

• **Situation**

On 5 July, several immature swarms invaded coastal areas of Boa Vista, Maio, Santiago and Fogo islands. These probably arrived from the coast of Western Sahara and Mauritania during a brief period of northeasterly winds. The swarms, at densities up to 60 adults/m^2, dispersed upon arrival and some moved into the interior. Damage was reported in some areas. Ground control operations treated about 16 ha.

• **Forecast**

The risk of additional locusts arriving from West Africa is extremely low. Consequently, no significant developments are likely.

Burkina Faso

• **Forecast**

There is a moderate risk of a few adult groups and swarms arriving in the extreme north during periods when the Inter-Tropical Convergence Zone is south of 15N.

Algeria

• **Situation**

During July, a substantial number of immature swarms was present within a large area extending from the Moroccan border to Tunisia. Most of these were along the southern side of the Atlas Mountains, but some populations were reported in the foothills and the plateaux further north. Despite intensive control operations, crop damage occurred in some places. The largest populations were present in the north near El Bayadh (3341N/0102E), Djelfa (3440N/0314E) and M'Sila (3541N/0431E). By mid-month, the situation was reportedly improving in some regions, namely Ghardaia (3225N/0337E), Ouargla (3157N/0520E), Biskra (3448N/0549E) and El Oued (3323N/0649E). Some populations were shifting back and forth across the common borders with Morocco, Tunisia and Libya. Locust infestations were also reported in the southwest near Tindouf (2741N/0811W), in the south near Tamanrasset (2250N/0528E) and in the southeast near Illizi (2630N0825E) and Djanet (2434N/0930E). By the end of the month, the situation was reportedly improving in the north. Aerial and ground control operations treated 1,013,823 ha from 25 June to 24 July.

• **Forecast**

Locust infestations will decline in the north as swarms move south towards the summer breeding areas. The situation is expected to become calm in the coming weeks. Adult groups and swarms are likely to appear in the south and southeast where they could lay eggs in areas where breeding conditions are favourable. If so, hatching and band formation will occur during the forecast period.

Morocco

• **Situation**

Intensive aerial and ground control operations continued during the first decade of July against numerous hopper band and swarm infestations that extended from the Atlantic coast to the Algerian border including the Draa Valley, and the foothills and plateaux of the Atlas Mountains. Although there were still reports of fifth instar hopper bands in many places, most of the populations were forming immature swarms. The heaviest infestations were reported in the northeast near Bouarfa (3232N/0159W) and Ain Beni Mathar (3400N/0201W) and along the southern side of the Atlas Mountains near Ouarzazate (3057N/0650W) and Errachidia (3154N/0425W). Despite massive control efforts, crop damage has occurred in several regions. From about mid-month onwards, there was a significant decline in locust infestations in the spring breeding areas. By the end of July, only small groups of immature adults were reported in the Draa Valley near Assa

(2834N/0927W) and in the Western Sahara near Smara (2644N/1142W) in the north and Bir Gandouz (2136N/1628W) in the south. Control operations treated 724,913 ha on 1-31 July.

• **Forecast**

Locust infestations will continue to decline and the situation will become calm as any remaining swarms are treated or move south towards the summer breeding areas in the Sahel in West Africa.

Libyan Arab Jamahiriya

• **Situation**

The Desert Locust situation improved during July and control operations against late instar hopper bands and immature swarms, at densities up to 20 adults/m^2, declined in the northwest. During the first decade, there were reports of swarms moving back and forth across the Algerian and Tunisian borders and several immature swarms were seen further south near Ghat (2459N/1011E). This suggests that a general shift from the spring to the summer breeding areas was in progress. Control operations treated 2,882 ha during the first decade of July and 218 ha during the second. No operations were undertaken after 20 July because the situation had reportedly become calm.

• **Forecast**

Early in the forecast period there is a risk that a few late maturing swarms could appear from Tunisia and Algeria in the west of the country and move south towards the summer breeding areas in West Africa.

Tunisia

• **Situation**

The situation remains unclear because reports have not been received since 18 May. It is likely that swarms continued to form in the previously infested areas in the south during July. Further details are urgently awaited.

• **Forecast**

Swarms are almost certainly forming in the south but, in the absence of regular reporting, it is difficult to estimate with precision the scale and the threat to other countries. The locust situation is expected to return to being calm during the forecast period.

Gambia, Guinea Bissau and Guinea Conakry

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During July, low numbers of immature and mature adults, at densities up to 150 adults/ha, were scattered throughout Northern Kordofan between El Obeid (1311N/3010E) and Abu Uruq (1554N/3027E). No locusts were seen in adjacent areas in White Nile and Khartoum states.

• **Forecast**

Small-scale breeding will occur over a large area of Northern Kordofan and could extend into adjacent areas of White Nile and Khartoum States. There is a moderate risk that adult groups and swarms will arrive in Northern Darfur from Northwest Africa and lay eggs. Some swarms could move further east into Northern Kordofan. Every effort should be made to monitor the situation in these areas.

Eritrea

• **Situation**

No locusts were seen in the western lowlands near the Sudanese border during surveys carried out 13-17 July.

• **Forecast**

Low numbers of locusts are likely to appear and breed on a small scale in the western lowlands.

Somalia

• **Situation**

No locusts were seen during surveys carried out on 14-20 July on the plateau and escarpment between Boroma, Hargeisa and Berbera.

• **Forecast**

Isolated adults may be present and could breed in areas of recent rainfall on the escarpment and plateau between Burao and Boroma.

Ethiopia

• **Situation**

No surveys were carried out and no locusts were reported up to 23 July.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Egypt

• **Situation**

During July, scattered Desert Locust adults mixed with moderate numbers of African Migratory Locusts

and local grasshopper species were present in several farms at Sh. Oweinat (2219N/2845E). Ground teams treated 1,793 ha. No Desert Locusts were seen elsewhere in the Western Desert.

• **Forecast**

Low numbers of Desert Locust may persist in some cropping areas and farms in the Western Desert and along the Lake Nasser shoreline. No significant developments are likely.

Saudi Arabia

• **Situation**

No locusts were reported during July.

• **Forecast**

No significant developments are likely.

Yemen

• **Situation**

Isolated adults were seen laying eggs at one place in the summer breeding areas in the interior desert northwest of Ataq (1435N/4649E) on 21 July. No locusts were reported elsewhere between Marib and the Hadhramaut.

• **Forecast**

Small-scale breeding is expected to take place in the interior between Marib and Hadhramaut where hatching is likely to occur in early August. Isolated adults may be present and persist in a few places on the Red Sea coastal plains.

Oman

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

No locusts were seen from 30 June to 26 July along the southeastern coast between Jask and Chabahar or in the interior in the Jaz Murian basin.

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

During the first half of July, isolated mature adults were seen in a few places in Cholistan near Bahawalpur (2924N/7147E), Rahimyar Khan (2822N/7020E), and Sukkur (2742N/6854E), and in Tharparkar Desert near Mirpurkhas (2533N/6905E).

• **Forecast**

Locust numbers will increase in the summer breeding areas along the Indian border where small-scale breeding is expected to occur in areas of rainfall. No significant developments are likely.

India

• **Situation**

No locusts were reported during the second half of June and first half of July.

• **Forecast**

Scattered adults are likely to appear and breed on a small-scale in areas of recent rainfall in Rajasthan. No significant developments are likely.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Announcements

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Reporting by e-mail. After each survey or control operation, affected countries should send completed FAO Desert Locust Survey and Control Forms or the RAMSES output file with a brief interpretation of the results by e-mail to eclo@fao.org.

Locust archives. Desert Locust reports received by FAO from affected countries from 1952 to the present are available on a series of four CDs in PDF. Please contact the Locust Group for more details.

eLocust. A new French version of eLocust for data collection and transmission in the Western Region is available at www.fao.org/news/global/locusts/eldown.htm. More details can be found at: www.fao.org/news/global/locusts/elocust.htm.

Upsurge photos. Pictures of the current upsurge in the Western Region are available on the Internet at: www.fao.org/news/global/locusts/outbreakpix04.htm

Publications on the Internet. New FAO publications and meeting reports are available for downloading at www.fao.org/news/global/locusts/pubslist.htm:

- Report of the 1st CLCPRO Executive Committee meeting held in June in Niamey, Niger (French)
- Contingency planning spreadsheets and simulations for outbreaks, upsurges and plagues (English, French)
- 24th Central Region Commission meeting report (English, Arabic)
- 8th Desert Locust Control Committee Technical Group meeting report (English, French)
- FAO Desert Locust Standard Operating Procedures (SOP) for survey, control and aerial operations (English, Arabic)
- FAO Desert Locust Guidelines – Arabic version in PDF is now available for downloading

Desert Locust research award. The FAO Commission for Controlling the Desert Locust in the Central Region (CRC) is pleased to announce a cash award for outstanding research on Desert Locust. For more details, please contact the CRC Office in Cairo (munir.butrous@fao.org).

2004-05 events. The following meetings are scheduled:

- **EMPRES/CR.** 12th Liaison Officers meeting, Egypt, 9-13 October
- **Pesticide Referee Group.** 9th meeting, Rome, 18-21 October
- **Desert Locust Control Committee.** Extraordinary session, Rome 29 November – 2 December
- **EMPRES/WR.** 3rd Liaison Officers meeting, Dakar (Senegal), 13-17 December
- **SW Asia Commission.** 24th session, Delhi (India), January 2005

Press release. A press release on the current Desert Locust emergency was issued by FAO on 27 July. It is available at: http://www.fao.org/newsroom/en/index.html.

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/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)

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

GROUP

- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL

- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL

- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM

- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE

- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE

- swarm: 500+ km^2 • 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

RECESSION

- period without widespread and heavy infestations by swarms.

REMISSION

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

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.

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.

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.

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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guidea Bissau and Guinea Conakry.

CENTRAL

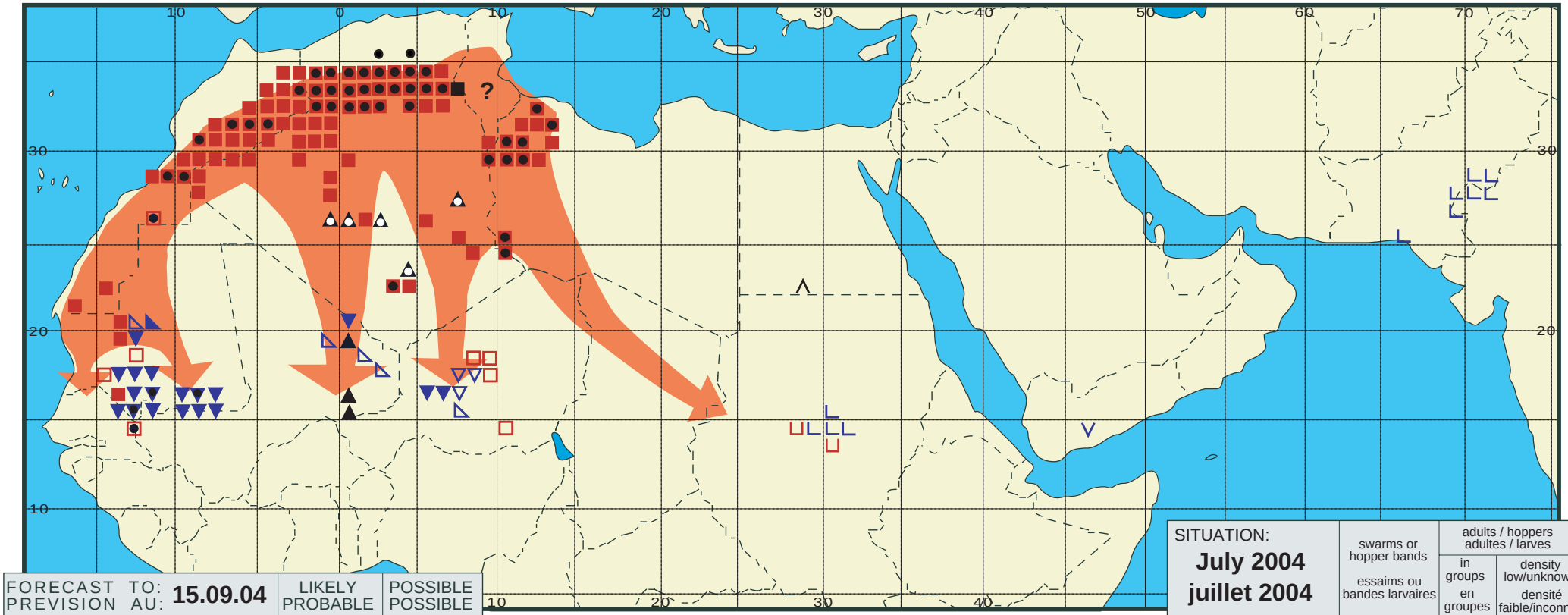
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.

Desert Locust Summary
Criquet pèlerin - Situation résumée

310



FORECAST TO: / PREVISION AU: **15.09.04**	LIKELY / PROBABLE	POSSIBLE / POSSIBLE
favourable breeding conditions conditions favourables 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 2004 / juillet 2004**	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	◣	◺	L
adults, maturity unknown adultes, maturité inconnue	▲	△	Λ
egg laying or eggs pontes ou œufs	▼	▽	V
hoppers larves	●	○	◡
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)	◘	◙	⊕

FAO welcomes increased commitment to contain Desert Locusts

2 September 2004 -- FAO Director-General Jacques Diouf said the next two months in the battle against Desert Locusts will be "extremely crucial".

2 September 2004, Rome -- Calling the next two months in the battle against Desert Locusts in West Africa "extremely crucial," Dr. Jacques Diouf, Director-General of the UN Food and Agriculture Organization (FAO), today welcomed the decisive outcome of a Ministerial Meeting held in Dakar, Senegal, in response to the Desert Locust threat to crops and pasture in the region.

"To make a real impact in the battle to control the Desert Locust upsurge, help must arrive this month in order to disrupt the next locust breeding cycle in October," Dr. Diouf said. "Otherwise the infestation could spread to even more countries in Africa threatening food security in a wide area."

Dr. Diouf said that there was an urgent need to get large quantities of pesticides, spraying equipment and other means to the scene, but to do so required funds which were only now becoming available.

"Locusts don't respect political boundaries, so it is essential that the countries in the region work closely together to tackle this emergency. I warmly welcome the commitment and determination shown by the ministers," Dr. Diouf said.

The complex battle to control the locust upsurge in western Africa calls for close coordination and cooperation among the affected countries, donor countries and organizations and UN agencies with technical expertise such as FAO, he said.

Since October 2003 FAO has been warning of the growing threat to crops from locust swarms caused by the abundant rains that fell in the summer of 2003 throughout much of West Africa.

FAO recognized the impending threat thanks to the early warning systems developed by the Locust Group as part of the special FAO programme called EMPRES (Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases).

$100 million needed

FAO has called on international donors for $100 million to support affected countries in their battle to control the widespread locust outbreaks. So far, the international community has responded by pledging $37 million. This includes contributions channelled through FAO as well as bilateral donor contributions.

Dr. Diouf said: "In order to further strengthen FAO's response to this crisis, I have decided to re-establish the Organization's Emergency Centre for Locust Operations (ECLO). The Centre will deal directly with donors, with the countries at risk and with other organizations."

To lend urgency to efforts to contain the locust emergency, which is especially severe in West

African countries, FAO Director-General Jacques Diouf wrote in July to the Heads of State of donor countries and the heads of financial institutions requesting their assistance.

To date, FAO has provided about $5 million to six countries and to four regional projects across West and North Africa.

Canada, the United Kingdom, the Netherlands, the African Development Bank, the Kingdom of Saudi Arabia, the United States of America, the Islamic Development Bank, Norway, France, Italy and the Arab Organization for Agricultural Development, have committed another $17 million to FAO's locust control campaign.*

Regular Desert Locust bulletins issued

FAO's Desert Locust Information Service regularly produces bulletins, forecasts and updates on the locust situation in countries at risk based on reports received from locust-affected countries and using other sources of information including satellite images.

During locust emergencies, FAO informs the international community about the locust situation, launches aid appeals, coordinates international assistance, procures pesticides, equipment such as sprayers, protective clothing, flying hours and organizes their delivery to the affected areas.

FAO provides technical advice to affected countries and monitors the implementation of control operations. The Organization encourages the safe use of pesticides and is actively investigating the use of alternative products.

There are three regional locust commissions - for Northwest and West Africa, the Red Sea countries and Southwest Asia. Their task is to build national capacities, provide training, encourage survey and control operations and coordinate locust campaigns. The commissions are administered by FAO with secretariats in Cairo and Algiers. The Commissions meet annually and are funded by the concerned countries.

Strengthening national capacities

The long-term EMPRES development programme, funded by donors and FAO, strengthens national locust units in early warning and early reaction and research. Its activities complement the work of the regional locust commissions. Eventually these EMPRES activities will be taken over by the regional commissions.

The Pesticide Referee Group, a body of independent experts, evaluates field data on pesticide trials against locusts and advises FAO on the effectiveness of pesticides for locust control. The group also assesses the environmental risk of each pesticide.

Each affected country has a government ministry charged with running the national control operation. Plant protection experts are responsible for monitoring the situation on the ground, managing locust campaigns and preparing environmental assessments.

The current situation

The locust situation continues to deteriorate in West Africa. Substantial breeding is in progress over a large area of southern Mauritania, in the Sahelian zone of Mali and in western Niger and in northern and central Senegal. Hatching has occurred and hopper bands are forming in all of these countries.

The first generation of summer swarms in Mauritania can be expected to form in the coming

days. In the coming weeks they will form in other countries. Several locust swarms from northwest Africa reached both western and northeastern Chad earlier in August.

A few swarms have also reached northern Burkina Faso. The swarms have laid eggs in both countries. Significant crop damage has been reported in several countries. Control operations are underway in all these countries but they are hampered by insufficient resources.

* Donor countries and organizations are listed according to the amount of their contributions, with the largest contributor being first.

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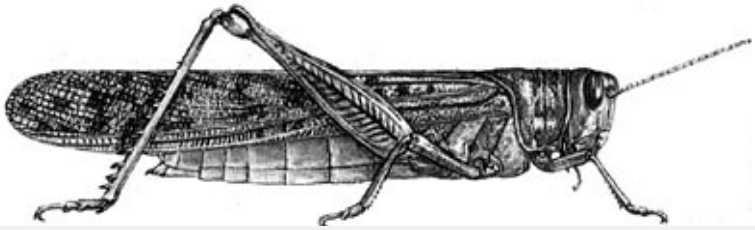
Related links

- **Locust Update**
  http://www.fao.org/news/global/locusts/locuhome.htm
- **Locust Threat in Mauritania - feature**
  http://www.fao.org/newsroom/en/news/2004/49307/index.html



DESERT LOCUST UPDATE

FAO Emergency Centre for Locust Operations

(16 Sep 2004)

General Situation as of 15 September 2004
Medium-term forecast to Spring 2005

Widespread breeding continued during the first half of September throughout the Sahelian Zone in Mauritania, Senegal, Mali, Niger and, to a lesser extent, Burkina Faso. Hopper bands are rapidly developing in all countries. Summer generation swarms continued to form in southeastern Mauritania. Smaller-scale breeding is in progress in Cape Verde and Chad. Some three to four million hectares may be infested in the Sahel in West Africa. A substantial number of swarms will form in the Sahel in the coming days and during October. Although some of these swarms may stay put and could breed again in the next two months, the majority of the swarms will move to west and northwest Mauritania and breed there while others are expected to reinvade Senegal and move south towards Guinea. There is a risk that Northwest Africa will be reinvaded by swarms from October onwards. Significant damage to crops and pasture has been reported, and is expected to affect food security in Mauritania, Mali, Senegal and Niger. Nearly 300,000 ha have been treated in West Africa so far this summer. With the expansion of aerial spraying capacity currently under way, the rate of control is likely to increase considerably. The medium-term forecast suggests that a large number of hopper bands could form in the spring breeding areas in Northwest Africa next year.

New swarms continued to form in the southern and southeast **Mauritania** during the first half of September. Vegetation is starting to dry out in the latter area and some immature swarms have moved to the centre of the country where breeding is in progress. In all, some 1.6 million ha could be infested in the summer breeding area. Control operations treated more than 44,000 ha from 1 to 10 September. During the same period, a dozen mature swarms were seen in northern and central **Senegal** where more laying, hatching and band formation occurred. Bands had reached the fifth instar in some places by mid-month. Control operations treated more than 46,000 ha from 1 to 10 September. In **Mali**, hopper bands are present and developing in the regions of Kayes, Koulikoro, Segou, Mopti, Tombouctou and Gao. Smaller infestations are present in the north near Kidal. Control operations treated nearly 37,000 ha from 1 to 10 September. In **Niger**, mature swarms and hopper bands were present during the first decade of September in southern Tamesna and in crops in the Sahelian zone. Many of the hoppers started fledging early in the month. An estimated 800,000 ha are infested. Control operations treated nearly 27,000 ha from 1 to 10 September.

In **Burkina Faso**, more hopper bands, at densities up to 10,000 hoppers/m^2, have been reported in two provinces in the north near the Mali border. So far, 400 ha have been treated. In **Chad**, small-scale breeding is in progress in the central province of Batha and in the east near Biltine where scattered adults and first instar hoppers were present in early September. On 3 September, a 7 km^2 swarm was seen near Kalait less than 100 km from the Sudanese border. In **Cape Verde**, hatching occurred in August and early September, and first to third instar hopper bands, at densities up to 1,000 hoppers/m^2, were reported in a few places on Santiago Island. More than 160 ha have been treated to date.

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 and Other Migratory Pests Group, AGP Division, FAO, 00100 Rome, Italy. It is also available on the Internet.
Telephone: +39 06 570 52420 (7 days/week, 24 hr)
Facsimile: +39 06 570 55271
E-mail: eclo@fao.org
Internet: www.fao.org
DLIS: www.fao.org/news/global/locusts/locuhome.htm

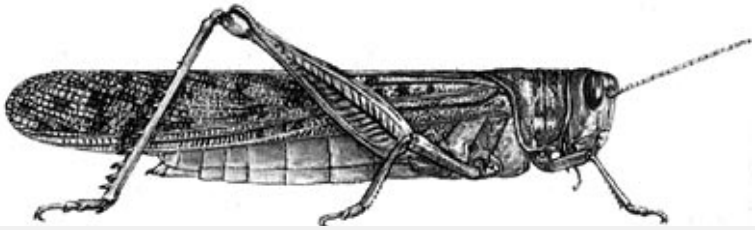
In **Sudan**, small-scale breeding continues in Northern Kordofan. There have been no reports of locust infestations in Darfur.

Medium-term forecast to Spring 2005

Northwest Africa. A substantial number of swarms will almost certainly reinvade the Region between October and March. Swarms that form in the Sahel this summer will most likely arrive in northwest **Mauritania**, in the Awssard-Tichla region in **Western Sahara** and in the southern Sahara in **Algeria** from early October onwards and progressively move northwards during November. Although the swarms are likely to be immature, they could mature quickly and lay eggs during November if rain falls in these areas. Some swarms may also appear in southwestern **Libya**. Under favourable weather conditions, swarms will move further north and reach the traditional spring breeding areas along the southern side of the Atlas Mountains in **Morocco** and Algeria as well as southern **Tunisia** and northwestern Libya at any time between October and March. Once temperatures increase in these areas (usually in about March), egg-laying and hatching will occur and a large number of hopper bands could form. The scale of the invasion from the Sahel and subsequent breeding depends on the success of survey and control operations this summer and on the quantity, distribution and frequency of rainfall in the coming months. Nevertheless, it is likely to be on a larger scale than that in the spring of 2004.

West Africa. A substantial number of swarms is expected to form in currently infested areas during September and October. Most of these swarms will move towards west and northwest **Mauritania** from October onwards where they will concentrate and mature. A few swarms could reach northern Mauritania where breeding normally occurs from February onwards. A small portion of the swarms that form this summer in the Sahel will reinvade northern **Senegal** in October and progressively move southwards, invading **Gambia**, southern Senegal and **Guinea Bissau** where egg-laying could occur in November. Some swarms could reach **Guinea** by the end of the year or early 2005. There is a possibility that a second generation of breeding could occur in parts of the Sahel and in northern **Mali** (Adrar des Iforas, Tamesna) and **Niger** (Tamesna, Air Mountains) by swarms that remain *in situ*, mature and lay eggs, giving rise to hopper bands in about November. The swarms that subsequently form from these hopper bands in northern Mali and Niger are expected to move towards the north and northwest, while those that form further south in the Sahelian zone will most likely move towards the west, reinvading Senegal towards the end of the year.

The most up-to-date information on the situation and photos are available on the Internet (www.fao.org/news/global/locusts/locuhome.htm) as well as maps of the latest infestations (193.43.36.11/mapper).



DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 311**

(3 Sept 2004)

General Situation during August 2004
Forecast until mid-October 2004

The Desert Locust situation deteriorated further in August in the Sahel in West Africa. Swarms continued to arrive from Northwest Africa and laid eggs in Mauritania, Senegal, Mali, Niger and Burkina Faso. Hatching occurred and numerous hopper bands formed during August. Swarms also reached Chad and the Cape Verde Islands and there was one unconfirmed report from Darfur, Sudan. By the end of the month, the first generation of summer swarms were starting to form in Mauritania. Significant crop damage was reported in many countries. A substantial number of swarms will form in the Sahel during September. Most of these swarms are likely to move towards Northwest Africa in October while some swarms could move further south in West Africa. Control operations are underway but need strengthening to prevent the situation from developing into a plague.

Western Region. Large-scale hatching and band formation occurred during August in southern **Mauritania**, northern and central **Senegal**, **Mali** and **Niger** where swarms continued to arrive and lay eggs. Many of the infestations were in cropping areas in the Sahelian zones of these countries where damage to pasture, cereals and vegetables was reported. Some mature swarms reached northern **Burkina Faso** and laid eggs that hatched and hoppers formed bands. Swarms also reached **Chad** in late July and early August where they probably laid eggs. Several swarms arrived for the second consecutive month in **the Cape Verde Islands** but breeding was not reported. A substantial number of new swarms will form during September in the Sahel. Although some of these swarms could remain in place and eventually breed again, most of the swarms are likely to start moving towards the west and northwest in October, posing a significant threat to Northwest Africa. Some of the summer swarms could reinvade Senegal and move further south, the so-called “Southern Circuit” migration, to **Gambia**, **Guinea Bissau** and **Guinea**. Even though 100,000 ha were treated during August in the Sahel, aerial control operations need to be increased in affected countries. In Northwest Africa, the situation improved in early August and only a few small residual populations remained in **Morocco** and **Algeria**.

Central Region. Scattered adults persisted in parts of the summer breeding areas in the interior of **Sudan** and **Yemen** during August. Small-scale breeding occurred in Yemen and is probably in progress in Sudan. The situation in Darfur remains unclear but it is by no means as serious as in West Africa. At most, only a few swarms are likely to have reached the region and laid eggs. Nevertheless, all efforts should be made to clarify and monitor the situation.

Eastern Region. Isolated adults were present in the summer breeding areas in **Pakistan** near the Indian border during August. Small-scale breeding is likely to be underway but no significant developments are likely.

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No. 311

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in August 2004

Good rains continued to fall during August in the summer breeding areas in the Sahel in West Africa while showers were sporadic in Sudan. Good rains also fell in the interior in Yemen and along the Indo-Pakistan border. Breeding conditions were favourable in all of these areas.

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) generally oscillated around 19N over the Sahel during August and occasionally reached southern Algeria (24N). At the end of the month, it remained over northern Mauritania and southern Algeria (22N) for several days. Consequently, light to moderate rain fell throughout the summer breeding areas in the Sahel from Mauritania to Chad as well as in southern Algeria for the second consecutive month. Breeding conditions remained favourable in southern Mauritania (south of 18N), northern and central Senegal, and in the Sahelian zone and southern part of Tamesna in Mali and Niger. Conditions were improving in northern Mali (Timetrine, Tilemsi Valley, Adrar des Iforas) and in eastern Chad. Unusual rain fell in northern Mauritania on the 25th at Bir Moghrein (20 mm) and Zouerate (21 mm).

In the **Central Region**, light to moderate rain fell in the summer breeding areas in the interior of Sudan (White Nile, Northern Kordofan, Darfur) and Yemen (Marib to Ataq) for the second consecutive month. The rainfall distribution in western Sudan was patchy in Darfur and Kordofan where some areas were drier than normal. Light to moderate rain also fell in the summer breeding areas in the lowlands of western Eritrea. Light to moderate rain, heavy at times, also fell along the Red Sea coastal plains in Yemen. Consequently, breeding conditions were already favourable or improving in many areas in the three countries. Good Karan (summer) season rains fell on the plateau in northwestern Somalia and in adjacent areas in eastern Ethiopia where breeding conditions were favourable. Light to moderate rain fell in parts of Oman.

In the **Eastern Region**, good rains associated with the monsoon fell during the first half of August in Rajasthan, India. Rainfall was heavier in adjacent areas of Tharparkar and Cholistan deserts in Pakistan where Bahawalpur reported 124 mm and Mirpurkhas 222 mm during the fortnight. Consequently, breeding conditions remained favourable in India and were improving in Pakistan.

Area Treated

Nearly 114,000 ha were treated in August of which 101,000 ha were in the summer breeding areas, bringing the total treated so far this summer to 119,000 ha. In all, nearly 6.5 million ha have been treated since the beginning of the upsurge in October 2003.

Algeria	140,384 ha	(21-31 July)
	7,019 ha	(1-20 August)
Burkina Faso	200 ha	(9-26 August)
Mali	16,403 ha	(1-31 August)
Mauritania	34,636 ha	(1-31 August)
Morocco	5,433 ha	(1-31 August)
Niger	4,397 ha	(1-31 August)
Senegal	45,611 ha	(1-24 August)

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During the first half of August, swarms were seen moving towards the south in Tiris Zemmour, Adrar, Inchiri and Nouakchott. Large-scale breeding was in progress throughout the month south of 18N where swarms continued to mature and lay eggs. Hatching and hopper band formation, at densities up to 800 hoppers/m^2, were in progress over a large area of the south, affecting all regions and extending from the Atlantic coast to the two Hodhs (south of 17N) in the southeast. The heaviest infestations were mainly concentrated along the Senegal River Valley where swarms were moving back and forth between Mauritania and northern Senegal. By the end of August, many hopper bands had reached third instar in the southwest (Gorgol, Brakna, Trarza) and fifth instar in the southeast (two Hodhs, Assaba) where substantial fledging had commenced. On the 31st, an immature swarm was seen near Timbedra

(1614N/0809W), which suggests that summer generation swarms were starting to form. Significant damage, up to 40 percent, was reported to pasture, cereal, and vegetable crops in nearly all of the infested regions. Residents in some towns and villages had to leave their homes because of hopper bands. Control operations treated 34,636 ha during August, of which 13,750 ha were treated by air.

• **Forecast**

A substantial number of swarms are expected to form in the summer breeding areas in the south. Some of these swarms may persist in areas that remain favourable, mature and lay eggs from late September onwards. If so, hatching and band formation could commence by the end of the forecast period. Some swarms are likely to move towards western, central and northwestern parts of the country and eventually breed while other swarms could move into northern Senegal.

Senegal

• **Situation**

During August, swarms continued to mature and lay eggs along the Senegal River Valley and in adjacent areas in the north and centre of the country north of 15N. A few egg-laying swarms reached as far south as Ndebele (1421N/1610W) on the 24th, and a mature swarm was seen in Dakar on the 31st, coming from infested areas further north. Hatching and band formation were in progress throughout the month and, by the end of August, hopper bands had reached second and third instar. Control operations treated 45,611 ha on 1-24 August.

• **Forecast**

Late hatching may still occur in some areas early in the forecast period. Hopper bands will continue to develop and new swarms could start forming by late September in the north and centre of the country. There is a high risk that the new swarms will be supplemented by additional immature swarms coming from the north and east. These swarms could progressively move southwards in the country during October. This is likely to coincide with the southern movement of the Inter-Tropical Convergence Zone.

Mali

• **Situation**

During August, swarms from Northwest Africa continued to be appear throughout the Sahelian zone from Kayes (1426N/1128W) in the west to Gao (1616N/0003W) in the east where they laid eggs. Some infestations were also present south of the Niger River to the Burkina Faso border. Hatching started on 1 August and increased throughout the month, causing numerous hopper bands to form at densities up to 1,000 hoppers/m^2. By the end of August, a few bands had reached fifth instar.

In the north, local populations were reported to be regrouping and were supplemented by several swarms appearing from the north. Adult groups and swarms were seen laying in parts of the Adrar des Iforas, the Tilemsi Valley, Timetrine and in the southern Tamesna near Menaka (1554N/0218E), and scattered hoppers were reported by the end of August. Control operations treated 16,403 ha during August.

• **Forecast**

Hopper bands will continue to develop during September in the Sahelian zone between Kayes and Gao. A substantial number of swarms are expected to form from about mid-September onwards in these areas. Some of these swarms may persist in areas where conditions remain favourable while others could move towards the west and northwest. Hatching will increase in the north, causing hopper groups and bands to form in the Timetrine, Tilemsi Valley, Adrar des Iforas and Tamesna. By the end of the forecast period, new swarms could start to form in the north.

Burkina Faso

• **Situation**

On 9-10 August, several mature swarms, at densities of 3-5 adults/m^2, appeared from the north and in the extreme northeast of the country and laid eggs between Djibo (1409N/0138W) and Dori (1403N/0002W). In all, some 20 villages reported swarms. There were new reports of swarms a few days later in the same area at densities up to 50 adults/m^2. By 26 August, hatching had occurred and second instar hopper bands, at densities up to 200 hoppers/m^2, were present near Deou (1436N/0043W). Control operations treated 200 ha up to 26 August.

• **Forecast**

An increasing number of hopper bands will form in the north where swarms were seen laying eggs in August. This could lead to the formation of new swarms from late September onwards.

Niger

• **Situation**

During August, numerous mature swarms from spring breeding areas in Northwest Africa continued to arrive on the Tamesna Plains south of Tassara (1650N/0550E) where they laid eggs. Some swarms were said to be large. Hatching commenced on 9 August and small hopper bands formed at densities

up to 10,000 hoppers/m^2. By the end of the month, some of the hoppers had reached fifth instar. Control operations treated 4,397 ha during August.

In the Air Mountains, scattered maturing solitarious and transiens adults were present in many wadis in the west and centre while only isolated adults were seen in the east. Some of the adults were copulating during the first week of August. In the northern part of the Sahel, adult groups at densities of up to 150 adults/m^2 were laying eggs and second to fifth instar hopper bands were present north of Zinder (1346N/0858E) during the last week of August.

• **Forecast**

Hopper bands will continue to develop in Tamesna and in the Sahelian zone and new swarms will start to form during September, first in the Sahel and then in Tamesna. Infestations are likely to spread into the northern part of Tamesna as well as into the Air Mountains. Some swarms may move towards the west and northwest by the end of the forecast period.

Chad

• **Situation**

Late reports indicated that several swarms appeared in late July in the west and centre of the country. On the 23rd, two swarms were seen coming from the west near Lac Chad at Mahana (1339N/1524E). On the 28th, a mature swarm was seen flying towards the southeast in Batha about 100 km north of Ati (1311N/1820E).

During August, a swarm was seen in the east near Kalait (1550N/2054E) flying towards the northeast on the 4th. Isolated immature adults were seen during surveys in nearby areas between Kalait and Fada (1714N/2132E) on the 5-13th. In the west, isolated mature adults were present at several places north of Lac Chad between Mao (1406N/1511E) and Nokou (1435N/1446E). One swarm was also reported in the area.

• **Forecast**

Breeding is likely to be in progress in the west near Lac Chad and in the northeast between Biltine and Fada. If so, hopper bands may be present in some areas during the forecast period and new swarms could start forming from early October onwards.

Cape Verde Islands

• **Situation**

On 5 August, a second wave of several swarms appeared in the eastern part of the archipelago. Swarms at densities up to 50 adults/m^2 were reported in northern Boa Vista, southern Maio, in the interior of Santiago, and on Fogo Island. These probably arrived on strong northeasterly winds from the western Africa coast.

• **Forecast**

There is a low to moderate risk of a few swarms arriving from summer breeding areas in West Africa during periods of easterly winds.

Nigeria

• **Situation**

A report of locusts in the north in mid-August was confirmed to be Tree Locust.

• **Forecast**

No significant developments are likely.

Gambia

• **Forecast**

Swarms are likely to arrive from the north from October onwards as the Inter-Tropical Convergence Zone moves southward.

Guinea Bissau

• **Forecast**

Some swarms could arrive from the north from October onwards as the Inter-Tropical Convergence Zone moves southward.

Guinea

• **Forecast**

Some swarms could arrive from the north from October onwards as the Inter-Tropical Convergence Zone moves southward.

Benin, Cameroon, Cote D'Ivoire, Ghana, Liberia, Nigeria, Sierra Leone and Togo

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

The situation in the spring breeding areas improved dramatically in early August. During the first decade of the month, only small residual populations of immature adult groups were present in the north near Sidi Bel Abbes (3617N/0056E). Similar populations were reported during the second decade in the west near Bechar (3135N/0217W) and Tindouf (2741N/0811W), and in the Central Sahara near Adrar (2753N/0017W). In the extreme south, numerous adults were reported

along the border with Mali and Niger. Control operations treated 7,019 ha on 1-20 August.

• **Forecast**

Small-scale breeding is expected to occur in the south in areas of recent rainfall between Tamanrasset and the borders of Mali and Niger. This could lead to the formation of hopper groups and bands in some areas. By the end of the forecast period, some swarms could appear in the southern and central Sahara from summer breeding areas in the Sahel.

Morocco

• **Situation**

The situation in the spring breeding areas improved dramatically in early August. Only small residual infestations of immature adults and swarms remained in a few places along the southern side of the Atlas Mountains near Ouarzazate (3057N/0650W) and Tata (2947N/0800W), and in the northeast near Oujda (3440N/0155W). Further south, small immature groups and swarms were seen near Guelmim (2859N/1003W) and the Awssard region (2240N/1410W) in the extreme southwest. Control operations treated 5,433 ha during August.

• **Forecast**

Low to moderate numbers of swarms are likely to appear in the Western Sahara from summer breeding areas in Mauritania from late September onwards. By the end of the forecast period, some of these may lay eggs in areas where breeding conditions are favourable. There is a risk that some swarms could reach as far north as the Draa Valley.

Libyan Arab Jamahiriya

• **Situation**

No reports received.

• **Forecast**

A few swarms from the summer breeding areas in the Sahel could appear in the southwest between Ghat and Ghadames from the end of the forecast period onwards.

Tunisia

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

Scattered mature adults were present at three places north of En Nahud (1246N/2828E) in Northern Kordofan on 26-28 August. No locusts were seen north of El Obeid or in White Nile State. There was an unconfirmed report on 30 August of swarms in Northern Darfur 48 km from Tine (1501N/2249E).

• **Forecast**

Scattered adults are likely to be present and breeding on a small-scale in parts of Northern Kordofan and adjacent areas of White Nile and Khartoum States. Consequently, locust numbers could increase slightly during the forecast period. Although the threat of adult groups and swarms appearing in Darfur from Northwest Africa has now diminished, some locusts may have already arrived from adjacent areas of eastern Chad and could be breeding in areas of recent rainfall. All attempts should be made to clarify the situation in Darfur.

Eritrea

• **Situation**

No locusts were seen in the western lowlands near the Sudanese border during surveys carried out on 17-24 August.

• **Forecast**

Low numbers of locusts are likely to appear and breed on a small scale in the western lowlands.

Somalia

• **Situation**

No locusts were seen during surveys carried out on the plateau and escarpment between Boroma, Hargeisa and Berbera on 10-15 August.

• **Forecast**

Isolated adults may be present and could breed in areas of recent rainfall on the escarpment and plateau between Burao and Boroma.

Ethiopia

• **Situation**

No locusts were seen during surveys carried out between Dire Dawa and the Somali border on 1-4 August.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Egypt

• **Situation**

No Desert Locusts were seen during the first half of August in the Western Desert.

• **Forecast**

Isolated Desert Locust may be present in some cropping areas and farms in the southern Western Desert and along the Lake Nasser shoreline. No significant developments are likely.

Saudi Arabia

• **Situation**

No locusts were reported during August.

• **Forecast**

No significant developments are likely.

Yemen

• **Situation**

Isolated mature adults and first to fourth instar hoppers were present at a few places in the summer breeding areas in the interior desert near Ataq (1435N/4649E) in mid August. No locusts were reported elsewhere between Al-Jawf and the Hadhramaut.

• **Forecast**

Small-scale breeding will cause locust numbers to increase slightly in the interior between Marib and Hadhramaut. Isolated adults may be present and persist in a few places on the Red Sea coastal plains.

Oman

• **Situation**

No locusts were reported in the northern and southern interior during August.

• **Forecast**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

No locusts were seen on 27 August on the southeastern coast west of Chabahar.

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

During the second half of July, isolated mature adults were present at a few places near the Indian border in Khairpur and Cholistan Deserts.

During the first half of August, isolated mature adults persisted in the above areas and similar populations were found in the southern part of Tharparkar Desert.

• **Forecast**

Locust numbers will increase in the summer breeding areas along the Indian border where small-scale breeding is expected to occur in areas of rainfall. No significant developments are likely.

India

• **Situation**

No locusts were reported during the second half of July and first half of August.

• **Forecast**

Scattered adults are likely to be present and breeding on a small-scale in areas of recent rainfall in Rajasthan. No significant developments are likely.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Announcements

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Reporting by e-mail. After each survey or control operation, affected countries should send completed *FAO Desert Locust Survey and Control Forms* or the RAMSES output file with a brief interpretation of the results by e-mail to eclo@fao.org.

Locust archives. Desert Locust reports received by FAO from affected countries from 1952 to the present are available on a series of four CDs in PDF. Please contact the Locust Group for more details.

Upsurge photos. Pictures of the current upsurge in the Western Region are available on the Internet at: www.fao.org/news/global/locusts/outbreakpix04.htm

Publications on the Internet. New FAO publications and meeting reports are available for downloading at www.fao.org/news/global/locusts/pubslist.htm:

- Contingency planning spreadsheets and simulations for outbreaks, upsurges and plagues (English, French)
- 8th Desert Locust Control Committee Technical Group meeting report (English, French)
- FAO Desert Locust Standard Operating Procedures (SOP) for survey, control and aerial operations (English, Arabic)
- FAO Desert Locust Guidelines – Arabic version in PDF is now available for downloading

2004-05 events. The following meetings are scheduled:

- **Donor meeting / Media briefing.** The FAO Director-General will chair a donor meeting and a media briefing, Rome, 21 September
- **EMPRES/CR.** 12th Liaison Officers meeting, Hurghada (Egypt), 9-13 October
- **Pesticide Referee Group.** 9th meeting, Rome, 18-21 October
- **Desert Locust Control Committee.** Extraordinary session, Rome 29 November – 2 December
- **EMPRES/WR.** 3rd Liaison Officers meeting, Dakar (Senegal), 13-17 December
- **SW Asia Commission.** 24th session, Delhi (India), January 2005

Press release. Several press releases on the current Desert Locust emergency have been recently issued by FAO. These are available at: http://www.fao.org/newsroom/en/index.html.

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/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)

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

GROUP

- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL

- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL

- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM

- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE

- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE

- swarm: 500+ km^2 • 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

RECESSION

- period without widespread and heavy infestations by swarms.

REMISSION

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

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.

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.

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.

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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Niger, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guidea Bissau and Guinea Conakry.

CENTRAL

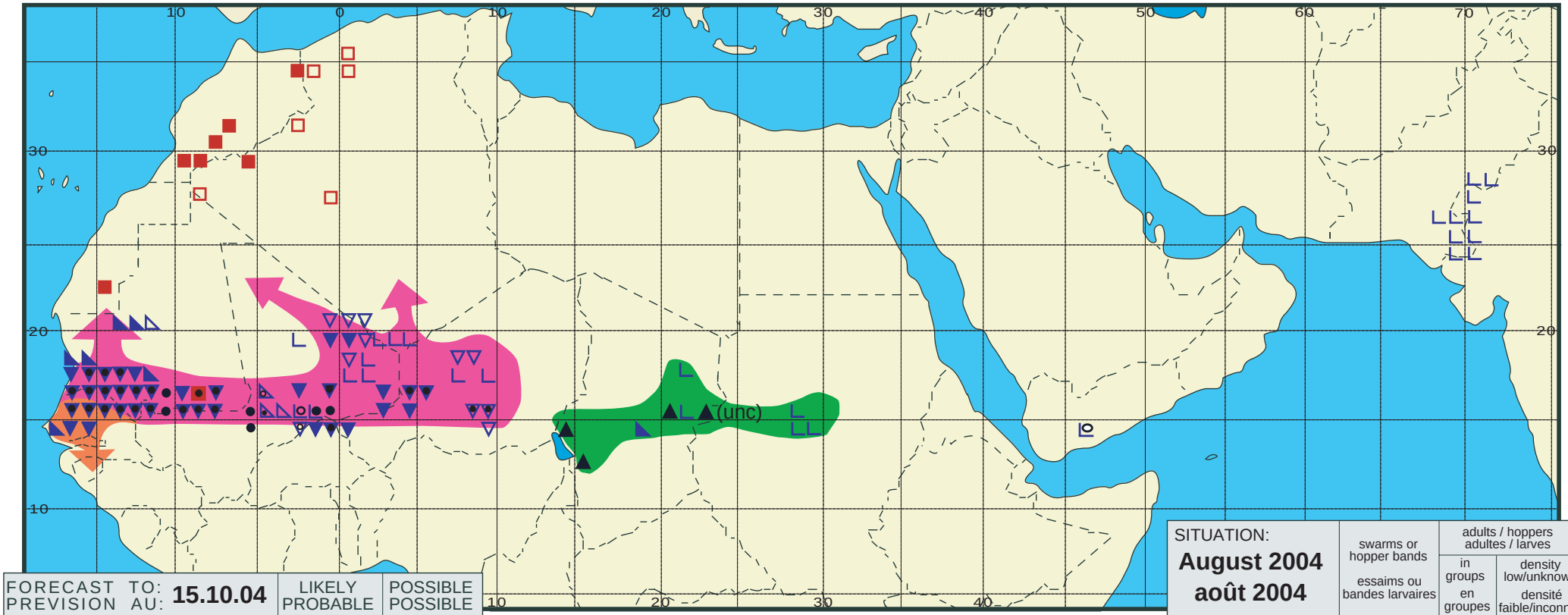
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.

Desert Locust Summary
Criquet pèlerin - Situation résumée

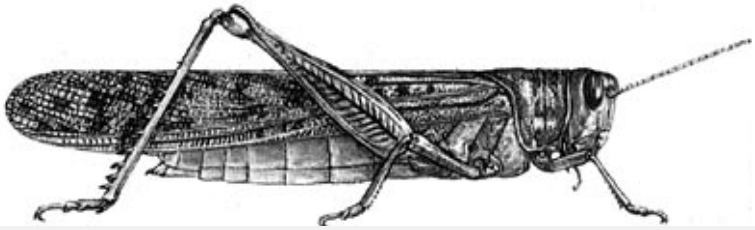
311



FORECAST TO: / PREVISION AU: **15.10.04**	LIKELY / PROBABLE	POSSIBLE / POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION:
August 2004
août 2004

	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves: in groups en groupes	adults / hoppers adultes / larves: density low/unknown densité faible/inconnue
immature adults adultes immatures	■	□	⊔
mature or partly mature adults adultes matures ou partiellement matures	◣	◺	L
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)	◘	◙	⊜



DESERT LOCUST UPDATE

FAO Emergency Centre for Locust Operations *(15 Oct 2004)*

General Situation as of 15 October 2004

Desert Locust swarms continued to leave the Sahel in West Africa during the first half of October and appeared in Northwest Africa. Most of these swarms were moving towards the north and northwest. So far, they have arrived in northwest Mauritania, southern Western Sahara, southern Algeria and the Cape Verde Islands. Some of the swarms in Western Sahara continued north and nearly reached the southern side of the Atlas Mountains in Morocco. Other swarms were forming south of the Atlas Mountains in Algeria and probably in Morocco because of breeding during the summer by residual populations from the spring. Locusts will decline in the Sahel in the coming weeks as more swarms move north. More than 350,000 ha have been treated so far this month.

More locust swarms continued to arrive in Northwest Africa during the first ten days of October. Immature swarms appeared in southern **Algeria** near Tamanrasset, and local breeding continued further south near the Malian border where hoppers were forming groups. Small immature swarms crossed the border of Mauritania at the end of September and early October, arriving in the southern part of the **Western Sahara**. Some of the swarms continued north, reaching the Draa Valley in **Morocco** on 8 October. During the summer, small residual populations have persisted and bred in a few places along the southern side of the Atlas Mountains in Algeria and probably in Morocco. By early October, several immature swarms formed in Algeria near Beni Abbes and similar swarms were reported in Morocco between Errachidia and Ouarzazate. Aerial and ground control operations treated 27,000 ha in Algeria and 11,600 ha in Morocco during the first decade of October. Several successive waves of immature swarms reached the **Cape Verde Islands** during the first week of October. Hatching and band formation continued in areas where swarms had laid eggs in September. Nearly 500 ha were treated from the beginning of October.

Swarms continued to form in southern and southwest **Mauritania** during the first decade of October where there were still some late instar hopper bands. Most of these swarms are moving towards the centre and northwest of the country. Large dense swarms have been reported in the northwest where breeding conditions are favourable. In the southeast, no further bands have been seen and vegetation is drying out. Aerial and ground control operations treated 94,000 ha during the decade. In **Senegal**, hopper bands and swarms are present in the north and centre of the country where control operations treated nearly 200,000 ha during the first half of October. A ship report of swarms off the coast of southern Senegal may indicate that some swarms are moving towards the Casamance region in the south. In **Niger**, swarms were seen moving northwards near Agadez and near Tillaberi in the west of the country. Hopper bands were present in Tamesna and hatching was in progress in the Sahelian zone. Control operations treated 24,000 ha from 29 September to 6 October.

No new information has been received from **Burkina Faso**, **Mali**, or **Chad**.

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 and Other Migratory Pests Group, AGP Division, FAO, 00100 Rome, Italy. It is also available on the Internet.
Telephone: +39 06 570 52420 (7 days/week, 24 hr)
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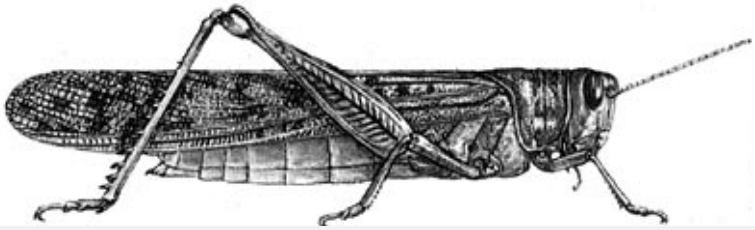
Internet: www.fao.org
DLIS: www.fao.org/news/global/locusts/locuhome.htm

In the Central Region, isolated adults are present in only a few places in the summer breeding areas in Northern Kordofan, **Sudan**. Control operations treated 135 ha of late instar hoppers that were forming small groups and adults in early October on the northern Red Sea coastal plains in **Yemen**. Good rains have fallen recently in these areas.

The most up-to-date information on the situation and photos are available on the Internet (www.fao.org/news/global/locusts/locuhome.htm) as well as maps of the latest infestations (193.43.36.11/mapper).



DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 312**

(4 Oct 2004)

General Situation during September 2004
Forecast until mid-November 2004

The Desert Locust situation remained extremely serious in the Sahel in West Africa during September. An increasing number of new swarms formed in Senegal, Mauritania, Mali, Niger and Burkina Faso where numerous hopper bands were present. By the end of the month, vegetation was drying out in the Sahel and many swarms were moving around the region. Some swarms reached northwest Mauritania and southern Western Sahara, Cape Verde, northern Mali, western and northeastern Niger, and southwestern Libya. Smaller infestations were present in Chad and southern Algeria. Severe crop and pasture damage was reported locally in many countries. Although control operations are in progress, more swarms will form during October and start to move towards Northwest Africa, perhaps on a larger scale than occurred in February 2004. Consequently, a major shift in populations from West Africa to Northwest Africa is expected in October. Nevertheless, a second generation of egg laying and hatching will occur in parts of the Sahel, leading to the formation of new hopper bands from mid-October onwards.

Western Region. A substantial number of hopper bands formed and developed during September in southern **Mauritania**, northern and central **Senegal**, **Mali**, **Niger**, northern **Burkina Faso** and parts of central and eastern **Chad**. By the end of the month, numerous immature swarms were forming in all of these countries except Chad, many of which were large and dense. At the same time, vegetation was drying out in southeast Mauritania, western and central Mali and in the Sahelian zone in Niger. Consequently, some swarms moved to northwest Mauritania and southern **Western Sahara** where good rains fell earlier in the month. Other swarms invaded five of the **Cape Verde** islands. A few swarms were seen moving into northern Mali and several swarms moved to western and northeastern Niger. Immature swarms reached southwestern **Libya** and adults appeared in southern **Algeria**. Aerial and ground control operations treated 745,000 ha during September in West Africa, bringing the total area treated during the summer to 875,000 ha. Nevertheless, a substantial number of swarms will form during October and move towards the north and northwest, reaching northwest Mauritania and Western Sahara, northern Mali and Niger, and southern Algeria. Some swarms could continue north across the Sahara, eventually reaching the southern side of the Atlas Mountains in **Morocco** and Algeria. More swarms are expected in Libya. A smaller number of swarms are likely to reinvade northern Senegal and move progressively southwards to **Gambia**, southern Senegal and eventually reach **Guinea Bissau** and **Guinea**.

Central Region. The absence of confirmed reports of swarms or hopper bands in Darfur, Sudan suggests that, at most, only a few swarms originating from the spring breeding areas in Northwest Africa may have reached the region. Consequently, the threat of the current upsurge in the Western Region spreading into the Central Region is low. During September, scattered adults were present and probably breeding in parts of the summer breeding areas in **Sudan**. Local breeding occurred on the Red Sea coastal plains in **Yemen** where hoppers were forming groups

The FAO Desert Bulletin is prepared in collaboration with the FAO Regional Locust Commissions in the Western (CLCPRO), Central (CRC) and Eastern (SWAC) regions. It is issued monthly, supplemented by Updates during periods of increased Desert Locust activity, and is distributed by e-mail, fax, FAO pouch and airmail by the Locusts and Other Migratory Pests Group, AGP Division, FAO, 00100 Rome, Italy. It is also available on the Internet.
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ECLO: www.fao.org/news/global/locusts/locuhome.htm

in a few places and in adjacent areas in **Saudi Arabia**, but this has no connection with the upsurge in the Western Region.

Eastern Region. Isolated adults persisted in the summer breeding areas in **Pakistan** near the Indian border. No locusts were reported in adjacent areas in Rajasthan, **India**. Locusts will decline as the monsoon rains end and vegetation dries out. Consequently, no significant developments are likely.

Weather & Ecological Conditions in September 2004

Although good rains fell in the Sahel in West Africa during September, the position of the ITCZ was further south than normal and this could signify an early end to summer rains. Breeding conditions were improving in northwest Mauritania where rains fell for a second consecutive month. Conditions also improved on the Red Sea coast in Yemen.

In the **Western Region**, the position of the Inter-Tropical Convergence Zone (ITCZ) was further south during September than its long-term average, oscillating between 14N and 17N and occasionally reached 20N and 23N during the first decade of the month. Throughout the month, the ITCZ moved progressively southwards and rainfall declined in most areas, suggesting that summer rains could end early this year. Nevertheless, moderate to heavy rain fell in southwest Mauritania and in the centre near Tidjikja. Light rain fell in the northwest near Akjoujt and Atar early in the month. In Mali, light to moderate rain fell near Tombouctou, Gao, and Menaka, in the Adrar des Iforas near Kidal and along the Algerian border. In Niger, moderate rains fell in the Sahelian zone in the southwest and south whereas only light rain fell further north in Tahoua and Tamesna. In Chad, good rains fell during the first decade of the month, except in the east. Although, breeding conditions were favourable in a large portion of the Sahel from Mauritania and Senegal to Chad, vegetation was drying out in some places, for example, in southeast Mauritania and in adjacent areas of western and central Mali where very little rain fell during September, and in the Sahelian zone in Niger. On the other hand, conditions were improving in northwest Mauritania, southern Western Sahara and in Tamesna and the Air Mountains in Niger because of rainfall during August and September.

In the **Central Region**, good rains fell in the summer breeding areas in the interior of Sudan as far north as Khartoum, Northern Kordofan and parts of Northern Darfur during the first decade of September but declined thereafter. Light to moderate rains fell along the Red Sea and Gulf of Aden coastal plains in Yemen. Rainfall was heavier in adjacent areas near Jizan, Saudi Arabia. Consequently, conditions improved and became favourable for breeding. Light to moderate rains fell at mid-month in parts of northern and southern Oman.

In the **Eastern Region**, the summer monsoon rains have ended in Rajasthan, India and in adjacent areas in eastern Pakistan from the Tharparkar to the Cholistan deserts where hot and dry weather prevailed. As a result, conditions were not favourable for breeding.

Area Treated

Nearly 745,000 ha were treated in September, bringing the total treated so far this summer to nearly 875,000 ha. In all, some 7.2 million ha have been treated since the beginning of the upsurge in October 2003.

	Current		Summer
Algeria	2,800 ha	(1-30 Sep)	2,800 ha
Burkina Faso	5,256 ha	(1-15 Sep)	5,456 ha
Cape Verde	500 ha	(1-20 Sep)	500 ha
Chad	6,801 ha	(1-17 Sep)	6,801 ha
Libya	1,060 ha	(28-30 Sep)	
Mali	218,081 ha	(1-30 Sep)	234,484 ha
Mauritania	200,996 ha	(1-30 Sep)	240,703 ha
Niger	98,025 ha	(1-29 Sep)	106,631 ha
Senegal	211,397 ha	(1-30 Sep)	276,293 ha

Note: Reporting delays and discrepancies may affect the accuracy of these figures.

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **Situation**

During September, hopper bands at densities up to 3,000 hoppers/m^2 continued to develop and new swarms formed south of 17N, extending from the Atlantic coast to the Malian border in the east. Similar infestations were also present in central areas south of Tidjikja (1833N/1126W). Laying and hatching continued in the southeast near Aioun El Atrous (1639N/0936W) and Nema (1636N/0715W), in the southwest near Aleg (1703N/1355W) and along the coast south of Nouakchott during the first two decades. Throughout the month, an increasing number of new swarms formed, at densities up to 2,000 adults/m^2, and were rapidly maturing. The swarms varied in size from 1 to 30 km^2, but a few were even larger. Vegetation started drying out in the southeast by mid-month and many swarms moved towards the northwest and west. On the 19th, a few swarms were reported in Nouakchott and in the Atar and Adrar regions in the northwest. During the last week of September, some swarms had become mature and were seen laying eggs south of Aioun El Atrous. Control operations treated 200,000 ha during September, of which 133,000 ha were by air.

• **Forecast**

A substantial number of swarms will continue to form in the summer breeding areas in the south. Most of these swarms will move to the west, centre and northwest of the country and eventually lay eggs that could hatch and form bands by the end of the forecast period. Some swarms could move into northern Senegal. In areas where conditions remain favourable, a second generation of breeding will continue in the south, albeit on a smaller scale than the first generation, and hatching and band formation could start from mid October onwards. Second generation swarms could start to form in the south during the second half of November.

Senegal

• **Situation**

During the first decade of September, about a dozen mature swarms were seen in the north and centre, and more laying, hatching and band formation occurred in the regions of Louga, Thies and Fatick. By the end of the decade, hopper bands had reached fifth instar near Linguere (1524N/1507W) and in the Senegal River Valley. Breeding had also extended as far south as Dakar where early instar hopper bands were present.

During the second half of the month, fledging occurred and an increasing number of immature swarms formed in the north and centre. Mainly fifth instar hopper bands, at densities up to 1,000 hoppers/m^2, were also present. During the last week of September, the number of hopper bands declined and several large, dense swarms were forming and seen along the coast near Saint Louis (1601N/1629W). Severe damage was reported on crops and pasture. Aerial and ground control operations treated 211,000 ha during September.

• **Forecast**

Hopper bands will continue to develop during October but will decline as an increasing number of immature swarms form. Most of these swarms are expected to move northwards while some may move southwards with winds associated with the Inter-Tropical Convergence Zone. In areas where conditions remain favourable, a second generation of breeding could occur with hatching and band formation from late October onwards. There is a moderate risk of swarms appearing from the east and reinvading northern and central areas.

Mali

• **Situation**

During September, numerous hopper bands continued to form and develop in the Sahelian zone in the west between Kayes (1426N/1128W) and Nara (1510N/0717W), and in the regions of Segou, Mopti, Tombouctou, and Gao. Most of the hoppers were fledging and immature adults started forming swarms after the first week of the month. Numerous small swarms were seen from the 11th onwards along the Mauritanian border, at Mopti (1430N/0415W), and in the Segou and Tombouctou regions. Late hatching occurred up to about mid-month in Segou, Mopti, Tombouctou regions, and near Gourma (1653N/0155W) and Menaka (1554N/0218E). By the end of the month, infestations had reportedly declined in the west due to control operations and emigrating swarms. Significant damage was reported on vegetables, cereals, rice and pasture in all regions.

In the north, the situation was relatively calm in early September and only small-scale breeding was underway in the Adrar des Iforas. By mid-month, newly formed swarms from the Sahelian zone had started moving to the Timetrine, Adrar des Iforas and Tamesna. Aerial and ground control operations treated

nearly 220,000 ha during September, mostly in the Gao and Tombouctou regions.

• **Forecast**

Numerous swarms will form in the Sahel throughout the forecast period. Most of these swarms will move towards the north (Timetrine, Tilemsi Valley, Adrar des Iforas and Tamesna) while others are likely to move northwest into Mauritania and a few could move west into Senegal. In areas where conditions remain favourable, a second generation of breeding could occur with hatching and band formation from late October onwards.

Burkina Faso

• **Situation**

During the first half of September, numerous hopper bands continued to form in the north between Djibo (1409N/0138W), Dori (1403N/0002W) and the Malian border. By mid-month, most of the hoppers were in the third and fourth instar. Some 29 villages were reportedly affected and nearly 20,000 ha were estimated to be infested. Control operations treated 5,256 ha during the first half of September.

During the last week of the month, there was an increasing number of reports of immature swarms at densities of about 200 adults/m^2, many of which were seen flying. Some of these may have arrived from nearby infestations in Mali and Niger while others are likely to have formed from local infestations. On the 29th, a swarm was seen south of the infested areas at Bani (1343N/0012W). Severe crop damage was reported.

• **Forecast**

An increasing number of swarms will form in the north. Although most of these swarms will move northwards out of the country, there is a slight risk that a few swarms could move into the central areas.

Niger

• **Situation**

During September, breeding activity increased in the Tamesna where laying by swarms continued until the 20th, and hatching and band formation occurred further east and north than in the previous month. Numerous transiens adults and groups were seen in the northwest during the first decade. Although fledging commenced early in the month north of Tahoua (1457N/0519E) in central Tamesna, most of the bands were second and third instar at mid-month. Immature swarms started forming from the 20th onwards and, thereafter, several swarms were seen in the southwest near Tillaberi (1428N/0127E), north of Arlit (1843N/0721E), in the central and eastern Air Mountains and in the northeast near Bilma (1846N/1304E). In the Air Mountains, small adults groups were laying eggs in the Talak and eastern Air regions early in the month. In the Sahelian and agriculture zones further south, laying by swarms, hatching and band formation continued during September near Tahoua, Tillaberi and Zinder (1346N/0858E). Control operations treated 98,000 ha during September.

• **Forecast**

A few hopper bands will form in Tamesna during October from late first generation breeding. An increasing number of swarms are expected to appear in Tamesna. Most of these swarms are likely to move northwards while others will move to the Air Mountains. In areas where conditions remain favourable, a second generation of breeding could occur with hatching and band formation from mid October onwards and swarm formation after mid November.

Chad

• **Situation**

During September, hopper groups and bands of all instars, at densities up to 130 hoppers/m^2, were mixed with scattered adults in the central region of Batha between Ati (1311N/1820E) and Beurkia (1523N/1800E), in the northeastern region of Ennedi between Arada (1501N/2040E) and Iriba (1507N/2215E), and in the eastern region of Ouaddai near Kalait (1550N/2054E). An immature swarm was seen near Ati and Iriba during the first week of the month. Crop damage was reported in the three regions. No locusts were seen in the Lac and Kanem regions. Control operations treated 6,800 ha from 1 to 17 September.

• **Forecast**

Low to moderate numbers of adult groups and swarms are likely to form in parts of Batha, Ennedi and Ouaddai regions. Most of these swarms are expected to move towards the northwest although a few infestations may persist in areas where conditions remain favourable, and may eventually breed.

Cape Verde Islands

• **Situation**

During the last decade of August, small hopper bands formed at densities up to 1,000 hoppers/m^2, on the islands of Boa Vista, Maio and Santiago because of egg laying by swarms that arrived in early July and August. By the end of the month, some of the hoppers

had reached third instar.

During September, hatching and band formation continued on Maio and Santiago. By mid-month, the hoppers had reached fourth and fifth instar. In all, some 500 ha were estimated to be infested with hopper bands and were treated. Significant damage was reported on vegetables and pasture. On the 20th and 21st, about a dozen mobile immature swarms invaded the islands of Sto Antao, San Nicolau, Boa Vista, Fogo and Sal. These came from current infestations in Senegal and Mauritania.

• **Forecast**

A few small swarms are likely to form in currently infested areas. There is a moderate risk that these swarms will be supplemented by low numbers of swarms arriving from summer breeding areas in West Africa during periods of easterly winds.

Gambia

• **Forecast**

Low numbers of swarms are likely to arrive from the north at any time during the forecast period as the Inter-Tropical Convergence Zone moves southward. Some of these could remain and eventually breed while others are likely to continue south and southeast.

Guinea Bissau

• **Forecast**

Some swarms could arrive from the north from mid-October onwards as the Inter-Tropical Convergence Zone moves southward.

Guinea

• **Forecast**

A few swarms could arrive from the north from late October onwards as the Inter-Tropical Convergence Zone moves southward.

Benin, Cameroon, Cote d'Ivoire, Ghana, Liberia, Nigeria, Sierra Leone and Togo

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

During the second decade of September, mature adults at densities of up to 80/m^2 were seen laying eggs in the extreme south near the Malian border and Tin Zaouatene (1958N/0258E). Patches of first to third instar hoppers were present in the same area. Other infestations may be present between Tamanrasset (2250N/0528E) and the Niger border near In Guezzam (1937N/0552E). During the last decade of the month, immature adults arrived from the south near Tin Zaouatene. Control operations treated 2,800 ha during September.

• **Forecast**

Several swarms are likely to form along the Malian border. Additional swarms from the summer breeding areas in the Sahel are expected to appear in the south and move progressively northwards during periods of warm southerly winds throughout the forecast period. Consequently, swarms could continue to the central Sahara (Tindouf, Adrar, In Salah, Djanet and Illizi) and perhaps reach the southern side of the Atlas Mountains.

Morocco

• **Situation**

On 23 September, groups of adults were reported in the south of the Western Sahara near Bir Gandouz at Chyarate (2157N/1631W) where 270 ha were infested with locusts at densities of 10-30 adults/m^2. No locusts were reported along the southern side of the Atlas Mountains near Errachidia and Bouarfa.

• **Forecast**

Substantial numbers of swarms will appear in the Western Sahara from summer breeding areas in Mauritania. By the end of the forecast period, some of these may lay eggs in areas where breeding conditions are favourable. There is a risk that some swarms could reach as far north as the Draa Valley.

Libyan Arab Jamahiriya

• **Situation**

During the second decade of September, scattered immature Desert Locust adults mixed with higher numbers of African Migratory Locusts were present in the Kufra (2410N/2325E) and Irawin (2629N/1215E) Agriculture Projects. On the 28th, several immature swarms, at densities of 30-70 adults/m^2, invaded the southwest near Ghat (2459N/1011E). Control operations were immediately undertaken and treated 1,060 ha.

• **Forecast**

More swarms from the summer breeding areas in the Sahel are expected to appear in the southwest near Ghat and progressively move northwards to Ghadames and the Hamada al Hamra.

Tunisia

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During September, scattered mature adults, at densities up to 600 adults/ha, were present in Northern Kordofan north El Obeid (1311N/3010E) and near Wadi Milk at 1553N/2808E. No locusts were seen in the north (Baiyuda Desert and Dongola area), along the Atbara River and on the western side of the Red Sea Hills.

• **Forecast**

Locust numbers will decline in the summer breeding areas as vegetation dries out. Scattered adults could appear along the Atbara River, on the western side of the Red Sea Hills and on the Red Sea coastal plains. No significant developments are likely.

Eritrea

• **Situation**

No reports received.

• **Forecast**

Low numbers of locusts are likely to be present and breeding on a small scale in the western lowlands.

Somalia

• **Situation**

During September, no locusts were seen during surveys carried out on the plateau and escarpment between Boroma (0956N/4313E) and Hargeisa (0931N/4402E).

• **Forecast**

No significant developments are likely.

Ethiopia

• **Situation**

No locusts were seen during surveys carried out in the eastern region during September.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Egypt

• **Situation**

During September, isolated adults mixed with mainly African Migratory Locust and local grasshoppers were present on one farm near Sh. Oweinat (2219N/2845E). No Desert Locust were seen elsewhere in the Western Desert.

• **Forecast**

Isolated Desert Locust may persist on some farms in the southern Western Desert. No significant developments are likely.

Saudi Arabia

• **Situation**

During September, small-scale breeding occurred on the southern coastal plains of the Red Sea near Jizan (1656N/4233E) where isolated hoppers, fledglings and immature adults were present in the second half of the month.

• **Forecast**

Locust numbers are likely to increase but remain below threatening levels near Jizan where additional breeding could occur in areas of recent rainfall.

Yemen

• **Situation**

During September, solitary and transiens late instar hoppers, at densities of 4-10 hoppers/m^2, fledglings and immature adults were present on the northern Red Sea coastal plains between Al Zuhrah (1541N/4300E) and Midi (1619N/4248E). Scattered adults were present further south between Al Qutai (1454N/4312E)and Bayt Al Faqih (1430N4317E).

• **Forecast**

Locust numbers are likely to increase on the Red Sea coastal plains, causing a few groups of hoppers and adults to form. Additional breeding could occur in areas of recent rainfall.

Oman

• **Situation**

No locusts were reported in the north during September.

• **Forecast**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

No locusts were seen along the southern coastal

plains during September.

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

During the second half of August, isolated mature adults persisted along the Indian border in Khairpur and Cholistan Deserts.

During the first half of September, locust numbers declined in the above areas.

• **Forecast**

No significant developments are likely.

India

• **Situation**

No locusts were reported from 15 August to 27 September.

• **Forecast**

No significant developments are likely.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Announcements

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

Reporting by e-mail. After each survey or control operation, affected countries should send completed *FAO Desert Locust Survey and Control Forms* or the RAMSES output file with a brief interpretation of the results by e-mail to eclo@fao.org.

Locust archives. Desert Locust reports received by FAO from affected countries from 1952 to the present are available on a series of four CDs in PDF. Please contact the Locust Group for more details.

Upsurge photos. Pictures of the current upsurge in the Western Region are available on the Internet at: www.fao.org/news/global/locusts/outbreakpix04.htm

Publications on the Internet. New FAO publications and meeting reports are available for downloading at www.fao.org/news/global/locusts/pubslist.htm:

- Contingency planning spreadsheets and simulations for outbreaks, upsurges and plagues (English, French)
- 8th Desert Locust Control Committee Technical Group meeting report (English, French)
- FAO Desert Locust Standard Operating Procedures (SOP) for survey, control and aerial operations (English, Arabic)
- FAO Desert Locust Guidelines – Arabic version in PDF is now available for downloading

Assistance provided. Details of assistance provided by donors to the current locust campaign are available on the Internet at: www.fao.org/news/global/locusts/donors/donors.htm.

Crop assessment mission. An FAO/WFP mission will visit locust-affected countries in West Africa during October to assess the impact of locust damage on the summer harvest. Results should be available by the end of the month and will be posted on FAO's locust web pages (www.fao.org/news/global/locusts/locuhome.htm).

2004-05 events. The following meetings are scheduled:

- **Donor briefing.** The FAO Director-General will chair a donor meeting, Rome, 13 October
- **EMPRES/CR.** 12th Liaison Officers meeting, Hurghada (Egypt), 9-13 October
- **Pesticide Referee Group.** 9th meeting, Rome, 18-21 October
- **Desert Locust Control Committee.** Extraordinary session, Rome 29 November – 2 December
- **EMPRES/WR.** 3rd Liaison Officers meeting, Dakar (Senegal), 13-17 December
- **SW Asia Commission.** 24th session, Delhi (India), 10-14 January 2005

Press release. Several press releases on the current Desert Locust emergency have been recently issued by FAO. These are available at: http://www.fao.org/newsroom/en/index.html.

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/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)

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

GROUP

- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL

- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL

- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM

- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE

- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE

- swarm: 500+ km^2 • 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

RECESSION

- period without widespread and heavy infestations by swarms.

REMISSION

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

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.

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.

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.

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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Niger, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guidea Bissau and Guinea Conakry.

CENTRAL

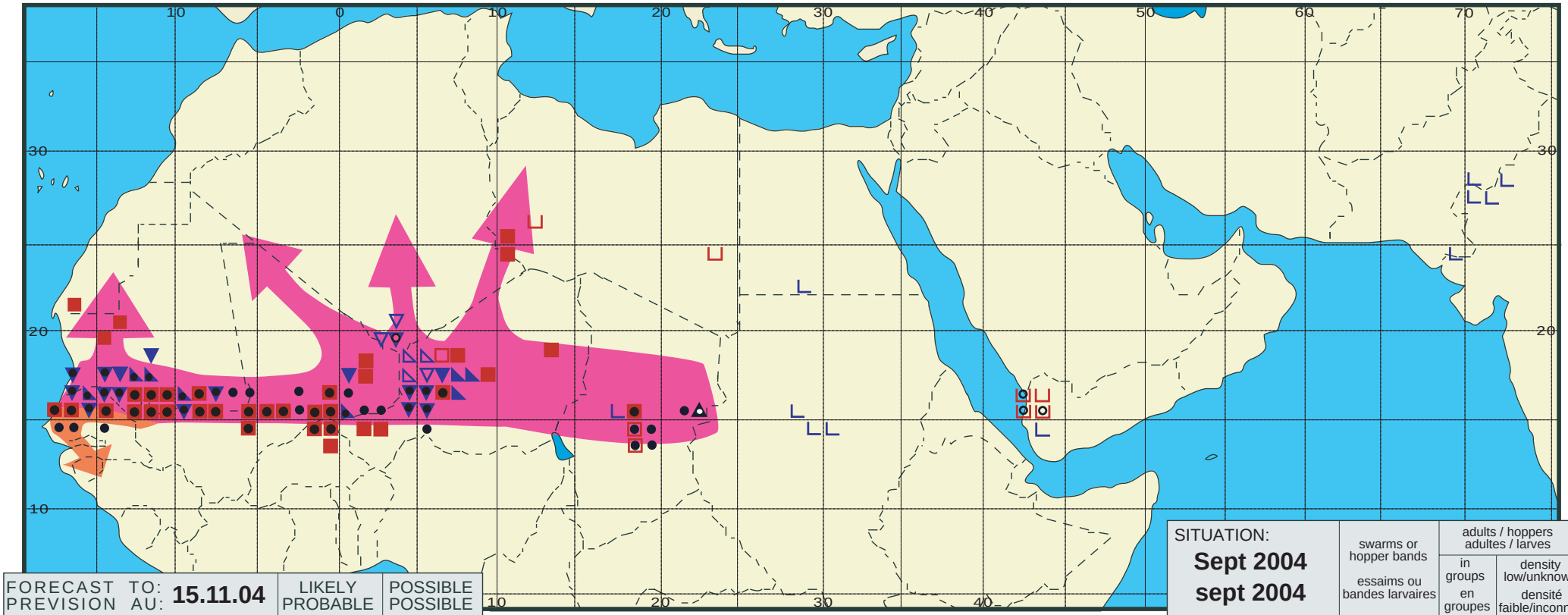
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.

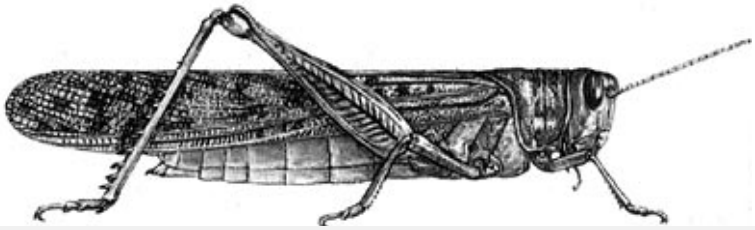
Desert Locust Summary
Criquet pèlerin - Situation résumée

312



FORECAST TO: / PREVISION AU: **15.11.04**	LIKELY / PROBABLE	POSSIBLE / POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **Sept 2004 sept 2004**	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves: in groups en groupes	adults / hoppers adultes / larves: density low/unknown densité faible/inconnue
immature adults adultes immatures	■	□	⊔
mature or partly mature adults adultes matures ou partiellement matures	◣	◺	L
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)	◘	◙	⊔



DESERT LOCUST ALERT

FAO Emergency Centre for Locust Operations *(17 Nov 2004)*

General Situation as of 17 November 2004

A large immature swarm appeared in Cairo, Egypt today about midday and then moved east to the Gulf of Suez where it landed on the coast about 50 km south of Suez at Ain Sukhna. The swarm probably came from the swarms that have been reported earlier this week in the Nile Delta between Cairo and Alexandria. These swarms originally arrived from northeast Libya at the beginning of the month and drifted east along the northern coast to the delta.

Control operations are in progress in the north but have been hampered because farmers were burning tires and other material that cause smoky conditions. This makes swarms disperse so that they are no longer good control targets.

Most of the swarms in northern Egypt are expected to move towards the Red Sea, first appearing in on the coast of Egypt and then move southwards in the Red Sea trench to traditional winter breeding areas on the coast between Shalatyn, Egypt and Massawa, **Eritrea**. A few swarms could also cross the Red Sea and reach the coastal plains north of Jeddah, **Saudi Arabia**. **Sudan** and Saudi Arabia were already alerted today.

There is also a moderate risk that a few swarms in northern Egypt could continue further east and reach the Sinai Peninsula and perhaps coastal areas of **Palestine** and **Israel**.

In northeast **Libya**, control operations treated 1,500 ha and no further locusts have been reported. Therefore, the risk of additional swarms arriving in northern Egypt from Libya is extremely low.

FAO will continue to keep all countries informed of any significant developments. The most up-to-date information on the situation and photos are available on the Internet (www.fao.org/news/global/locusts/locuhome.htm) as well as maps of the latest infestations (193.43.36.11/mapper).

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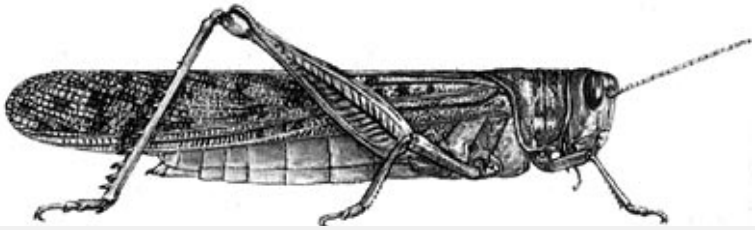

DESERT LOCUST UPDATE

FAO Emergency Centre for Locust Operations

(15 Nov 2004)

General Situation as of 15 November 2004

The Desert Locust situation remains extremely serious in Northwest Africa where significant efforts are being made to control numerous immature swarms from the summer breeding areas in the Sahel. In West Africa, a substantial number of swarms remain in western and southwestern Mauritania, and smaller infestations are present in northern Mali and Niger. Locusts have declined in the other Sahelian countries. More than 700,000 ha have been treated so far this month in West and Northwest Africa. A few more swarms were reported in northern Egypt and perhaps in Cyprus but there have been no new reports of locusts in Crete, Lebanon or Israel.

Numerous immature swarms continue to reach the Atlas Mountains in **Morocco** and **Algeria**, and other swarms have drifted east to southern and central **Tunisia**. Most of the swarms are concentrated in the Souss Valley in Morocco while some have penetrated the Atlas Mountains and appeared on the northwest coast near Essaouira and in the northeast. Intensive aerial and ground control operations treated nearly 465,000 ha in Morocco (1-13 November) and are in progress in Algeria but no details have been received; Tunisia treated 22,000 ha (1-10 November). Good rains fell in some of these areas during the past week. No new reports have been received from **Libya**.

In southern and southwestern **Mauritania**, numerous immature swarms are present and moving to the north. A few mature swarms were reported in the northwest and in **Western Sahara** where it is dry even though light to moderate rains fell on 8-9 November. Aerial and ground control operations continued against immature swarms in southern Mauritania and northern **Senegal** where 183,000 ha (1-10 November) and 35,800 ha (1-5 November) were treated respectively. After the 5th, no further swarms were reported in Senegal.

An immature swarm appeared in northern **Burkina Faso** on the 8th from western Niger. Although small infestations of hopper bands and swarms are present in northern **Mali**, control was not carried out. Late instar hopper bands, fledglings and immature swarms persist in **Niger** in the Tahoua region where control operations treated 1,000 ha on 1-4 November. In **Cape Verde**, a few swarms were seen on Boa Vista, Brava and Santiago islands, and hatching and band formation are underway in some areas. Control operations treated 517 ha on 1-12 November. No new information has been received from **Chad**.

In the past week, several immature swarms moved east along the northern coast in **Egypt** and invaded farms between Cairo and Alexandria. More locusts may have reappeared recently in **Cyprus** on warm southwesterly winds.

The most up-to-date information on the situation and photos are available on the Internet (www.fao.org/news/global/locusts/locuhome.htm) as well as maps of the latest infestations (193.43.36.11/mapper).

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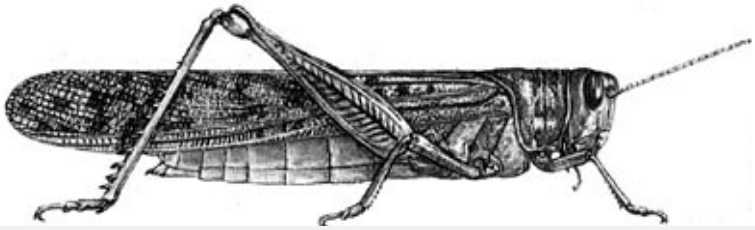

DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 313**

(3 November 2004)

General Situation during October 2004 Forecast until mid-December 2004

The Desert Locust situation remained extremely serious during October. There has been a significant redistribution of populations from West to Northwest Africa. As vegetation dried out, numerous swarms left the summer breeding areas in the Sahel, West Africa and invaded Morocco and Algeria. Some swarms arrived in the Cape Verde Islands. A few swarms also reached the Mediterranean coast near the Libyan and Egyptian border and crossed the sea to Crete, and probably to Cyprus and the Lebanon. Aerial and ground control operations continued in the Sahel and intensive operations were launched in Morocco and Algeria and started in Libya and Egypt. The situation should continue to improve in the Sahel but it is likely to deteriorate further in Northwest Africa as more swarms arrive during November.

Western Region. Numerous immature swarms continued to form in **Senegal**, southern **Mauritania**, **Mali** and **Niger** during October. Smaller infestations were present in **Burkina Faso**, **Chad** and the **Cape Verde** islands. Vegetation rapidly dried out in many areas and swarms moved north into northwest Mauritania and **Western Sahara** where it was dry. Consequently, swarms have continued further north and reached the southern foothills of the Atlas Mountains in **Morocco** and **Algeria**. Swarms also moved into northern Mali and Niger, and southern Algeria where breeding was in progress.

Unusually strong and persistent southwesterly winds at mid-month carried a few small swarms to the Mediterranean coast in northeastern **Libya** and to the island of Crete in **Greece**. By the end of the month, infestations had declined in the Sahelian zone in Senegal, Mali, Burkina Faso, Niger and Chad. Control operations treated one million ha in the region during October. If rainfall occurs in northwest Mauritania and Western Sahara, many of the swarms will stay there, mature and lay eggs that will hatch and form bands. If rains do not fall, the swarms will continue north and arrive in Morocco and Algeria during November where they will concentrate along the southern side of the Atlas Mountains and probably remain immature until spring, 2005. In this case, control teams will have about four months to reduce locust infestations before the swarms mature and lay eggs.

Central Region. Control operations treated a few small groups of hoppers and adults on the Red Sea coast in **Yemen** in early October. Only a few adults were present west of the Nile River in **Sudan** and no locusts were seen on the western coast of the Red Sea. At the end of the month, small immature swarms were reported on the Mediterranean coast in northwest **Egypt.** This was associated with the locusts that arrived in adjacent areas in northeastern Libya. There were also unconfirmed reports of swarms on Cyprus and in the Lebanon, again brought by strong southwesterly winds.

Eastern Region. Isolated adults were present in the summer breeding areas in **Pakistan** near the Indian border. No significant developments are likely.

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Weather & Ecological Conditions in October 2004

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) was further south than normal during October, oscillating between 10N and 15N and occasionally reaching 18N in the first decade. Consequently, the rainy season in the Sahel came to end by about mid October and vegetation continued to dry out in all areas. In Mauritania, limited areas of green vegetation were present in the northwest near Atar. In northern Mali, vegetation was green in the Adrar des Iforas between Kidal and Tessalit. In Niger, good conditions persisted in Tamesna and eastern Air. In Northwest Africa, conditions were generally dry south of the Atlas Mountains in Morocco and Algeria. In the southern Algerian Sahara, green vegetation was present in several wadis southwest of Tamanrasset and along the Mali border. In Chad, vegetation was drying out except in the northeast where favourable conditions persisted near Fada. Unusually strong southwesterly winds persisted for several days during the month over the Algerian and Libyan Sahara.

In the **Central Region**, moderate rainfall occurred in early October in western Sudan followed by similar showers in central and eastern regions. Light to moderate rain fell along both sides of the Red Sea in Eritrea and Yemen, and extended to Jizan, Saudi Arabia. Consequently, breeding conditions were favourable in Yemen and were improving in Eritrea.

In the **Eastern Region**, moderate to heavy rain fell along the Indo-Pakistan border.

Area Treated

More than 1 million ha were treated in October, bringing the total treated so far this summer in West Africa to 1.6 million ha. In all, 8.3 million ha have been treated since the beginning of the upsurge in October 2003.

	Current month	Campaign cumulative
Algeria	131,745 ha (1-31 Oct)	134,545 ha
Burkina Faso	3,839 ha (1-20 Oct)	16,286 ha
Cape Verde	497 ha (1-10 Oct)	1,013 ha
Chad	2,000 ha (23 Sep-2 Oct)	8,801 ha
Mali	106,582 ha (1-31 Oct)	347,351 ha
Mauritania	363,330 ha (1-31 Oct)	604,649 ha
Morocco	458,000 ha (1-31 Oct)	458,505 ha
Niger	96,383 ha (1-28 Oct)	200,080 ha
Senegal	378,636 ha (1-26 Oct)	642,350 ha
Libya	4,925 ha (2-31 Oct)	5,985 ha
Egypt	60 ha (30 Oct)	
Yemen	175 ha (1-4 Oct)	

Note: Reporting delays and discrepancies may affect the accuracy of these figures.

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **Situation**

During October, more swarms formed in the southwest where late instar hopper bands were present and moved along the Senegal River Valley. The situation improved in the southeast where vegetation was drying out and only a few late instar hoppers and bands mixed with adult groups were present and formed a limited number of immature swarms. Many of the swarms moved to the northwest where numerous large and dense swarms were seen in the Inchiri and Dakhlet Nouadhibou regions. Although some of the swarms near Atar (2032N/1308W) started to mature, the majority were immature and moved further north because of dry conditions. On the 18th, swarms were reported west of Zouerate (2244N/1221W). In the southeast, second generation hatching occurred southwest of Timbedra (1614N/0810W) near the Malian border during the second decade. During the third decad hoppers fledged at all but one site. Aerial and ground control operations treated 363,946 ha from 1-31 October.

• **Forecast**

Numerous swarms will continue to form primarily in the southwest and move to the north where they are likely to appear in Inchiri, Dakhlet Nouadhibou, Adrar and Tiris-Zemmour regions. If rain falls in these areas, the swarms will mature and lay eggs that will hatch and give rise to hopper bands; otherwise, the majority of the swarms will move to Northwest Africa. A smaller number of second generation swarms are likely to form in the southeast and move towards the north.

Senegal

• **Situation**

During October, hopper bands continued to develop and numerous immature swarms formed in the north and centre. Swarms were also seen moving back and forth across the Senegal River Valley between Mauritania and Senegal. A few very large swarms, up to 800 km^2 in size with densities up to 150 adults/m^2, were reported. Most of the bands consisted of late instar hoppers except for some early instar bands near Dakar. Infestations in the north extended as far east as Matam (1540N/1318W) while those in the centre were as far south as Tataguine (1427N/1638W), southeast of Dakar. During the second decade, nearly all of the hoppers in the north had fledged and formed swarms. As vegetation continued to dry out, more swarms moved north to Mauritania, causing swarm numbers to decrease in Senegal by the end of the month. Aerial and ground control operations treated 341,354 ha on 1-31 October.

• **Forecast**

A few swarms may remain in the north and centre early in the forecast period but these are expected to move northwards. The threat of a reinvasion from Mali as well as the risk of swarms moving further south to the Casamance and Tambacounda regions in the south and southeast have diminished. Nevertheless, these areas should remain alert.

Mali

• **Situation**

The situation improved in the Sahelian zone south of 16N as an increased number of swarms moved northwards during October. Immature swarms in the Mopti region were seen moving towards the northeast on 2-4th and were subsequently reported in the Gao region. By the end of the first decade and during the second decade, only a few small infestations of hoppers and fledglings mixed with immature adults were seen in the Mopti and Tombouctou regions. No locusts were seen in these areas after the 16th.

In the north, more immature swarms appeared during the first week of October in the Timetrine and the Adrar des Iforas, many of which were highly mobile and moving further north. Second to fourth instar hopper bands were present in the region. During the second and third decades, late instar bands were present and small immature groups and swarms were forming. So far, no locusts have been reported east of the Adrar des Iforas in the Tamesna. Aerial and ground control operations treated 106,582 ha from 1-31 October.

• **Forecast**

Swarms will continue to form in the north (Timetrine, Tilemsi Valley and Adrar des Iforas). While most of these swarms are likely to move to Northwest Africa, some will remain in the north and, if conditions remain favourable there, mature and eventually lay eggs. Hopper bands may be present in parts of Tamesna and, if so, swarms will form there during the forecast period and move further north.

Burkina Faso

• **Situation**

During October, locust infestations declined in the northern region and the situation improved as swarms emigrated. No swarms were reported after 3 October but from 7-12 October remnants of the swarms were being controlled. No locusts were seen during surveys after the 15th. Control operations treated 3,839 ha from 1-20 October.

• **Forecast**

There is a risk that a few swarms from adjacent areas in Niger and Mali may transit through northern areas. No further breeding or developments are expected.

Niger

• **Situation**

During the first week of October, many immature swarms appeared in the west near Tillaberi (1428N/0127E) and the Burkina Faso border. Hatching and band formation continued in the west near Filingué (1421N/0319E) and in the Sahelian zone near Dakoro (1430N/0645E) and Tanout (1505N/0850E) where crop damage was reported. Adult groups were reported east of Diffa (1318N/1236E). Mainly third and fourth instar hopper groups and bands were present in Tamesna between Tahoua (1457N/0519E) and Tassara (1650N/0550E). Immature swarms were seen moving northwards and had reached the Air Mountains.

During the remainder of the month, hopper bands continued to develop in the Sahelian zone in the west and centre and were fledging during the last decad of October. Further north, immature swarms were forming in Tamesna during the third decad. In the Air Mountains, hopper bands were present in the southeast and immature swarms were seen on the Talak Plains east of Arlit (1843N/0721E) where crop damage was reported. Aerial and ground control operations treated 96,383 ha from 1-28 October.

• **Forecast**

Locust infestations will decline in the Sahelian zone as swarms form and move to the north. Although most

of these swarms will continue towards Northwest Africa, some will remain in the Air Mountains and, if conditions remain favourable there, the swarms will mature and eventually lay eggs.

Chad

• **Situation**

In late September, immature and mature swarms at densities up to 105 adults/m^2 were present in the western region of Kanem near the Bahr El Ghazal (ca. 1400N/1630E). Some of the swarms were mobile while others were laying eggs. In the central region of Batha, late instar hoppers at densities of 5-150/m^2 and fledglings mixed with groups of immature and mature adults that were forming swarms were present between Djedaa (1331N/1834E) and Haraz-Djombo (1357N/1926E). In the east, immature adults were present at densities up to 80/m^2 near Arada (1501N/2040E), and hoppers and immature adults were seen near Kalait (1550N/2054E). Ground teams treated 2,000 ha.

During the first half of October, laying continued in Kanem but infestations declined in Batha where only solitarious and transiens adults remained. Immature and mature swarms, perhaps from Batha, were reported south of Fada (1714N/2132E) in the northeast. Some of these were laying eggs. No control operations were carried out during the period.

• **Forecast**

Hatching and band formation will occur in parts of Kanem and in the northeast near Fada in November. Low to moderate numbers of adult groups and swarms are likely to form during December in these areas.

Cape Verde Islands

• **Situation**

During October, small mature swarms were reported on Fogo, Santiago, Maio, Boa Vista, Sao Nicolau and Santo Antao islands. These swarms are likely to have formed and matured rapidly from local breeding mixed with immature swarms that arrived in late September from West Africa. Many of the swarms were highly mobile and appeared to be moving between the islands. Swarms were seen laying eggs on all of the islands and hatching was reported on Santiago and Sao Nicolau. Elsewhere, isolated solitarious adults were seen on Sao Vicente island. Ground teams treated 497 ha from 1-10 October.

• **Forecast**

Swarms are likely to continue to move between the islands at times. Hatching and band formation will occur on most of the islands. There remains a moderate risk that a few swarms could arrive from summer breeding areas in West Africa during periods of easterly winds.

Gambia

• **Forecast**

There is a low risk that a few groups or swarms may arrive from the north as the Inter-Tropical Convergence Zone moves southward.

Guinea Bissau

• **Forecast**

There is a very low risk that a few locusts could arrive from the north as the Inter-Tropical Convergence Zone moves southward.

Guinea

• **Forecast**

There is a very low risk that a few locusts could arrive from the north as the Inter-Tropical Convergence Zone moves southward.

Atlantic Ocean

On 10 October, several groups of about 100 locusts each were seen on a ship about 40 km off the coast of southern Senegal at 1215N/1755W.

Benin, Cameroon, Cote d'Ivoire, Ghana, Liberia, Nigeria, Sierra Leone and Togo

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

In late September, immature swarms at a density of 20 adults/m^2 were seen between Djanet (2434N/0930E) and Illizi (2630N0825E) on the 29th and control operations were conducted.

During the first decade of October, immature swarms appeared in the extreme south along the Malian border near Bir Bou Mokhtar (2120N/0056E) and the Nigerian border near In Guezzam (1937N/0552E) where breeding was in progress and hoppers were forming groups. Many of the swarms continued north beyond Tamanrasset (2250N/0528E). Other immature adults and swarms appeared in the northwest near Tindouf (2741N/0811W), in the Saoura Valley near Beni Abbes (3011N/0214W) and in the Tlemcen (ca. 3452N/0119W) region. During the second and third decades, more immature swarms arrived in these areas and moved northeast along the Moroccan border near Ain Sefra (3245N/0035W). On

the 19th, swarms were reported south of Ghardaia (3225N/0337E) and on the 22nd near Ouargla. (3157N/0520E). Solely scattered imature adults were reported farther north on the high plateaux near Tébessa, Khenchela, Mascara and Sidi-Bel Abbès during the third decad of October. Aerial and ground control operations treated 131,745 ha from 1-31 October.

• **Forecast**

Swarm formation will continue in the south along the borders of Mali and Niger. These swarms and other swarms from the Sahel will move north towards the Atlas Mountains. The swarms are likely to concentrate in favourable areas along the southern foothills between the Moroccan and Tunisian borders where they will probably remain immature. Other swarms could appear in the east along the border with Libya and a few swarms could stay in the central Sahara (Tadmait Plateau and Ahnet areas) and, if rainfall occurs, mature and lay eggs.

Morocco

• **Situation**

During the first decade of October, many small immature swarms at densities up to 40 adults/m^2 and coming from the southeast appeared along the southern side of the Atlas Mountains between Errachidia (3154N/0425W) and Ouarzazate (3057N/0650W). In the Western Sahara, immature groups arrived from the south in the Bir Gandouz (2136N/1628W) and Awssard (2240N/1410W) regions and progressively moved to the north, reaching Zag (2801N/0918W) on the 8th.

During the second decade, more immature swarms appeared in the Western Sahara and moved to the Draa Valley and the southern side of the Atlas Mountains where they were present between Guelmim (2859N/1003W) and Bouarfa (3232N/0159W) as well as in the Souss Valley. Aerial and ground control operations treated approximately 458,000 ha from 1-31 October.

• **Forecast**

Numerous swarms are likely to appear in Western Sahara from summer breeding areas in the Sahel and move to the Draa Valley and the southern foothills of the Atlas Mountains where they are expected to remain immature for several months. If rain falls in the Western Sahara, some of these swarms will remain there, mature and lay eggs that will hatch and form bands.

Libyan Arab Jamahiriya

• **Situation**

Swarms that reached southwestern Libya at the end of September were controlled early in October. A new invasion of southwestern Libya occurred from 14-17 October and these highly mobile immature swarms continued northwards to reach the northwestern coast. Some also crossed the frontier into Tunisia and Algeria. Aerial and ground control treated 4925 ha from 2-30 October. From 27-31 October, a third wave of swarms entered Libya on unusually strong and persistent southwesterly winds and reached the northeastern Mediterranean coast near Tubruk (3206N/2356E).

• Forecast

More swarms from the summer breeding areas in the Sahel are expected to appear in the west from Ghat to Ghadames and the Hamada al Hamra during November. The adults are expected to remain immature for several months.

Tunisia

• **Situation**

There were reports of immature swarms in the extreme south on about 27 October. Further details are awaited.

• **Forecast**

More swarms may appear in the south during November. The adults are expected to remain immature for several months.

Greece

• **Situation**

On about 16 October, swarmlets of immature adults appeared in western Crete (ca. 3500N/2330E). Similar populations were seen in the centre and south of the island up to the 21st. These swarmlets probably arrived from the Libyan mainland on unusually strong and persistent southwesterly winds.

• **Forecast**

No significant developments are likely.

CENTRAL REGION

Sudan

• **Situation**

During the first and last weeks of October, isolated mature adults were seen in a few places in Northern Kordofan between El Obeid (1311N/3010E) and Sodiri (1423N/2906E). No locusts were seen along the Atbara River or on the Red Sea coastal plains between Port Sudan and the Tokar Delta.

• **Forecast**

Scattered adults may appear between the Atbara River and the Red Sea Hills as locust numbers decline

in the summer breeding areas further west. Scattered adults are likely to appear on the Red Sea coastal plains between Port Sudan and Karora and breed on a small scale if rainfall occurs.

Eritrea

• **Situation**

No locusts were seen during surveys carried out along nearly the entire Red Sea coastal plains from Embere (1628N/3856E) in the north to the Djibouti border in the south from 16 to 24 October.

• **Forecast**

Isolated adults may appear on the northern coastal plains of the Red Sea and breed on a small scale if rainfall occurs.

Somalia

• **Situation**

No locusts were seen during surveys carried out in the northwest in October.

• **Forecast**

No significant developments are likely.

Ethiopia

• **Situation**

No surveys were carried out and no locusts were reported during October.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Egypt

• **Situation**

A report was received on 28 October indicating that an immature swarm and numerous immature groups were seen in the northwest on the Mediterranean coast near Salum (3131N/2509E) and the Libyan border. On 31 October immature swarms were reported near El Baharia (29 28N/29 32E) and El Faioum (29 19N/30 50E). Ground control is in progress in all three areas.

• Forecast

The locusts in the northwest are likely to disperse and eventually drift further east towards the Red Sea. A few adults may appear on the Red Sea coastal plains and sub-coastal areas between Shalatyn and Halaib where small-scale breeding could occur in areas of recent rainfall. No significant developments are likely.

Saudi Arabia

• **Situation**

No locusts were reported during October.

• **Forecast**

Scattered adults are likely to be present near Jizan where additional breeding could occur in areas of recent rainfall.

Yemen

• **Situation**

During October, solitarious and transiens late instar hoppers and immature and mature adults were present on the northern Red Sea coastal plains between Al Zuhrah (1541N/4300E) and Midi (1619N/4248E) where infestations were seen in September. Densities of 3-10 hoppers/m^2 and 500-1,125 adults/ha were reported during the first few days of the month but then subsequently declined after ground control teams had treated 175 ha from 1-4 October. Further small-scale hatching occurred at the end of the month. Elsewhere, solitary mature adults were seen on the coast east of Hodeidah (1450N/4258E). No locusts were seen on the coastal plains near Aden (1250N/4503E) or in the interior near Marib (1525N/4521E).

• **Forecast**

Additional breeding could occur in areas of recent rainfall on the Red Sea coastal plains, causing locust numbers to gradually increase.

Oman

• **Situation**

No locusts were seen during a survey in the Musandam Peninsula and none was reported elsewhere in Oman during October.

• **Forecast**

No significant developments are likely.

Cyprus

There was an unconfirmed report that an immature Desert Locust swarm reached the west coast of Cyprus on 31 October and spread inland on 1 November when control began.

Forecast

No significant developments are likely.

Lebanon

There was an unconfirmed report that an immature Desert Locust swarm reached the Lebonon at the end of October. Control is in progress.

Forecast

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria Arab Republic, Tanzania, Turkey, UAE and Uganda

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

No locusts were seen along the southern coastal plains near Bandar Abbas and Jask in mid October.

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

During the second half of September and first half of October, isolated mature adults persisted along the Indian border in Khairpur and Cholistan Deserts.

• **Forecast**

No significant developments are likely.

India

• **Situation**

No locusts were seen during the first half of October.

• **Forecast**

No significant developments are likely.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Announcements

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted. **During emergencies, RAMSES data should be transmitted twice/week and situation summaries should be sent every ten days.**

Reporting by e-mail. After each survey or control operation, affected countries should send completed *FAO Desert Locust Survey and Control Forms* or the RAMSES output file with a brief interpretation of the results by e-mail to eclo@fao.org.

Locust archives. Desert Locust reports received by FAO from affected countries from 1952 to the present are available on a series of four CDs in PDF. Please contact the Locust Group for more details.

Upsurge photos. Pictures of the current upsurge in the Western Region are available on the Internet at: www.fao.org/news/global/locusts/outbreakpix04.htm

Desert Locust booklet. FAO has produced a booklet for the general public and donor community entitled *Hunger in their wake: Inside the battle against the Desert Locust*, available for download at: www.fao.org/news/global/locusts/pubs1.htm

Publications on the Internet. New FAO publications and meeting reports are available for downloading at www.fao.org/news/global/locusts/pubslist.htm:

- Contingency planning spreadsheets and simulations for outbreaks, upsurges and plagues (English, French)
- 8th Desert Locust Control Committee Technical Group meeting report (English, French)
- FAO Desert Locust Standard Operating Procedures (SOP) for survey, control and aerial operations (English, Arabic)
- FAO Desert Locust Guidelines – Arabic version in PDF is now available for downloading

Assistance provided. Details of assistance provided by donors to the current locust campaign are available on the Internet at: www.fao.org/news/global/locusts/donors/donors.htm.

2004-05 events. The following meetings are scheduled:

- **Desert Locust Control Committee.** Extraordinary session, Rome 29 November – 2 December
- **EMPRES/WR.** 3rd Liaison Officers meeting, Dakar (Senegal), postponed

- **SW Asia Commission.** 24th session, Delhi (India), 10-14 January 2005

Press release. Several press releases on the current Desert Locust emergency have been recently issued by FAO. These are available at: http://www.fao.org/newsroom/en/index.html.

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/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)

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

GROUP

- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL

- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL

- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM

- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE

- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE

- swarm: 500+ km^2 • 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.

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.

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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guidea Bissau and Guinea Conakry.

CENTRAL

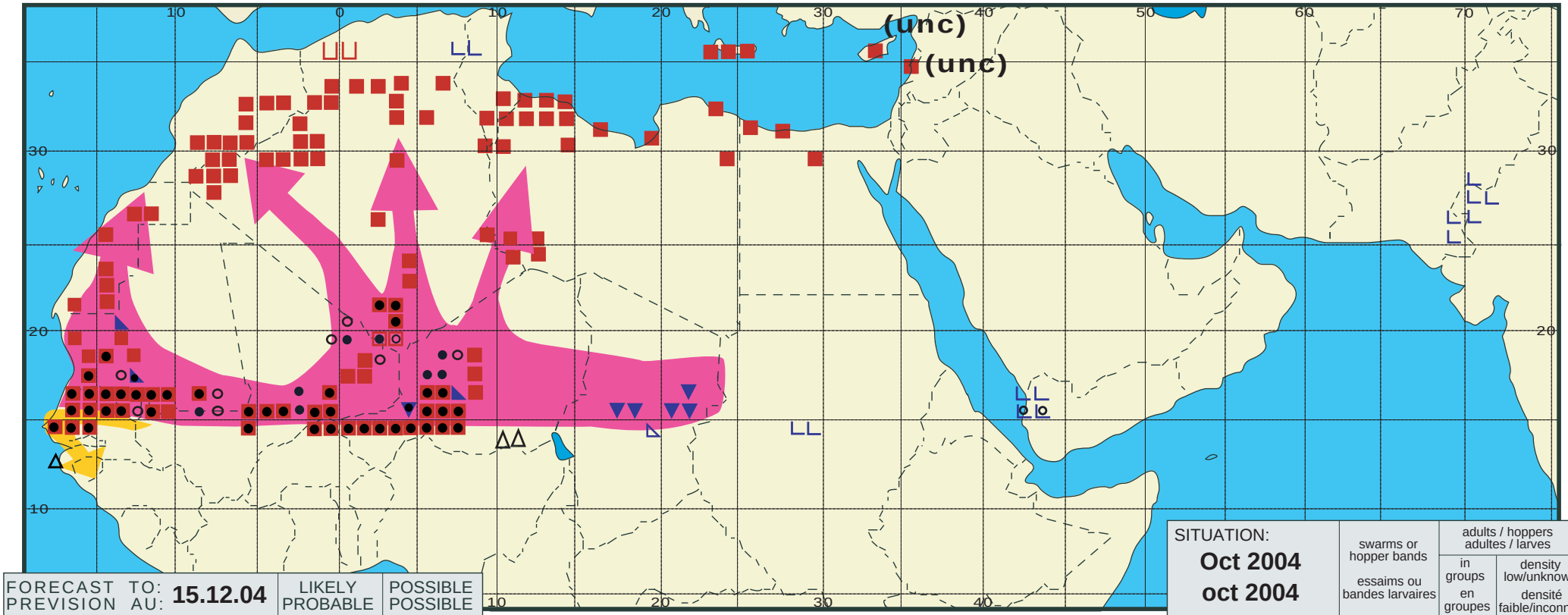
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.

Desert Locust Summary
Criquet pèlerin - Situation résumée

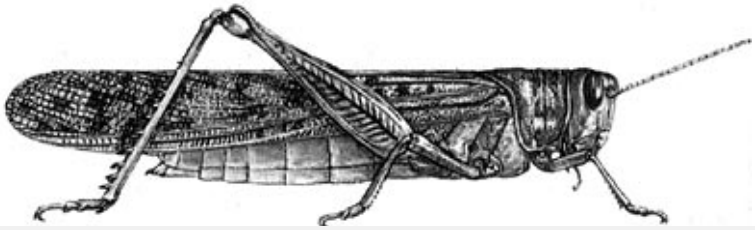
313



FORECAST TO: / PREVISION AU: **15.12.04**	LIKELY / PROBABLE	POSSIBLE / POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION:
Oct 2004
oct 2004

	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves: in groups en groupes	adults / hoppers adultes / larves: density low/unknown densité faible/inconnue
immature adults adultes immatures	■	□	⊔
mature or partly mature adults adultes matures ou partiellement matures	◣	◺	L
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)	◘	◙	⊕



DESERT LOCUST UPDATE

FAO Emergency Centre for Locust Operations *(17 Dec 2004)*

General Situation as of 17 December 2004

The Desert Locust situation remains extremely serious in Northwest Africa and to a lesser extent in West Africa. More swarms arrived in northern Morocco and Algeria from the Sahel. Several immature swarms from late summer breeding in West Africa also arrived in southeast Mauritania, northeast Senegal and western Mali. A few swarms moved through eastern Senegal to Gambia and southern Senegal. Control operations are in progress in all affected countries and nearly half a million hectares have been treated so far in December. The situation remains calm along both sides of the Red Sea.

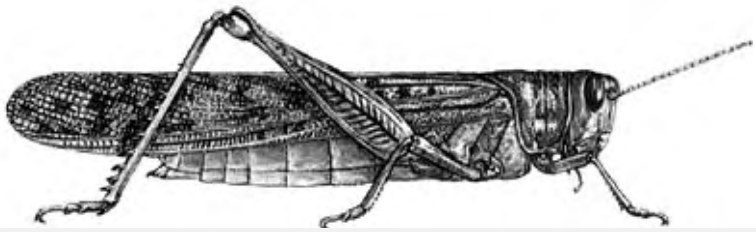
Intensive aerial and ground control operations continue against immature swarms in **Morocco**, mainly south of the Anti-Atlas Mountains and in the northeast as well as in **Algeria**. Some swarms are still arriving from summer breeding areas in the Sahel. Good rains fell in some places along the southern side of the Atlas. Swarms from Mali and Niger have been reported in southern Algeria and on both sides of the border with **Libya**. Immature gregarious adults are scattered in eastern Libya along the border with Egypt. The situation is apparently calm in **Tunisia**.

Aerial and ground control operations also continue in southern **Mauritania** against immature swarms, and a few small swarms are present in the northwest where they are maturing but no locusts have been reported in the north. In **Mali**, a few immature swarms are present in the north (Tilemsi Valley and Timetrine) and control operations were conducted in the west against immature swarms near Kayes. In **Niger**, groups of immature adults are present in northern Tamesna and in the Air Mountains. In **Cape Verde**, hatching is in progress on Santo Antao and Santiago Islands.

On 30 November, a small immature swarm appeared in central **Gambia**. In the following week, several more swarms arrived from adjacent areas of eastern **Senegal** reaching the Central River, North Bank and Upper River divisions where control operations were undertaken. On 8 December, immature swarms were reported in southern Senegal along the Casamance River near Sedhiou (1242N/1533W). There is a risk that a few swarms may have continued to adjacent areas of northern **Guinea Bissau** and **Guinea**.

The most up-to-date information on the situation and photos are available on the Internet (www.fao.org/news/global/locusts/locuhome.htm) as well as maps of the latest infestations (193.43.36.11/mapper).

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 and Other Migratory Pests Group, AGP Division, FAO, 00100 Rome, Italy. It is also available on the Internet.
Telephone: +39 06 570 52420 (7 days/week, 24 hr)
Facsimile: +39 06 570 55271
E-mail: eclo@fao.org
Internet: www.fao.org
DLIS: www.fao.org/news/global/locusts/locuhome.htm



DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 314**

(6 December 2004)

General Situation during November 2004 Forecast until mid-January 2005

The Desert Locust situation remained serious during November. A substantial number of immature swarms from the Sahel continued to arrive in Northwest Africa where intensive aerial and ground control operations were already in progress. A few swarms reached the Canary Islands and southern Portugal. Several swarms moved west in the Sahel and reinvaded northern Burkina Faso, Mali, Mauritania and northeastern Senegal. Some of these swarms were associated with the Southern Circuit migration and could eventually reach southeastern Senegal and Guinea. Other swarms moved east across northern Egypt and reached Israel, Jordan and Saudi Arabia while some adults were seen in Lebanon and Syria. Conditions improved in northwest Mauritania where breeding could occur during the forecast period.

Western Region. Although the situation improved in the Sahel as numerous swarms continued to move north and arrive in **Morocco**, **Algeria**, **Tunisia**, and **Libya**, immature swarms persisted in southwest **Mauritania**. At mid-month, swarms from late summer breeding in the Sahel reinvaded northern **Burkina Faso** and moved into southwest **Mali**, a relatively rare Southern Circuit migration. Other swarms reinvaded western Mali, southern Mauritania and northeastern **Senegal**, and there was an unconfirmed reporte from **Gambia**. These infestations were probably a mixture of early second-generation swarms and late developing swarms from summer breeding in the Sahel. Unusually strong and warm winds at the end of November allowed a few swarms to reach the **Canary Islands** and southern **Portugal** where they subsequently dispersed and were blown back to sea. Smaller infestations were present and are likely to persist in northern Mali and **Niger** and in **Cape Verde**. Egg laying, hatching and band formation are expected to occur during the forecast period in northwest Mauritania where habitats have now become favourable. Aerial and control operations treated 2.2 million ha in the region during November.

Central Region. Some immature swarms that arrived on the northwest coast in **Egypt** at the end of October moved east during November along the Mediterranean coast while others appeared in the Western Desert along the Libyan border. Those in the north eventually reached the Nile Delta and Cairo before dispersing over a large area of the Sinai Peninsula, the eastern Mediterranean and the northern Red Sea. Several groups and swarms invaded southern **Israel**, **Palestine**, western **Jordan**, Cyprus, and the northern Red Sea coast in **Saudi Arabia**. Smaller infestations appeared on the coast in **Lebanon** and **Syria** and on the Red Sea coast in Egypt. Control operations were conducted in most of the affected countries. There is a risk that infestations will appear in traditional winter breeding areas along the Red Sea coast where, given sufficient rainfall, breeding could occur and hopper bands could form in January.

Eastern Region. No locusts were reported during November in the Region, and no significant developments are likely.

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DLIS: www.fao.org/news/global/locusts/locuhome.htm

No. 314

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in November 2004

Good rains fell in northwest Mauritania during November, causing habitats to become favourable for breeding. Good rains also fell along the Atlas Mountains in Northwest Africa but decreasing temperatures will limit locust maturation and breeding. Rain fell in the winter breeding areas along both sides of the Red Sea. Vegetation continued to dry out in the Sahel.

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) continued to retreat south of 15N during November. From mid-month onwards, it was well south of the locust breeding areas in the Sahel in West Africa. Good rains fell on 7-10 November in Cape Verde and extended to northwest Mauritania (Inchiri and southwest Adrar) and southern and central areas of Western Sahara on the 8-9th. The rains were sufficient in Mauritania and Western Sahara to allow habitats to become favourable for breeding in the second half of the month. Although no rainfall occurred in the Sahel and vegetation is nearly dry or rapidly drying out in all areas, good conditions persisted in the wadis of the Adrar des Iforas in northern Mali and in the eastern part of the Air Mountains in Niger. In Northwest Africa, dry conditions persisted in the Sahara south of the Atlas Mountains. Light to moderate rains fell along the southern foothills of the Atlas Mountains and in the valleys of the Middle and High Atlas in Morocco and Algeria, including the Souss Valley, where conditions were better. Libya was dry, except in the centre where good rains fell, making habitats favourable for local breeding. Throughout the month, numerous depressions formed over the eastern Atlantic and moved east through the Mediterranean. Strong, warm southerly winds occurred for a day or two with each depression that allowed locusts to move further north and east in Northwest Africa as well as off shore to the Canary Islands and southwest Europe.

In the **Central Region**, light rain fell in a few places on the Red Sea coast in Sudan south of Port Sudan, in Saudi Arabia near Mecca and Jizan, and in Yemen. In the latter area, conditions continued to be favourable for breeding. In northern Somalia, moderate to heavy rains fell in the interior between Erigavo and Las Anod, moderate rains fell on the northwest coast, and isolated showers fell near Hargeisa. Warm southerly winds associated with depressions over the eastern Mediterranean and lasting a day or two occurred several times during the month. These allowed locusts to move in a northeasterly direction from northern Egypt. During the remainder of the month, prevailing winds over the northern part of the Central Region were generally cold and from the north except in the Red Sea Trench where they were warmer. As a result, adults could move south along the shores of the Red Sea.

In the **Eastern Region**, no significant rainfall occurred and dry conditions prevailed during November.

Area Treated

More than 2.2 million ha were treated in November, bringing the total area treated since the beginning of the upsurge (October 2003) to 11 million ha.

	Current month	Campaign cumulative
Algeria	685,371 ha (1-30 Nov)	819,916 ha
Cape Verde	1,874 ha (1-30 Nov)	2,863 ha
Cyprus	NR (2 Nov)	
Egypt (est.)	50,000 ha (28 Oct – 25 Nov)	
Israel	NR (19-30 Nov)	
Jordan	4,520 ha (20-24 Nov)	
Lebanon	10 ha (3 Nov)	
Libya	42,674 ha (1-27 Nov)	48,659 ha
Mali	5,050 ha (1-30 Nov)	296,177 ha
Mauritania	312,368 ha (1-30 Nov)	1,012,553 ha
Morocco	1,075,260 ha (1-30 Nov)	1,534,798 ha
Niger	10,700 ha (1-30 Nov)	200,080 ha
Saudi Arabia	1,100 ha (21-30 Nov)	
Senegal	60,542 ha (1-30 Nov)	702,892 ha
Tunisia	11,606 ha (2-20 Nov)	25,791 ha

Note: Reporting delays and discrepancies may affect the accuracy of these figures; NR = not reported.

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During November, numerous immature swarms of variable sizes and densities were present in the south

and southwest where control operations continued. Most of the swarms were seen moving to the north. As the month progressed, some of the adults were maturing. In the southeast, immature groups were scattered in several areas. From mid-month onwards, immature swarms, including several large swarms, reinfested the southeast (Hodh Charghi, Hodh Gharbi) and the extreme south in Guidimaka near the border with Mali and Senegal. These swarms were probably a mixture of early second-generation swarms and late developing swarms from breeding areas further east in the Sahel. During the last decade of the month, immature swarms increased near Nouakchott and a few swarms had matured near Atar (2032N/1308W). Scattered immature gregarious adults and groups appeared further north between Zouerate (2244N/1221W) and Bir Moghrein (2510N/1135W). Aerial and control operations treated 312,368 ha during November.

• **Forecast**

The situation in the south will improve as the remainder of the swarms move to the northwest and north. Most of the swarms are expected to concentrate in areas of recent rainfall in Inchiri and Adrar where they will mature and lay eggs. Hatching and band formation will occur from egg laying by mature swarms that are already present in the northwest. As other swarms mature, further breeding will occur that could lead to the formation of a substantial number of bands. During periods of warm southerly winds, swarms are likely to move to the north where maturation and breeding will occur if rains fall.

Senegal

• **Situation**

The situation improved during the first week of November in the centre and north where only small immature groups were present between Thies (1449N/1652W) and Diourbel (1439N/1612W). Several immature swarms persisted along the Senegal River Valley near Podor (1640N/1457W) and Saint Louis (1601N/1629W). During the last decade of the month, several large immature swarms appeared from the east in the northeast of the country near Bakel (1454N/1226W) close to the borders of Mauritania and Mali. These swarms were probably late developing swarms from breeding areas further east in the Sahel. Some of the locusts apparently moved further south in the Tambacounda region. Aerial and control operations treated 60,542 ha during November.

• **Forecast**

The situation in the north will improve as any remaining swarms move further north. Some of the swarms in the northeast may move south to the Casamance and Tambacounda regions in the south and southeast where they could be supplemented by a few "southern circuit" swarms arriving from western Mali. These areas should remain alert.

Mali

• **Situation**

The situation continued to improve in the Sahelian zones of Kayes, Koulikoro, Segou, Mopti, Tombouctou and Gao during November where few locusts were reported. In the north, small groups and bands of fifth instar hoppers at densities up to 200 hoppers/m^2 and a few immature swarms at densities up to 400 adults/m^2 were present in the Timetrine and Adrar des Iforas. During the second decade, immature swarms reinvaded areas close to the borders of Mauritania in the west. Other swarms were seen in the centre and southwest between the border of Burkina Faso, Mopti (1430N/0415W) and Bamako. These swarms probably originated from late summer breeding and some were moving west and southwest along the "southern circuit". Swarms were also seen moving northwest of Araouane (1853N/0331W), some 200 km north of Tombouctou. Aerial and control operations treated 5,050 ha during November.

• **Forecast**

Moderate numbers of locusts, including a few groups and swarms are likely to persist, mature and eventually lay eggs in those areas that remain favourable in the Adrar des Iforas, Tilemsi Valley and Timetrine. Several swarms associated with the "southern circuit" are expected to move in the southwest towards Senegal and Guinea.

Burkina Faso

• **Situation**

From 8 November onwards, several immature swarms reinvaded the northeastern provinces of Seno and Oudalan, coming from adjacent areas in western Niger and eastern Mali. Most of the swarms were moving in a westerly direction and reached the southwestern provinces of Kossi and Sourou near the Malian border.

• **Forecast**

There is a low risk that a few more swarms from adjacent areas in Niger and Mali could transit through northern areas. No further breeding or developments are expected.

Niger

• **Situation**

The situation improved during the first week of November in the Sahelian zone where only small infestations of late instar bands and a few immature groups and swarms were present near Tahoua (1457N/0519E). At mid-month, numerous immature groups and several swarms arrived in northern and southeastern parts of the Air Mountains and in southern Tamesna. There were also unconfirmed reports of locusts in the west in the Tillaberi region and further north in the Air. In southeastern Air, transiens fifth instar hoppers were present in areas of previous breeding. Aerial and control operations treated 10,700 ha during November.

• **Forecast**

Moderate numbers of locusts, including a few groups and swarms are likely to persist and mature in those areas that remain favourable in the Air Mountains.

Chad

• **Situation**

No reports received

• **Forecast**

Low numbers of adults may be present in parts of the northeast.

Cape Verde Islands

• **Situation**

In early November, a few swarms were seen on Boa Vista, Brava, Fogo and Santiago islands. Throughout the month, hatching occurred on several islands (Santo Antao, Sao Nicolau, Fogo, Maio and Brava) and small patches of bands were forming at densities up to 200 hoppers/m^2. Aerial and control operations treated 1,874 ha during November.

• **Forecast**

Additional hatching and the formation of small groups and bands may occur on some islands. If uncontrolled, a few small groups and swarms could form. The risk of swarms arriving from West Africa will decline as temperatures decrease.

Gambia

• **Situation**

On 30 November, there was an unconfirmed report of a 1 km^2 swarm in the centre at Njama Heluman.

• **Forecast**

There is a risk that a few groups or swarms may arrive from the north or east.

Guinea Bissau

• **Forecast**

There is a low risk that a few locusts could arrive from the north as the Inter-Tropical Convergence Zone moves southward.

Guinea

• **Forecast**

There is a low risk that a few groups or swarms could arrive from the north or east.

Benin, Cameroon, Cote d'Ivoire, Ghana, Liberia, Nigeria, Sierra Leone and Togo

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

During November, numerous immature swarms at densities up to 35 adults/m^2 continued to arrive from the Sahel in the south and west of the country and moved north to the Atlas Mountains. Locust infestations were reported in 20 regions, mainly in the north between Morocco and Tunisia. The most affected regions were Tindouf, Naama, Sidi Bel Abbes, Tamanrasset, Adrar and Tlemcen. Aerial and ground control operations treated 685,371 ha during November.

• **Forecast**

Additional immature swarms from West Africa are expected to arrive in the south and west and move towards the Atlas Mountains during periods of warm southerly winds. This movement is likely to decline by the end of December. The majority of the swarms will remain immature because of low temperatures. Nevertheless, some swarms could mature and lay eggs in areas where temperatures are warmer and rainfall has occurred.

Morocco

• **Situation**

During the first decade of November, numerous immature swarms arrived in the Bir Gandouz and Awssard regions in the south of Western Sahara and progressively moved north to the Souss Valley and the Anti-Atlas Mountains. Other swarms arrived in the east and northeast. Fragments of swarms were seen in the High Atlas north of Agadir (3030N/0940W) and Taroudant (3031N/0855W) and on the coast near Essaouira (3126N/0958W). Swarms were also reported in the northeastern regions of Missour (3303N/0400W) and Jerada (3418N/0210W).

During the second and third decades, swarms continued to reach the above areas. More swarms appeared in the Western Sahara in the centre near Guelta Zemmour (2508N/1223W), in the north near Smara (2644N/1142W) and along the coast between Laayoune (2708N/1313W) and Tan-tan (2827N/1109W). More swarms also arrived in the Middle Atlas and in the northeast near Figuig (3207N/0113W) and Ain Beni Mathar (3400N/0201W), almost reaching Oujda (3441N/0145W). Warm southerly winds on the 28th carried adult groups to the Atlantic coast near Safi (3218N/0914W). The situation was generally calm south of the Atlas Mountains between Ouarzazate and Errachidia. Aerial and ground control operations treated more than 1 million ha during November.

• **Forecast**

Additional swarms from West Africa are expected to arrive in Western Sahara and move north to the Atlas Mountains during periods of warm southerly winds. This movement is likely to decline by the end of December. The majority of the swarms will remain immature because of low temperatures. Nevertheless, some swarms could mature and lay eggs in areas where temperatures are warmer and rainfall has occurred. Some swarms in Western Sahara are likely to remain in any areas where rain may have fallen, mature and lay eggs. If so, hatching could start by the end of the forecast period.

Libyan Arab Jamahiriya

• **Situation**

On 1-4 November, a few immature swarms were present on the northeastern Mediterranean coast near Tubruk (3206N/2356E). During the first three weeks, numerous immature swarms at densities up to 100 adults/m^2 continued to arrive in the southwest from the Sahel in West Africa. A smaller number of swarms arrived in the northwest, mainly during the first week, reportedly coming from adjacent areas in southern Tunisia as well as from further south. The swarms spread east along the coast nearly reaching Sirte (3110N/1639E), and were present in the interior between Nalut (3152N/1058E), Ghadames (3010N/0930E) and Mizda (3125N/1302E). Immature swarms were reported in the centre of the country near Jebel Al Haruj Al Aswad in W. Sayad (2745N/1738E) where unprecedented breeding was in progress locally and transiens first and second instar hoppers at densities of 5-10/m^2 were present. In the southeast, groups of immature gregarious adults were seen at Kufra Oasis (2411N/2315E) and near Jebel Uweinat at the border with Egypt and Sudan in W. Gazal at densities of 10-15/tree. Aerial and ground control operations treated 42,675 ha on 1-27 November.

• Forecast

A few more swarms from the summer breeding areas in the Sahel may appear in the west from Ghat to Ghadames and the Hamada al Hamra early in the forecast period. Most of the adults are expected to remain immature for several months.

Tunisia

• **Situation**

During November, numerous immature swarms arrived in the southern (Tataouine, Medenine, Kebili, Tozeur, Gafsa, Sidi Bouzid, Gabes) and central (Sfax, Kairouan, Kasserine, Siliana, Kef) provinces of the country. The heaviest affected area was Gafsa. Aerial and ground control operations treated 11,606 ha from 2-20 November.

• **Forecast**

More swarms may appear in the south and centre in December during periods of warm southerly winds. The adults are expected to remain immature for several months.

EUROPE

Spain

• **Situation**

On 19 November, low numbers of gregarious immature adults reached Gran Canaria in the Canary Islands. On the 26-28th, groups of adults and at least one immature swarm reached Lanzarote and Fuertaventura. In both cases, the locusts arrived from Northwest Africa on unusually warm and strong southerly winds. Heavy rain and strong winds from the 29th onwards blew most of the locusts out to sea.

• **Forecast**

There is a low to moderate risk that immature adults, groups and perhaps a few swarms could appear in the Canary Islands from Northwest Africa during periods of warm southerly winds. This risk should decline in January.

Portugal

• **Situation**

Between 30 November and 1 December, immature swarms reached the southwestern tip of the country on the Algarve coast between Sagres (3700N/0856W) and Vila do Bispo (3705N/0855W). Heavy rain and strong winds quickly blew them out to sea.

• **Forecast**

There is a low risk that immature adults, groups

and perhaps a few swarms could appear in the Algarve from Northwest Africa during periods of warm southerly winds. This risk will decline in January.

CENTRAL REGION

Sudan

• **Situation**

During November, no locusts were seen in winter breeding areas on the Red Sea coast from Tokar Delta to Oseif. Isolated mature adults were still present in a few places in the summer breeding areas in Northern Kordofan northeast of Sodiri (1423N/2906E).

• **Forecast**

There is a moderate risk that immature adults, groups and perhaps a few swarms could appear from the north on the coastal plains between the Egyptian and Eritrean borders. If conditions are favourable, the adults will mature and lay eggs that could hatch in January and hoppers may form small groups or bands.

Eritrea

• **Situation**

The situation was reported as calm up to 17 November.

• **Forecast**

Isolated adults may appear on the northern coastal plains of the Red Sea and breed on a small scale if rainfall occurs.

Somalia

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Ethiopia

• **Situation**

No locusts were seen during surveys between Dire Dawa and northern Somalia in November.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No locusts were seen during a survey on the coastal plains between Djibouti and the northern Somali border on 26 November.

• **Forecast**

No significant developments are likely.

Egypt

• **Situation**

During the first half of November, about a dozen immature swarms moved east along the Mediterranean coast and reached several farms in the Nile Delta and between Cairo and Alexandria. A swarm was first reported in the Western Desert near Bahariya (2821N/2851E) on the 1st.

During the second half of the month, swarms continued to move east along the northern coast, reaching the northern Sinai Peninsula at El Arish (3108N/3348E) on the 17th, Ismailia (3036N/3215E) on the 18th, and Port Said (3117N/3218E) on the 20th. A large swarm flew over Cairo on the 17th and arrived along the Gulf of Suez by the end of the day. From the 20th onwards, several groups and swarms moved about in the Sinai Peninsula, generally in a southerly direction towards the northern Red Sea. A swarm was reported in the southern Sinai at Sharm Esh Sheikh (2752N/3413E) and scattered immature gregarious adults were seen in many of the resorts along the Red Sea coast between Hurghada (2717N/3347E) and Marsa Alam (2504N/3454E). A small swarm was seen in the Red Sea Hills west of Marsa Alam at El Baramia (2504N/3338E) on the 24th. By the end of the month, locusts were reported on the coast at Berenice (2359N/3524E). In the Western Desert, a few swarms were seen near Abu Minkar (2633N/2742E) on the 20th and Farafra (2710N/2818E) on the 22nd. In the southwest, isolated solitarious adults were seen in Gilf Kebir and scattered gregarious immature adults were seen between Jebel Uweinat (ca. 2201N/2513E) and Dakhla (2530N/2900E) during the last week. Ground control operations treated an estimated 50,000 ha between 28 October and 25 November.

• Forecast

The locusts in the northeast and in the Sinai Peninsula are expected to disperse and drift further south along the Red Sea coastal plains. Low to moderate numbers of immature adults are likely to reach the winter breeding areas between Shalatyn and Halaib. If rainfall occurs, adults will mature and lay eggs. Consequently, hatching could start by the end of the forecast period and hoppers may form small groups or bands.

Saudi Arabia

• **Situation**

On 21 November, scattered immature gregarious adults and groups appeared on the Gulf of Aqaba coast south of the Jordanian border and on the northern Red Sea coastal plains near Duba (2719N/3546E). Infestations at densities up to 1,000

adults/ha, including a swarm that dispersed in trees, continued to be reported until the end of the month in these areas. Scattered immature adults were also seen further south on the Red Sea coast near Umm Lajj (2501N/3716E). Control operations treated 1,100 ha during November.

• **Forecast**

Locusts that escape detection and control on the northern Red Sea coastal plains are likely to disperse along the coastal plains between Duba and Jeddah where they will eventually mature and lay eggs in areas that receive rainfall. Consequently, hatching could start by the end of the forecast period and hoppers may form small groups or bands.

Yemen

• **Situation**

No reports received.

• **Forecast**

Scattered adults are likely to be present on the Red Sea coastal plains and breed on a small scale in areas of recent rainfall. Consequently, locust numbers are expected to increase but remain below threatening levels.

Oman

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Lebanon

On 31 October, small groups of immature adults, at densities of 5-6 adults/m2, arrived on the coast between Sidon (3333N/3522E) and Al Batrun (3415N/3539E), probably on strong southwesterly winds from northeast Egypt. Most of the infestations were north of Beirut near Jbail (3401N/3540E). Control operations treated 10 ha. A few scattered adults were seen in coastal areas up to 8 November.

Forecast

No significant developments are likely.

Israel

On 3 November, scattered immature adults and small groups reached the coastal plains between Ashkelon (3139N/3432E) and Haifa (3248N/3459E), probably on strong southwesterly winds from northeast Egypt. On the 19-21st, several immature swarms arrived in the Negev Desert in the south from adjacent areas in the Sinai Peninsula. Swarms were reported in Eilat (2933N/3457E) and in several agricultural areas in the Arava Valley near the Jordanian border. Ground and aerial control operations were immediately undertaken. On the 21st, a few adults were seen further north near Jerusalem and, on the 25th, in the Dead Sea area near Ein Gedi (3127N/3523E) as well as in the Golan Heights. On the 26th, two swarms were again seen in the Arava valley near the Jordanian border and control operations were undertaken.

Forecast

A few immature groups and small swarms may still appear in the south coming from the west during periods of warm southwesterly winds. Some locusts may move back and forth along the border with Jordan. Most of the locusts are likely to continue south towards the Red Sea but a few may persist and eventually mature.

Jordan

On 19 November, small groups of immature adults at low densities were seen on trees near Aqaba (2937N/3500E). On the 21st, numerous larger groups arrived from adjacent areas of Israel in the Arava Valley between Aqaba and Ghor Safi (3023N/3510E). Ground control operations treated 4,520 ha on 20-24 November.

Forecast

A few immature groups and small swarms may still appear near Aqaba coming from the west during periods of warm southwesterly winds. Some locusts may move back and forth along the border with Israel. Most of the locusts are likely to continue south towards the Red Sea but a few may persist and eventually mature.

Palestine

On 25 November, an immature swarm arrived in the southern Gaza near Mwassi. A small swarm was reported on the West Bank near Jerusalem at Abu Dis.

Forecast

A few immature groups and small swarms may still appear in Gaza and the West Bank coming from the west during periods of warm southwesterly winds. Some locusts may move back and forth along the border with Israel. Most of the locusts are likely to continue south towards the Red Sea but a few may persist and eventually mature.

Syria

On 22-23 November, individual locust adults, mostly dead, reached coastal areas between Latakia (3531N/3547E) and Tartous (3453N/3555E), probably

on strong southwesterly winds from northeast Egypt.

Forecast

No significant developments are likely.

Bahrain, Iraq, Kenya, Kuwait, Qatar, Tanzania, Turkey, UAE and Uganda

• **Forecast**

No significant developments are likely.

MEDITERRANEAN

Cyprus

On 30 October, an immature swarm arrived in the west in Paphos district (ca. 3446N/3225E) and subsequently moved inland where a swarm was reported on the Akamas Peninsula on 2 November. The swarm is thought to have split up and dispersed. Limited control operations were undertaken.

Forecast

There is a low risk that locusts could appear during periods of warm and strong southerly winds in December; thereafter, this risk will diminish.

EASTERN REGION

Iran

• **Situation**

No locusts were seen along the southern and southeastern coastal plains during November.

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

During the second half of October, a few isolated adults were present in the summer breeding areas near the Indian border. No locusts were reported and first half of November.

• **Forecast**

No significant developments are likely.

India

• **Situation**

No locusts were seen during the second half of October and first half of November.

• **Forecast**

No significant developments are likely.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Announcements

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted. **During emergencies, RAMSES data should be transmitted twice/week and situation summaries should be sent every ten days.**

Reporting by e-mail. After each survey or control operation, affected countries should send completed FAO Desert Locust Survey and Control Forms or the RAMSES output file with a brief interpretation of the results by e-mail to eclo@fao.org.

Locust archives. Desert Locust reports received by FAO from affected countries from 1952 to the present are available on a series of four CDs in PDF. Please contact the Locust Group for more details.

Upsurge photos. Pictures of the current upsurge in the Western Region are available on the Internet at: www.fao.org/news/global/locusts/outbreakpix04.htm

Desert Locust booklet. FAO has produced a booklet for the general public and donor community entitled Hunger in their wake: Inside the battle against the Desert Locust, available for download at: www.fao.org/news/global/locusts/pubs1.htm

Publications on the Internet. New FAO publications and meeting reports are available for downloading at www.fao.org/news/global/locusts/pubslist.htm:

- Guidelines on minimum requirements for ground-based locust and grasshopper sprayers (English)
- Contingency planning spreadsheets and simulations for outbreaks, upsurges and plagues (English, French)
- 8th Desert Locust Control Committee Technical Group meeting report (English, French)
- FAO Desert Locust Standard Operating Procedures (SOP) for survey, control and aerial operations (English, Arabic)
- FAO Desert Locust Guidelines – Arabic version

Assistance provided. Details of assistance provided by donors to the current locust campaign are available on the Internet at: www.fao.org/news/global/locusts/donor/donor.htm.

2005 events. The following meetings are scheduled:

- **SW Asia Commission.** 24th session, Delhi (India), 10-14 January
- **EMPRES/WR.** 3rd Liaison Officers meeting, Dakar (Senegal), 5-12 February (provisional)

Press release. Several press releases on the current Desert Locust emergency have been recently issued by FAO. These are available at: http://www.fao.org/newsroom/en/index.html.

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/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)

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

GROUP

- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL

- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL

- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM

- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE

- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE

- swarm: 500+ km^2 • 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.

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.

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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guidea Bissau and Guinea Conakry.

CENTRAL

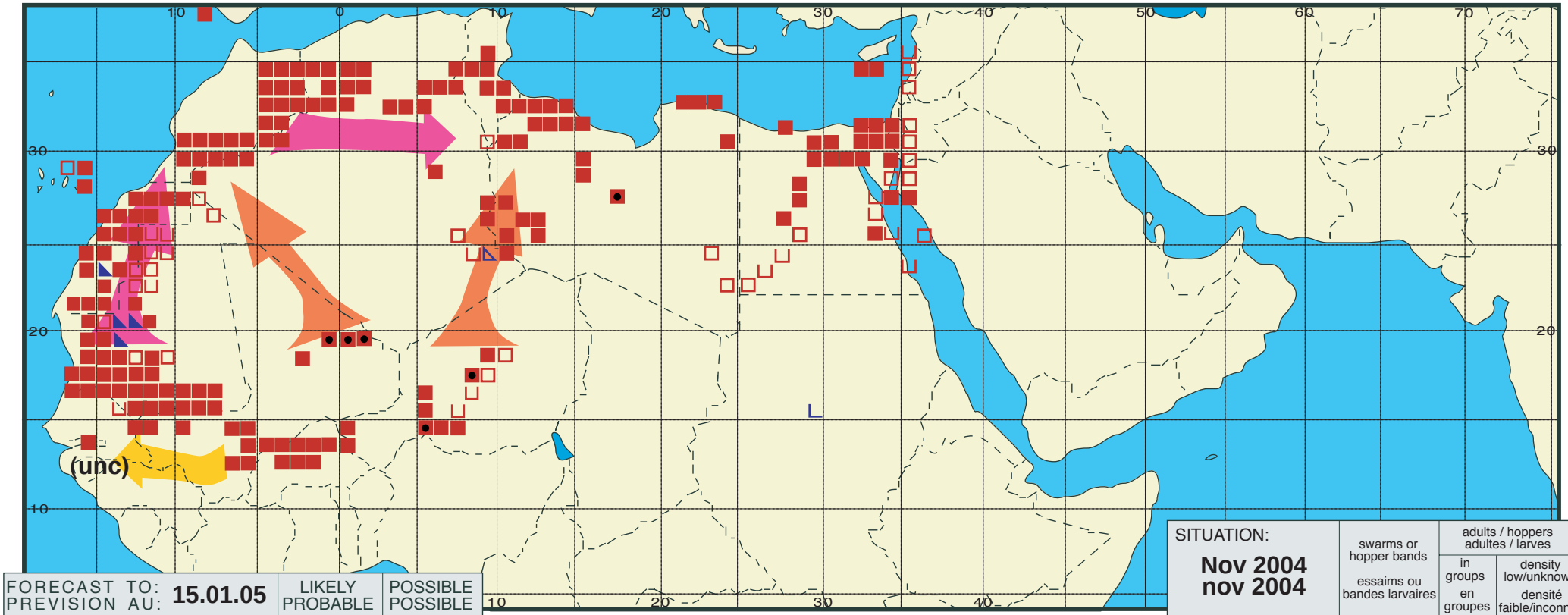
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.

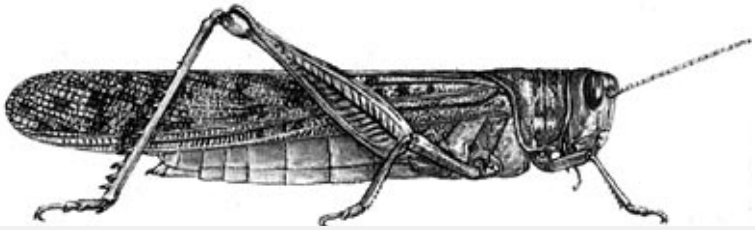
Desert Locust Summary
Criquet pèlerin - Situation résumée

314



FORECAST TO: PREVISION AU: **15.01.05**	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **Nov 2004** **nov 2004**	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)	◘	◙	⊟



DESERT LOCUST BULLETIN

FAO Emergency Centre for Locust Operations **No. 315**

(4 January 2005)

General Situation during December 2004 Forecast until mid-February 2005

The Desert Locust situation remained serious during December in the Western Region where intensive control operations continued against immature swarms in Morocco, Algeria and Mauritania. Nevertheless, the scale of these operations declined during the month. In West Africa, some swarms moved along the Southern Circuit migration route and invaded Gambia, southern Senegal and Guinea Bissau. A few swarms may have also reached Guinea. Most of the current locust populations are likely to remain immature except in northwest Mauritania where limited breeding could occur. In the Central Region, winter breeding commenced at the end of the month on the Red Sea coast in northeast Sudan and southeast Egypt where hatching and band formation are likely to take place in the coming weeks.

Western Region. Numerous immature swarms were present in and near the Atlas Mountains in **Morocco** and **Algeria** during December. Other swarms were scattered throughout the northern and central Sahara in Algeria and in western **Libya**. A few swarms were reported along the Mediterranean coast near Tripoli. In West Africa, a substantial number of small immature swarms were moving about in southern and central **Mauritania**. Late forming swarms from summer breeding in the Sahel reinvaded parts of southeastern Mauritania and eastern **Senegal**. Some of these swarms continued south along the Southern Circuit into **Gambia** and southern Senegal, reaching central **Guinea Bissau** by the end of the month and perhaps northern **Guinea**. These swarms are likely to remain immature and persist in southern Senegal and Guinea. Aerial and ground control operations treated about 880,000 ha in the region during December, compared to 2.2 million in the previous month.

Central Region. There were numerous reports of immature adult groups and swarms in northern **Egypt** as well as in the Western Desert and the Sinai Peninsula during December. Some of the adults reached the winter breeding areas along the coastal plains Red Sea in southern Egypt where a few had become mature and were breeding. In adjacent areas of northeast **Sudan**, two swarms laid eggs at the end of the month. Small immature adult groups were present on the northern Red Sea coast in **Saudi Arabia**, and scattered adults were seen on the Red Sea coastal plains near Tokar Delta, Sudan. Other scattered adults of local origin were present on the Red Sea coast in **Yemen**. Local breeding was in progress in northwest **Somalia**. During the forecast period, hatching and the formation of small hopper groups and bands are expected to occur in some places along the Red Sea Trench.

Eastern Region. No locusts were reported during December in the Region, and no significant developments are likely.

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 and Other Migratory Pests Group, AGP Division, FAO, 00100 Rome, Italy. It is also available on the Internet.
Telephone: +39 06 570 52420 (7 days/week, 24 hr)
Facsimile: +39 06 570 55271
E-mail: eclo@fao.org
Internet: www.fao.org
DLIS: www.fao.org/news/global/locusts/locuhome.htm

No. 315

DESERT LOCUST BULLETIN

Weather & Ecological Conditions in December 2004

Good rains fell in northern Morocco and Algeria during December. Breeding conditions were favourable there as well as in parts of central and northern Mauritania. Although rain fell in parts of the winter breeding areas along the Red Sea, conditions were generally less favourable and vegetation was becoming green in only a few places.

In the **Western Region**, the Inter-Tropical Convergence Zone (ITCZ) was located south of 10N. Breeding conditions were favourable in a few places in northern and central Mauritania where good rains fell in November. Vegetation continued to dry out in the summer breeding areas in the Sahel in southern Mauritania, in central and western Mali, in the Tamesna in Niger and in Chad. Small patches of green vegetation were present in the Adrar des Iforas in northern Mali and in parts of the southern Air Mountains in Niger. In Northwest Africa, light to moderate rain fell at times along the southern side of the Atlas Mountains in Morocco and Algeria. Heavy rain fell during the first decade of December in the Souss Valley. Light rain also fell in parts of the northern Sahara in Algeria near Bechar and Laghout and in southwest Libya near Ghat and in the Al Hamada Al Hamra. Consequently, breeding conditions are favourable in most of these areas.

In the **Central Region**, breeding conditions remained generally unfavourable along the western side of the Red Sea. In Sudan, 66 mm of rain reportedly fell in the Tokar Delta on 6 December. Vegetation was becoming green in parts of the northern Red Sea coast. Breeding conditions were locally favourable in the interior near Wadi Diib probably from earlier rainfall and runoff. In Egypt, moderate rain fell in the north and in the Sinai Peninsula on the 18th and along the Red Sea coastal plains during the last week. In Saudi Arabia, moderate to heavy rain was reported on the southern coastal plains of the Red Sea near Jizan, and light rain fell in parts of the adjacent coastal area in Yemen where breeding conditions had become unfavourable. Light to moderate rain occasionally fell in parts of northern Oman.

In the **Eastern Region**, no significant rain fell and dry conditions prevailed.

Area Treated

About 1 million ha were treated in December, bringing the total area treated since the beginning of the upsurge (October 2003) to 12 million ha.

	Current month	Campaign cumulative
Algeria	441,341 ha (1-31 Dec)	1,261,257 ha
Cape Verde	450 ha (11-29 Dec)	3,337 ha
Egypt	47,675 ha (1-27 Dec)	
Gambia	3,294 ha (1-25 Dec)	3,294 ha
Libya	14,133 ha (1-29 Dec)	64,764 ha
Mali	3,100 ha (1-10 Dec)	299,277 ha
Mauritania	59,987 ha (1-31 Dec)	1,072,540 ha
Morocco	384,796 ha (1-31 Dec)	1,921,994 ha
Niger	2,535 ha (1-10 Dec)	202,615 ha
Saudi Arabia	20 ha (2 Dec)	
Senegal	52,484 ha (1-31 Dec)	755,376 ha

Note: Reporting delays and discrepancies may affect the accuracy of these figures; NR = not reported.

Desert Locust Situation and Forecast

(see also the summary on page 1)

WESTERN REGION

Mauritania

• **SITUATION**

During December, numerous small and dense immature swarms were seen in the south and southeast. Some of these were arriving in the two Hodhs from adjacent areas in Mali while others were moving along the Senegal River Valley and throughout the south and centre of the country. A few immature groups and swarms were present in the northwest between Atar (2032N/1308W) and Zouerate (2244N/1221W). In the north, scattered adults were seen at the end of the first week near Bir Moghrein (2510N/1135W) and in the El Hank area. By the end of the month, locust infestations were declining in the south as conditions continued to dry out. Aerial and ground control operations treated nearly 60,000 ha during December.

• **FORECAST**

The situation will continue to improve in the south where only small residual populations are likely to

remain in those areas that stay green. Small scale breeding in the northwest in Inchiri and near Zouerate could lead to hatching and band formation during the forecast period. If rainfall occurs and temperatures are unusually warm in the north, additional locusts may appear and eventually lay eggs that could start to hatch by mid February.

Senegal

• **Situation**

During the first two decades of December, residual populations of immature swarms were present near Saint Louis (1601N/1629W). On the 3rd, immature swarms from late summer breeding in the Sahel appeared in the Casamance region in the south and on the 5th in Tambacounda in the east. From the 8th onwards, more swarms arrived between Sedihou (1251N/1535W) and Velingara (1310N/1410W) in the Casamance as well as south of Tambacounda (1345N/1340W). By the end of the second decade, immature swarms were reported in the extreme southeast at Saraya (1250N/1146W) near the borders of Guinea and Mali. At the end of the month, an immature swarm with a density of 12 adults/m^2 was seen in the southwest near Bignona (1248N/1618W) and other swarms were present in the Niokoloba National Park in the east. Aerial and ground control operations treated 52,484 ha during December.

• **Forecast**

Locust numbers will decline in the north. Low numbers of swarms are likely to persist in the south and east where a few could eventually mature.

Mali

• **Situation**

On 5 December, an immature swarm from late summer breeding in the Sahel appeared in the west about 50 km south of Kayes (1426N/1128W). During the first decade, control teams treated 3,100 ha in this region. In the north, immature adults and groups, at densities up to 42,000/ha, were present in parts of the Adrar des Iforas, the Tilemsi Valley and in the Timetrine.

• **Forecast**

Moderate numbers of locusts, including a few groups are expected to persist, mature and eventually lay eggs in those areas that remain favourable in the Adrar des Iforas, Tilemsi Valley and Timetrine. Hatching could occur by the end of the forecast period and hoppers may form groups and a few bands.

Niger

• **Situation**

During December, immature adults and groups were present in Tamesna north of 17N between Agadez (1700N/0756E) and the Malian border. Groups of mature adults were seen in a few places as well as in the southern Air Mountains where 2,535 ha were treated on 1-10 December.

• **Forecast**

Moderate numbers of locusts, including a few groups are expected to persist, mature and eventually lay eggs in those areas that remain favourable in the Air Mountains. Hatching could occur by the end of the forecast period and hoppers may form groups and a few bands.

Chad

• **Situation**

No reports received

• **Forecast**

Low numbers of adults may be present in parts of the northeast.

Cape Verde Islands

• **Situation**

In early December, hatching continued on the islands of Santo Antao, Sao Nicolau and Santiago where small bands had reached the second and third instar stages. At mid-month, some 70 small bands of second to fourth instar hoppers of up to 2,500 m^2 in size were reported on Fogo Island. On the 24th, a locally-bred swarm was seen on Santiago. At the end of the month, more hatching had occurred on Fogo where some 130 first instar bands at densities of more than 100 hoppers/m^2 were present. New hatchlings were also reported on Santo Antao. Crop damage occurred in some places. Control operations treated 450 ha during December.

• **Forecast**

Additional hatching and the formation of small groups and bands may occur on some islands. If uncontrolled, a few small groups and swarms could form.

Gambia

• **Situation**

On 1 December, a small immature swarm moved from the northern side of the Gambia River to the south bank in the Central River Division. During the remainder of the month, swarms moved back and forth across the Senegal River into the North Bank Division and the Upper and Lower River Divisions. Some damage was reported on vegetables, trees,

rice and cereals. Aerial and ground control operations treated nearly 3,300 ha during December.

• **Forecast**

Although the majority of the swarms that arrived during December should move out of the country into neighboring areas of Senegal, there is a low risk that a few infestations may persist and mature.

Guinea Bissau

• **Situation**

On 21 December, immature swarms from southern Senegal arrived in the north near Farim (1230N/1509W). On the 27th, immature swarms at densities of up to 200 adults/m^2 were reported in the east of the country near Bafata (1209N/1438W).

• **Forecast**

Low numbers of immature swarms are expected to persist in the centre and east.

Guinea

• **Forecast**

A few small immature swarms are almost certainly present in the north near the Senegal border. If so, some of these could move towards the centre and east of the country where they are expected to remain immature.

Benin, Burkina Faso, Cameroon, Cote d'Ivoire, Ghana, Liberia, Nigeria, Sierra Leone and Togo

• **Forecast**

No significant developments are likely.

Algeria

• **Situation**

During the first decade of December, additional immature swarms appeared in the extreme south, in the southwest near Tindouf (2741N/0811W) and Bechar (3135N/0217W), and in the east near Illizi (2630N/0825E) and El Oued (3323N/0649E). During the remainder of the month, some of these swarms moved further north to supplement those that were already present in the central Sahara regions of Ghardaia, Ouargla and El Oued west of the Grand Erg Oriental, along the southern side of the Atlas Mountains in the regions of El Bayadh, Daghout and Djelfa, and in the northwest regions of Sidi Bel Abbes and Saida. Aerial and ground control operations treated 441,341 ha during December.

• **Forecast**

Moderate numbers of immature swarms will persist in the central and northern Sahara as well as in parts of the Atlas Mountains and in the northwest. The majority of the swarms will remain immature because of low temperatures. Nevertheless, some swarms could mature and eventually lay eggs in areas where temperatures are warmer and rainfall has occurred.

Morocco

• **Situation**

During the first decade of December, immature swarms were concentrated mainly in the southwest between Guelmim (2859N/1003W), Tan-tan (2827N/1109W) and Zag (2800N/0920W), in the Draa Valley south of Tata (2944N/0758W) and in the northeast between Taza (3416N/0401W) and Oujda (3441N/0145W). A few swarms reached the coastal plains north of Agadir (3030N/0940W) to Safi (3218N/0914W).

During the second decade, immature swarms persisted in the above areas. Additional swarms were reported along the southern side of the Atlas Mountains between Zagora (3019N/0550W) and Bouarfa (3232N/0159W) and on the Souss-Massa plains between Sidi Ifni (2924N/1012W) and Agadir. Other swarms were present on the plateaux of the Atlas near Midelt (3241N/0443W). During the third decade, locust infestations persisted in the above areas but were declining. Aerial and ground control operations treated nearly 385,000 ha during December.

• **Forecast**

Moderate numbers of immature swarms will persist along the southern side of the Atlas Mountains as well as in some of the valleys and plateaux. The majority of the swarms will remain immature because of low temperatures. Nevertheless, some swarms could mature and eventually lay eggs in areas where temperatures are warmer and rainfall has occurred.

Libyan Arab Jamahiriya

• **Situation**

During the first week of December, several large and dense swarms appeared along the Mediterranean coast between Tripoli and Sirte (3110N/1639E). Throughout the month, additional immature swarms at densities of up to 200 adults/m^2 were reported in the southwest near Ghat (2459N/1011E). On the 10th, a mature swarm was seen copulating near Ghat. First and second instar hoppers mixed with mature adults were still present in the centre of the country near Jebel Al Haruj Al Aswad. In the southeast, groups of immature adults persisted throughout the month near Jebel Uweinat on the border with Egypt and Sudan in W. Gazal (2144N/2430E) and north of Kufra at

Ain Ajdid (2422N/2338E). Aerial and ground control operations treated 14,133 ha on 1-29 December.

• Forecast

Low to moderate numbers of swarms are likely to persist and remain immature in the west between Ghat and Nalut. If temperatures are warm enough, some adults may mature and lay eggs. This may have already occurred on a limited scale near Ghat. If so, hatching and band formation will occur from January onwards. Small groups of adults may persist near Kufra and Jebel Oweinat and slowly mature.

Tunisia

• **Situation**

During the first week of December, the situation was reported as calm. Thereafter, no reports were received.

• **Forecast**

Low to moderate numbers of immature gregarious adults are likely to be present in parts of the centre and south.

CENTRAL REGION

Sudan

• **Situation**

During December, isolated maturing solitarious adults were present at 11 places in the Tokar Delta at densities up to 200/ha. On the northern Red Sea coast, gregarious immature and mature adults at densities of 250/ha were seen west of the Red Sea Hills and W. Diib in W. Fotakwan (2128N/3532E) and isolated mature solitarious adults were present in W. Artibat (2152N/3451E). On the 30-31st, two swarms were seen laying eggs in the Red Sea Hills south of Sufiya in the Adrim area (2139N/3608E) on 560 ha and at Shendeit (2143N/3607E) on 200 ha. Solitarious mature adults were seen nearby. No locusts were seen in the Northern State.

• **Forecast**

Hatching will occur by the end of January in the northern Red Sea Hills and adjacent areas in Wadi Diib as far south as Tomala that will give rise to hopper bands in February. Laying may also occur on the northern coastal plains between Mohammed Qol and the Egyptian border. Low numbers of locusts are expected to persist in the Tokar Delta where small scale breeding is likely.

Eritrea

• **Situation**

No reports received.

• **Forecast**

Isolated adults may appear on the northern coastal plains of the Red Sea and breed on a small scale if rainfall occurs.

Somalia

• **Situation**

Small scale breeding occurred in December on the escarpment in the northwest where isolated third instar hoppers were reported on the 25th at Laguxidh (1025N/4328E). Isolated mature adults were seen on the coast near Bulhar (1023N/4425E) on the 27th.

• **Forecast**

Although small scale breeding may continue in places where conditions are favourable along the northwest escarpment and on the coast, locust numbers are expected to remain below threatening levels.

Ethiopia

• **Situation**

No surveys were undertaken and no locusts were reported during December.

• **Forecast**

No significant developments are likely.

Djibouti

• **Situation**

No locusts were reported during December.

• **Forecast**

No significant developments are likely.

Egypt

• **Situation**

During the first half of December, there were numerous reports of immature groups and swarms in the north between Fayoum (2918N/3050E) and Wadi Natrun (3025N/3013E), further south along the Nile River between Sohag (2633N/3142E) and Minya (2806N/3045E), in the Western Desert near Bahariya (2821N/2851E), Farafra (2710N/2818E), Dakhla (2530N/2900E) oases and near Baris (2448N/3035E) and Sh. Oweinat (2219N/2845E), and in a few places in the interior of the southern Sinai Peninsula as well as on the coast near Sharm Esh Sheikh (2752N/3413E) and Nuweiba (2902N/3440E). Similar infestations were also seen on the Red Sea coast and in the adjacent hills between Marsa Alam (2504N/3454E) and Shalatyn (2308N/3535E). Some of these had become mature.

During the second half of the month, mainly mature adults at densities up to 3/m^2 were treated in the Red Sea Hills west of Marsa Alam. At the end of the month, immature adults at densities of 15-20/m^2 were

treated in several places in the central Sinai near Abu Zenima (2903N/3306E) and groups of adults were seen copulating on the southern Red Sea coast near Berenice (2359N/3524E). Control operations treated 47,675 ha during December.

• Forecast

Breeding is expected to take place in the southeast along the Red Sea coast between Marsa Alam and the Sudanese border as well as in adjacent areas. Consequently, hatching and band formation will occur from about mid January onwards. Moderate numbers of locusts could persist in some oases in the Western Desert and eventually breed.

Saudi Arabia

• **Situation**

In early December, small groups of immature adults were present on trees in W. Terim (2750N/3519E) and in nearby areas on the northern coast of the Red Sea near Duba. At mid-month, scattered adults were present between Tabuk (2823N/3635E) and Medinah (2430N/3935E). No locusts were reported from other regions. Control operations treated 20 ha in early December.

• **Forecast**

Low numbers of locusts are likely to have dispersed along the coastal plains between Duba and Jeddah. If good rains fall, adults will mature and lay eggs that will hatch and could cause small hopper groups or perhaps a few bands to form.

Yemen

• **Situation**

During November, a few scattered solitarious immature and mature adults were present on the northern Red Sea coast between Al Zuhrah (1541N/4300E) and Midi (1619N/4248E). Isolated hoppers were seen to the east of Midi.

During December, scattered adults persisted near Midi and low numbers of solitarious adults were seen near Hodeidah (1450N/4258E) including a few copulating adults at mid-month. No locusts were seen on the coastal plains near Aden.

• **Forecast**

Scattered adults are likely to persist on the Red Sea coastal plains and small scale breeding will occur on a limited basis in areas of recent rainfall. Consequently, locust numbers are expected to increase but remain below threatening levels.

Oman

• **Situation**

No locusts were seen during surveys carried out in the north during December.

• **Forecast**

No significant developments are likely.

Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, Syria, Tanzania, Turkey, UAE and Uganda

• **Forecast**

No significant developments are likely.

EASTERN REGION

Iran

• **Situation**

No locusts were seen in the south on 11-12 December.

• **Forecast**

No significant developments are likely.

Pakistan

• **Situation**

No locusts were reported during the second half of November and in December.

• **Forecast**

No significant developments are likely.

India

• **Situation**

No locusts were seen during the second half of November and during December.

• **Forecast**

No significant developments are likely.

Afghanistan

• **Situation**

No reports received.

• **Forecast**

No significant developments are likely.

Announcements

Locust reporting. Affected countries are kindly reminded to make sure that all locust situation reports are sent to FAO HQ by the 28th day of the month so the information can be included in the FAO bulletin for the current month; otherwise, it will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted. **During emergencies, RAMSES data should be**

transmitted twice/week and situation summaries should be sent every ten days.

Reporting by e-mail. After each survey or control operation, affected countries should send completed *FAO Desert Locust Survey and Control Forms* or the RAMSES output file with a brief interpretation of the results by e-mail to eclo@fao.org.

Locust archives. Desert Locust reports received by FAO from affected countries from 1952 to the present are available on a series of four CDs in PDF. Please contact the Locust Group for more details.

Upsurge photos. Pictures of the current upsurge in the Western Region are available on the Internet at: www.fao.org/news/global/locusts/outbreakpix04.htm

Desert Locust booklet. FAO has produced a booklet for the general public and donor community entitled *Hunger in their wake: Inside the battle against the Desert Locust*, available for download at: www.fao.org/news/global/locusts/pubs1.htm

Publications on the Internet. New FAO publications and meeting reports are available for downloading at www.fao.org/news/global/locusts/pubslist.htm:

- Guidelines on minimum requirements for ground-based locust and grasshopper sprayers (English)
- Contingency planning spreadsheets and simulations for outbreaks, upsurges and plagues (English, French)
- 8th Desert Locust Control Committee Technical Group meeting report (English, French)
- FAO Desert Locust Standard Operating Procedures (SOP) for survey, control and aerial operations (English, Arabic)
- FAO Desert Locust Guidelines – Arabic version

Assistance provided. Details of assistance provided by donors to the current locust campaign are available on the Internet at: www.fao.org/news/global/locusts/donor/donor.htm.

2005 events. The following meetings are tentatively scheduled:

- **SW Asia Commission.** 24th session, Delhi (India), 10-14 January
- **International Scientific Locust Seminar.** Dakar (Senegal), 11-13 January
- **EMPRES/WR.** 3rd Liaison Officers meeting, Dakar (Senegal), 7-11 February
- **Contingency Planning.** 1st workshop sponsored by World Bank, Bamako (Mali), 7-11 March
- **EMPRES/CR.** 6th Consultative Committee, Cairo (Egypt), 14-16 March
- **Train-the-Trainers workshop.** Niamey (Niger), 14 March – 8 April
- **Contingency Planning.** 2nd workshop sponsored by World Bank, Niamey (Niger), 25-29 April
- **CLCPRO.** 3rd session, Tripoli (Libya), 5-9 June
- **FAO Council.** 128th session, Rome, 20-25 June
- **CRC.** 27th session of the Executive Committee, Khartoum (Sudan), 24-28 July
- **EMPRES/CR.** 13th Liaison Officers meeting, Sana'a (Yemen), 12-16 November
- **DLCC.** 38th Session, Rome, 12-16 December

Press release. Several press releases on the current Desert Locust emergency have been recently issued by FAO. These are available at: http://www.fao.org/newsroom/en/index.html.

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/400 m foot transect (or less than 25/ha).

SCATTERED (SOME, LOW NUMBERS)

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

GROUP

- forming ground or basking groups;
- 20+ adults/400 m foot transect (or 500+/ha).

ADULT SWARM AND HOPPER BAND SIZES

VERY SMALL

- swarm: less than 1 km^2 • band: 1 - 25 m^2

SMALL

- swarm: 1 - 10 km^2 • band: 25 - 2,500 m^2

MEDIUM

- swarm: 10 - 100 km^2 • band: 2,500 m^2 - 10 ha

LARGE

- swarm: 100 - 500 km^2 • band: 10 - 50 ha

VERY LARGE

- swarm: 500+ km^2 • 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.

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.

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.

REGIONS

WESTERN

- locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Senegal, Tunisia; during plagues only: Burkino Faso, Cape Verde, Gambia, Guidea Bissau and Guinea Conakry.

CENTRAL

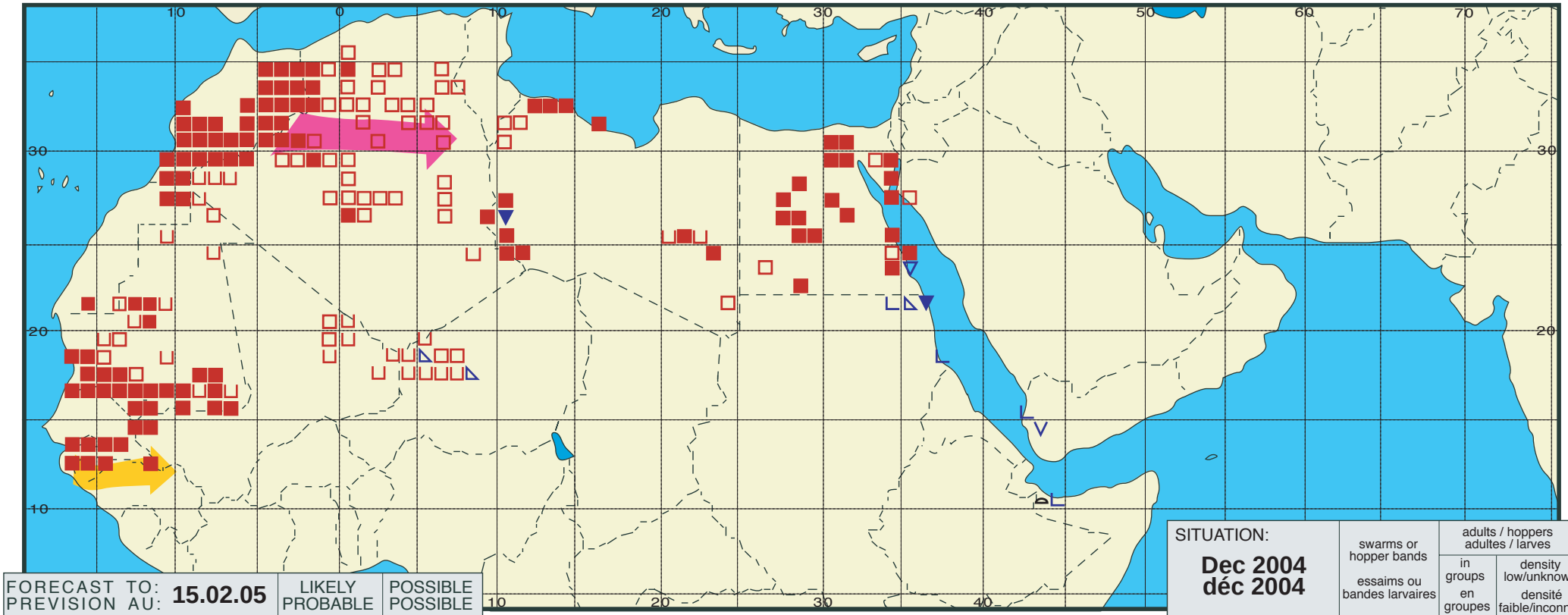
- locust-affected countries along the Red Sea: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during plagues only: Bahrain, Iraq, Israel, Jordan, Kenya, Kuwait, Qatar, Syria, Tanzania, Turkey, UAE and Uganda.

EASTERN

- locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan.

Desert Locust Summary
Criquet pèlerin - Situation résumée

315



FORECAST TO: PREVISION AU: **15.02.05**	LIKELY PROBABLE	POSSIBLE POSSIBLE
favourable breeding conditions conditions favourables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarm(s) essaim(s) limité(s)		
non swarming adults adultes non essaimant		

SITUATION: **Dec 2004 déc 2004**	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	◣	◺	L
adults, maturity unknown adultes, maturité inconnue	▲	△	⋀
egg laying or eggs pontes ou œufs	▼	▽	V
hoppers larves	●	○	◡
hoppers & adults (combined symbol example) larves et adultes (exemple symboles combinés)	◘	◙	⊎