

FAO Emergency Centre for Locust Operations



most of the hoppers had fledged and new swarms

No. 342

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General Situation during March 2007 Forecast until mid-May 2007

The Desert Locust situation continued to remain very serious during March in the Central Region. Hopper bands and swarms formed along the Red Sea coastal plains near the Sudan/Eritrea border and to a lesser extent on the northwest coast of Somalia. Some swarms also formed from local breeding on the Red Sea coast in Saudi Arabia. Control operations are underway in Eritrea, Sudan and Saudi Arabia. As currently infested areas are drying out, any swarms that are not controlled are expected to move into the Eritrean Highlands and the interior of Sudan, and to the interior of Saudi Arabia and Yemen where good rains fell in March. A few swarms could continue to Baluchistan in Iran and western Pakistan where widespread rains fell recently. All efforts should be made to monitor the developing and potentially dangerous situation carefully.

Western Region. The situation remained calm in the region during March. Limited breeding continued in one area of northwest Mauritania. Scattered adults were present in parts of western Algeria and western Libya. If swarms originating from current infestations on the Red Sea coast move towards the interior of Sudan, then there is a slight risk that they may continue towards the Western Region in May. FAO will keep countries well informed in advance.

Central Region. Hopper bands continued to form on the Red Sea coast between Massawa, **Eritrea** and Tokar, **Sudan** during March. By the end of the month,

were forming along the border within an area of about 3,000 km². Local breeding continued on the central Red Sea coast in Saudi Arabia. At the end of the month, a few small swarms formed and some of the adults started to move towards the spring breeding areas in the interior. Ground control in the three countries was supplemented by aerial operations at the end of the month. As vegetation is drying out on the coast, most of the swarms along the Sudan/Eritrea border are likely to move into the Eritrean Highlands and perhaps continue west into Sudan. A few small swarms could also move further north along the coast or cross the Red Sea and reach the central interior of Saudi Arabia where they would eventually lay eggs in areas of recent rainfall. In northern Somalia, a few small swarms formed on the northwest coast and moved into adjacent areas of eastern Ethiopia. A few more swarms could form in northwest Somalia and move east along the northern coast, north to areas of recent rainfall in the interior of Yemen, or into adjacent areas of Ethiopia and eventually to the Highlands.

Eastern Region. Unusually heavy rains fell in the spring breeding areas in southeast Iran and western Pakistan during March. Small-scale breeding was in progress on the coast in western Pakistan and limited control operations were carried out. Nevertheless, more breeding is likely to occur during the forecast period, causing locust numbers to increase slightly. There is also a low risk that a few swarms could reach these areas from current infestations along the Red Sea coast and in northern Somalia.

The FAO Desert Bulletin is issued monthly, supplemented by Updates during periods of increased Desert Locust activity, and is distributed by e-mail, FAO pouch and airmail by the Locusts and Other Migratory Pests Group, AGP Division, FAO, 00153 Rome, Italy. It is also available on the Internet.

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Weather & Ecological Conditions in March 2007

Vegetation started to dry out in winter breeding areas along both sides of the Red Sea during March. Breeding conditions will improve due to good rains that fell in the interior of the Arabian Peninsula and in southwest Asia. Dry conditions prevailed in the Western Region.

In the Western Region, no significant rain fell during March in West Africa and dry conditions prevailed in most countries. Consequently, ecological conditions were only sufficient to allow the survival of low numbers of solitarious locusts in parts of northwest Mauritania, the Adrar des Iforas in northern Mali and along the western side of the Air Mountains in Niger. In Northwest Africa, green vegetation persisted along parts of the Draa, Ziz and Ghris Valleys south of the Atlas Mountains in Morocco. In Western Sahara, light rain may have fallen at the end of the month near the southern border with Mauritania. Vegetation remained green along the Sakia Alhamra in the north and in the Ma'Tallah area in the south. In northwest Libya, good rain fell in parts of the Al Hamada Al Hamra and nearby Ghadames during the last week of March and vegetation was becoming green.

In the Central Region, no significant rain fell in winter breeding areas along both sides of the Red Sea during March. Vegetation continued to dry out on the Eritrean coastal plains south of Mehimet to Massawa. Vegetation started to dry out in the area between Mehimet and the Tokar Delta, Sudan, and remained green only in a few wadis. Unusually heavy and widespread rains fell in northern Oman on 17-19 March. Most of the rain was concentrated along the Batinah coast between Muscat (55 mm) and Sohar (107 mm), near Sur (40 mm) and in the northern interior near Buraimi (45 mm). Consequently, breeding conditions will improve and should remain favourable during April and May. Good rains fell over most of the spring breeding areas in the central interior of Saudi Arabia on 26-27 March where vegetation is already green. Good rains also fell in mid-March and again at the end of the month in the summer breeding areas in the interior of Yemen, mainly in Shabwah and Marib,

where ecological conditions are expected to improve in the coming weeks.

In the **Eastern Region**, unusually heavy and widespread rain fell throughout the spring breeding areas extending from Bushehr to Hormozgan and Sistan-Baluchistan provinces in Iran and to Baluchistan, Pakistan on 17-20 March. Rainfall was heaviest along the coast of both countries (Chabahar 98 mm, Pasni 53 mm). Some showers reached the summer breeding areas along both sides of the Indo-Pakistan border. Consequently, ecological conditions will improve and should allow breeding to occur during April and May in coastal and interior areas of southeastern Iran and western Pakistan.



Area Treated

Eritrea 16,456 ha (January-February)

1,740 ha (27-31 March by air;

no ground details)

Pakistan 50 ha (end of March) Saudi Arabia 7,740 ha (1-31 March) Sudan 11,174 ha (1-31 March)



(see also the summary on page 1)

WESTERN REGION

Mauritania

SITUATION

During March, isolated solitarious hoppers and few maturing adults were seen in one area east of Akjoujt where breeding occurred in February near Grara de Tenemrourt (1945N/1325W). In the north, isolated immature solitarious adults were seen near Zouerate (2244N/1221W).

• FORECAST

Isolated adults will persist in those areas that remain green in southwest Adrar and in parts of Tiris-Zemmour. No significant developments are likely.

Mali

SITUATION

No locusts were reported in March.

• FORECAST

Isolated adults may be present and could persist in the few wadis in the Adrar des Iforas that may remain green.

Niger

SITUATION

No reports were received in March.

FORECAST

Isolated adults may be present and could persist in the few places on the western side of the Air Mountains and near Iferouane that remain green.

Chad

SITUATION

No reports were received in March.

Forecast

No significant developments are likely.

Senegal

SITUATION

No locusts were reported during March.

FORECAST

No significant developments are likely.

Benin, Burkina Faso, Cameroon, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea Bissau, Guinea, Liberia, Nigeria, Sierra Leone and Togo

FORECAST

No significant developments are likely.

Algeria

SITUATION

During March, isolated mature solitarious adults persisted in the west between Beni Abbes (3011N/0214W) and the Moroccan border. No locusts were seen in the central Sahara near Adrar, in the south near Tamanrasset or in the east near Djanet.

FORECAST

Scattered adults will persist near Beni Abbes and may be present at low number in other parts of the central Sahara. Small-scale breeding could occur in these areas with hatching in April and fledging in May.

Morocco

SITUATION

No locusts were reported during March.

Forecast

No significant developments are likely.

Libyan Arab Jamahiriya

SITUATION

During March, isolated mature solitarious adults were present at Qarat Ghadames (2956N/0940E) and at one place in the Al Hamada Al Hamra near Al Nahya (2841N/1122E).

• FORECAST

Scattered adults are expected to persist in those areas that remain green in the northwest and perhaps breed on a small scale.

Tunisia

SITUATION

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

Forecast

No significant developments are likely.

CENTRAL REGION

Sudan

SITUATION

During March, locust infestations persisted on the Red Sea coastal plains between the Tokar Delta and the Eritrean border. Groups of immature and mature solitarious and gregarious adults mixed with numerous small early instar hopper bands at densities of up to 2,000 hoppers/m² were initially concentrated in a relatively small area of about 7 x 15 km between Agetai (1802N/3823E) and the border. Hoppers continued to form bands and, by mid-month, fledging had commenced. Thereafter, several small immature and mature swarms formed in the same area, some of which laid eggs. During the last week of March, there were nine reports of small immature swarms arriving from adjacent coastal areas in Eritrea and most of the hopper bands had fledged except near Agetai where many large fifth instar bands were reported. Ground and aerial control operations treated 11,174 ha during March.

In the Tokar Delta, only scattered solitarious immature and mature adults were present during the month. Although there was no indication that swarms had reached the delta, one mature swarm was reported to be laying eggs on the 25th about 10 km from its southern edge.

• FORECAST

Hopper bands and swarms will continue to form on the Red Sea coastal plains between Agetai and the Eritrean border. Small-scale hatching will occur by mid-April and the resulting hoppers are likely to form a few small bands and fledge by mid-May. More swarms are expected to arrive from adjacent coastal areas in Eritrea in April. As vegetation continues to dry out, the swarms are likely to move north along the coast towards the Tokar Delta and Port Sudan as well as inland towards the Red Sea Hills and the Nile Valley. Some swarms could cross the Red Sea to the Saudi Arabian coast. All efforts should be made to monitor the situation closely and maintain the necessary control operations.



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Eritrea

SITUATION

A late report indicated that ground control operations were carried out against hopper bands and groups of adults on the Red Sea coastal plains between Massawa (1537N/3928E) and the Sudanese border, treating 8,700 ha in January and 7,756 ha in February. Additional hatching was also reported during January and February.

During March, ground control operations continued along the Red Sea coastal plains between Sheib (1551N/3903E) and Mehimet (1723N/3833E) primarily against fourth and fifth instar hopper bands. Many of the infestations started to fledge and become immature adults by mid-month. By the third week, the situation improved in these areas but remained serious further north where late instar hopper bands, at densities of several hundred hoppers/m2, were present in millet along a 50 km stretch (5,000 ha) of Wadi Falkat between Mehimet and the coast. Groups of recently fledged adults were forming small immature swarms on the plains between W. Falkat and the Sudanese border within an area of about 160,000 ha. During the remainder of the month, ground control operations focused on these infestations. Further details are awaited as no reports have been received after 19 March. Aerial operations commenced on the 27th and treated 1,740 ha until the end of the month.

Forecast

Small immature swarms will form early in the forecast period and are expected to emigrate as vegetation continues to dry out. Some of the swarms are likely to move further north along the coast to Sudan while others could move west into the highlands. Once in the highlands, the swarms may stay there for several weeks or they could move irrigated agriculture in the western lowlands (Gash Barka). There is a risk that a few small swarms could also appear in these areas from current infestations in northwest Somalia.

Ethiopia

SITUATION

On 19 March, a small immature swarm of about one hectare in size was seen near Aysha (1045N/4234E) moving towards the interior. The swarm probably came from the northwest coast of Somalia. On the

23rd, an immature swarm of about 50 ha was reported near the Somali border at Degego (1029N/4233E), and there was an unconfirmed report of a much larger swarm between Jijiga (0922N/4250E) and the Somali border

Forecast

A few more small swarms are likely to appear between Jijiga and Dire Dawa from neighbouring areas in northern Somalia. If so, these swarms could continue north into the highlands of Amhara and Tigray.

Djibouti

SITUATION

No reports were received during March.

Forecast

There is a slight risk of a few small swarms arriving early in the forecast period from adjacent areas of northwest Somalia. All efforts should be made to monitor the situation closely.

Somalia

SITUATION

During March, small third to fifth instar hopper bands, and immature and mature swarms were reported on the northwest coast near Djibouti in a relatively small and concentrated area near Silil (1058N/4326E). At the end of the month, scattered immature adults were seen further east along the coast near Lughaye (1041N/4356E) and about 50 km east of Berbera (1028N/4502E). There was also an unconfirmed report of a swarm near Boroma (0956N/4313E).

• Forecast

A few more small swarms could form on the northwest coast and move east along the coast or towards the plateau and the Ethiopian border, or remain on the northwest coast, mature and lay eggs in areas of recent rainfall. If laying occurs, hatching is expected by the end of April and fledging by the end of May. All efforts should be made to monitor the situation closely.

Egypt

• SITUATION

At the end of March, isolated hoppers of all instars and maturing solitarious adults were seen at a few places on the Red Sea coast between Abu Ramad (2224N/3624E) and the Sudanese border. No locusts were seen during surveys in Wadi Diib, along Lake Nasser or in the Western Desert at Sh. Oweinat (2219N/2845E).

• FORECAST

Small-scale breeding is expected to end on the Red Sea coastal plains between Shalatyn and the Sudanese border. There is a low risk of adults and perhaps a few small swarms arriving in Upper Egypt from the Red Sea coast near the Sudanese/Eritrean border or from the eastern side of the Red Sea.

Saudi Arabia

• SITUATION

During March, small-scale breeding continued along the central coast of the Red Sea between Lith (2008N/4016E) and Qunfidah (1909N/4107E) for the third consecutive month. Scattered solitarious and transiens hoppers of all instars and maturing adults were present. Although densities were relatively low, some of the adults were forming small groups. During the last week of the month, there were six reports of swarms: Rabigh (2247N/3901E) on the 23rd, Lith on the 24th and again on from 26th to the 28th, and near Jeddah on the 25th. The swarms varied in size from 1,000 to 2,000 ha at densities of up to 10 adults/m². All of the swarms were laying eggs. These swarms were probably from local infestations that had moved along the coast. Scattered adults were also seen in the Asir Mountains suggesting that some locusts were starting to move towards the spring breeding areas in the central interior. Both movements probably occurred on winds associated with a storm over the central interior on the 26th. No locusts were reported elsewhere on the Red Sea coastal plains or in the interior. Control teams treated 7,740 ha during March, mainly between Lith and Qunfidah, including barrier treatments by ground and aerial operations near Lith from 27 March onwards.

Forecast

Hatching is likely to occur during the second week of April in those places on the coast where swarms were seen laying eggs in March. If so, hoppers could form small bands, fledge by mid-May and form small swarms. Adults and perhaps a few small swarms could appear in the spring breeding areas in the central and lay eggs in areas of recent rainfall that should hatch by the end of April. The resulting hoppers could form small groups or bands, and fledge in late May. There is a low risk that a few adult groups and small swarms could appear in coastal or interior areas from the western side of the Red Sea in April. All efforts should be made to monitor the situation closely.

Yemen

SITUATION

During March, scattered immature and mature solitarious adults were present on the Red Sea coastal plains near Hodeidah (1450N/4258E), Al Zuhrah (1541N/4300E) and Midi (1619N/4248E). On the southern coast, small-scale breeding occurred for the second consecutive month east of Aden near Zinjibar (1306N/4523E) where low numbers of second to fifth instar solitarious and *transiens* hoppers, at densities of

5-10 hoppers/m², were mixed with scattered maturing solitarious adults.

Forecast

Locusts may appear in the summer breeding areas in the interior where they could mature and lay eggs in areas of recent rainfall. There is a low to moderate risk of a few small swarms arriving in these areas from northern Somalia. Unless further rainfall occurs, locust numbers are expected to decline on the Red Sea coastal plains. All efforts should be made to monitor the situation closely, especially in the interior desert areas.

Oman

SITUATION

No locusts were seen during surveys carried out on the Batinah coast, on the Musandam Peninsula and in the northern interior regions of Dakhalia, Dahera and Sharqiya during March.

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 during surveys carried out in Sistan-Baluchistan province on the coast near Chabahar (2517N/6036E) and in the interior west of Iranshahr (2715N/6141E) on 25 March.

• FORECAST

Scattered adults are likely to be present and breeding on a small-scale in areas of recent rainfall along the southeastern coast between Jask and Gwatar as well as in the interior of Jaz Murian and Iranshahr. There is a low risk of adults and perhaps a few small swarms arriving from the west.

Pakistan

• SITUATION

During March, isolated mature solitarious adults were present at two places in the spring breeding areas near Turbat (2600N/6303E) in Baluchistan. Small-scale breeding occurred on the coast between



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Gwadar (2508N/6219E) and Ormara (2512N/6438E) and control teams treated 50 ha of first to third instar hopper groups at the end of the month.

FORECAST

Small-scale breeding will cause locust numbers to increase in coastal and interior areas of Baluchistan. There is a slight risk of adults and perhaps a few swarms arriving from the west or southwest and laying eggs during the forecast period.

India

• SITUATION

No locusts were seen during surveys carried out in Rajasthan and the Rann of Kutch during March.

• Forecast

No significant developments are likely.

Afghanistan

SITUATION

No reports received.

Forecast

No significant developments are likely.



Locust reporting. During recession periods, countries should report at least once/month and send RAMSES data with a brief interpretation. During locust outbreaks, upsurges and plagues, RAMSES output files with a brief interpretation should be sent twice/week and affected countries are encouraged to prepare decadal bulletins summarizing the situation. All information should be sent by e-mail to the FAO/ECLO Desert Locust Information Service (eclo@fao. org). Information received by the end of the month will be included in the FAO Desert Locust 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.

eLocust2. FAO has developed a new version of eLocust in collaboration with affected countries and the French Space Agency (CNES/Novacom) that allows field officers to enter survey and control data directly in the field and transmit it in real time via satellite to their national locust centre. Data can also be downloaded to a PC and visualized on

GoogleEarth. The software is in both English and French. FAO DLIS has distributed units to nearly all of the frontline countries. Photos and more information are available at: www.fao.org/ag/locusts/en/activ/DLIS/index.html

Desert Locust warning levels. A colour-coded scheme has been established to indicate the seriousness of the current Desert Locust situation: green for *calm*, yellow for *caution* and red for *danger*. The scheme is applied to the Locust Watch web page and to the monthly bulletin's header. The levels indicate the perceived risk or threat of current Desert Locust infestations to crops and appropriate actions are suggested for each level. Your feedback on the usefulness of this scheme and any suggested improvements is welcome.

EMPRES/CRC website. Detailed information on EMPRES/CR and the FAO Central Region Commission as well as member country profiles can be found on the new EMPRES/CRC website at: www.crc-empres.org.

MODIS imagery. Columbia University's International Research Institute for Climate and Society (IRI) has started to provide 16-day 250-metre resolution MODIS imagery for monitoring ecological conditions in the Desert Locust recession area, in addition to the daily rainfall estimates already available. These products can be downloaded in different formats suitable for GIS at: http://iridl.ldeo.columbia.edu/maproom/.Food_Security/.Locusts/index.html. For further information, contact Pietro Ceccato (pceccato@iri.columbia.edu).

New information on Locust Watch. DLIS launched a new initiative in October called *Desert Locust e-info news* as a means of keeping everyone informed on a weekly basis of new information on the Locust Group's web page, Locust Watch (www.fao. org/ag/locusts). The latest additions are:

- Press Release. Desert Locust situation (28 March)
- **Eritrea outbreak.** Photos (23 March)
 Links to the above information can be found in the new *Latest Additions* section on Locust Watch.

2007 events. The following meetings are scheduled:

- **CRC**. 29th meeting of the Executive Committee, Sana'a (Yemen), 20-24 May
- CLCPRO. 4th sessions of the Executive Committee and session, Bamako (Mali), 18-22 June
- EMPRES/WR. 6th Liaison Officers Meeting (26-30 November) and 3rd Steering Committee (3-4 December), Agadir (Morocco)



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).
- · 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 km² • band: 1 - 25 m²

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

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

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

swarm: 500+ km²
 band: 50+ ha

RAINFALL

LIGHT

1 - 20 mm of rainfall.
 MODERATE

21 - 50 mm of rainfall.

HEAVV

• 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

 PECLINE
- 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.

WARNING LEVELS

GREEN

 Calm. No threat to crops. Maintain regular surveys and monitoring.

YELLOW

 Caution. Potential threat to crops. Increased vigilance is required; control operations may be needed.

RED

 Danger. Significant threat to crops. Intensive survey and control operations must be undertaken.

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, Guinea and Guinea-Bissau.

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.



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