



منظمة الأغذية  
والزراعة  
للأمم المتحدة

联合国  
粮食及  
农业组织

Food  
and  
Agriculture  
Organization  
of  
the  
United  
Nations

Organisation  
des  
Nations  
Unies  
pour  
l'alimentation  
et  
l'agriculture

Продовольственная и  
сельскохозяйственная  
организация  
Объединенных  
Наций

Organización  
de las  
Naciones  
Unidas  
para la  
Agricultura  
y la  
Alimentación

## FAO DESERT LOCUST CONTROL COMMITTEE

### Thirty-ninth Session

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### Desert Locust developments in 2007-2008 (Agenda Item 5)

#### Overview<sup>1</sup>

The Desert Locust situation during the past two years was characterized by several outbreaks in the Central Region (Eritrea, Somalia, Sudan and Saudi Arabia), and an outbreak in Mauritania in the Western Region and one in Iran in the Eastern Region. The outbreaks developed as a result of good rainfall that led to favourable conditions for at least two generations of breeding. As some of the outbreaks in the Central Region could not be fully controlled, a small upsurge developed in the southern part of the Central Region during the summer of 2007 that affected Yemen, Oman, Djibouti, Somalia, Ethiopia and, for the first time in nearly 50 years, Kenya. A combination of control operations and unfavourable climatic and ecological conditions brought the upsurge under control.

Consequently, most of the locust activity in 2007-08 took place in the Central Region where nearly 270,000 ha were treated, followed by the Eastern Region (44,000 ha) and the Western Region (23,000 ha). In all, more than 330,000 ha were treated. Throughout the period, national survey teams monitored ecological conditions and checked for the presence of locusts in the vast recession area between Mauritania and India. However, sizeable portions of this area could not be accessed due to insecurity, mainly in northeast Mali, northwest Niger, eastern Chad, western Sudan (Darfur), eastern Ethiopia and southern Somalia.

The remainder of this paper summarizes the situation in each region during the main breeding periods.

#### Western Region

**Winter 2006 / Spring 2007 breeding.** The situation remained calm during the period. Small-scale breeding occurred in northwest Mauritania and central Algeria, and a few adults were present in northwest Libya and in the Draa Valley in Morocco. Limited control operations (460 ha) were

<sup>1</sup> This paper includes data and information received by DLIS up to 12 February 2009. An update will be provided during the DLCC.

carried out against small hopper bands and adult groups in irrigated crops in central Algeria. In May, isolated adults were seen in northern Mali and southeast Niger.

**Summer 2007 breeding.** Seasonal rains commenced in the Sahel in early July and continued to about mid-September. Isolated adults first appeared in southern Mauritania during July. In September and October, small-scale breeding occurred in southern Mauritania and northeast Chad but locust numbers remained low. By the end of October, solitarious adults had moved from the summer breeding areas to northwest Mauritania and bred. Although surveys could not be carried out in Mali and Niger, there were reports of solitarious adults in Tamesna and local breeding near Tanout, Niger in September.

**Winter 2007 / Spring 2008 breeding.** Locust numbers increased slightly in northwest Mauritania from small-scale breeding that took place from November to May, and limited ground control operations (130 ha) were undertaken in December, and March to May. In April, small groups of hoppers formed. Numerous infestations were present in central and southern Algeria in December and control (766 ha) was carried out. Thereafter, only low numbers of adults remained in a few irrigated areas until April and May when small-scale breeding caused locust numbers to increase and hoppers and adults formed small groups in the central Sahara that were treated (2,430 ha) by ground teams. Isolated adults persisted during most of the period in a few places in northern Mali and in the Air Mountains in Niger but surveys could not be carried out in either country.

**Summer 2008 breeding.** Isolated adults were seen in Tamesna and the Tenere Desert in Niger during June. Seasonal rains commenced in the Sahel in mid-June and continued until mid-October. Hence, the rainy season was about six weeks longer than in 2007. Low numbers of adults were present in southern Mauritania from July to mid-September and small-scale breeding occurred in August and September. In Algeria, solitarious adults persisted along the edges of irrigated areas in the central Sahara throughout the summer. Small-scale breeding occurred in August and hoppers formed small groups that were controlled (15 ha). Isolated adults were seen in northeast Chad from September to November. Insecurity prevented surveys from being carried out in Mali and Niger for the second consecutive year. In central Libya, ground teams treated hoppers and adults in July and August (4,000 ha) from breeding that took place after good rains in May.

**Autumn 2008 breeding.** In western Mauritania (Nouakchott to Akjoujt), rains first fell in early July and heavy showers fell at the end of July and August. Widespread heavy rains fell several times in late September over western and northern Mauritania and in adjacent area of Western Sahara. As a result, ecological conditions became sufficiently favourable east of Nouakchott to allow two generations of breeding between September and December. This caused locust numbers to increase sharply and an outbreak developed in which hoppers formed groups from mid-November onwards and small groups of adults were present by mid-December. Ground teams treated more than 14,500 ha from mid-November to the end of December. Low numbers of adults were present in northern Mauritania and Western Sahara from mid-October onwards. In November, local breeding occurred in the northeastern part of Western Sahara and in southern Algeria near the Malian border.

**Winter 2008 breeding.** Low numbers of hoppers and adults persisted east of Nouakchott during January and limited control operations were carried out. Isolated adults continued to be present in northern Mauritania and small-scale breeding occurred near Zouerate in early February.

## Central Region

**Winter 2006 / Spring 2007 breeding.** As a result of good autumn rains and unusually favourable ecological conditions, an outbreak developed on the Eritrean coast at the end of 2006. Two generations of breeding took place between Massawa and the Sudanese border from early November to April 2007. First generation hoppers and adults formed groups and small bands in January and second generation adults formed immature swarms in late March. Ground control

operations commenced in December but were hampered by mined areas and communication difficulties. The outbreak spread in early February to the adjacent coastal areas in Sudan where local breeding was already in progress. Aerial operations were undertaken from February to April in Sudan by PPD and along both sides of the Sudanese-Eritrean border against late instar bands and immature swarms in April by DLCO-EA. In all, more than 56,000 ha were treated in Eritrea and 22,000 ha in Sudan. Groups of adults moved from the coast to the Nile Valley in northern Sudan and perhaps across the Red Sea to Saudi Arabia. By June, the situation was calm along both sides of the Red Sea.

Small-scale breeding occurred from January to April on the Red Sea coast in Saudi Arabia and Yemen, and in northwest Somalia. By the end of March, small swarms formed on the coast of Saudi Arabia and laid eggs. Some of the swarms moved into the interior in mid-April and laid eggs that hatched in May and formed hopper bands until June. More than 83,100 ha were treated by air and ground from February to June.

A few swarms also formed in northwest Somalia in March and moved to adjacent areas in Djibouti and northeast Ethiopia, and across the Gulf of Aden to the southern coast in Yemen. In April, a few swarms moved from northwestern Somalia to Djibouti and Ethiopia. Breeding occurred during May on the plateau in northern Somalia and northeastern Ethiopia where hopper bands formed. Several swarms formed in June and move east to northeast Somalia.

**Summer 2007 breeding.** Unusually heavy and widespread rains occurred in the interior of Yemen where several swarms arrived from northern Somalia and Saudi Arabia in March and April and laid eggs. By late May, numerous hopper bands had formed north of Wadi Hadhramaut on the southern edge of the Empty Quarter in an area previously considered by locals as a transit zone. Infestations extended into southern Oman in July where heavy rains (300+ mm) from tropical cyclone Gonu had fallen the previous month (5-9 June) in the north. FAO assisted Yemen in organizing and implementing an emergency aerial survey and control campaign, supplemented by ground teams, which treated more than 32,000 ha from June to October. Oman treated 2,707 ha in the south from July to September, including a few swarms that arrived in mid-August. As vegetation dried out in Yemen in September, immature swarms formed and moved to northern Somalia (8-16 September), Djibouti (16 September), eastern Ethiopia (21-25 September), and northeast Kenya (18 November).

Early summer breeding occurred in northern Sudan and southern Egypt during June that caused small hopper bands to form in the Nile River Valley, and control operations (202 ha) were carried out. Small-scale breeding continued during the remainder of the summer in the interior of Sudan and in western Eritrea. At the end of the summer, an outbreak developed in northern Sudan where a second generation of breeding produced small hopper bands and swarms between October and early December, and 30,000 ha were treated.

**Winter 2007 / Spring 2008 breeding.** Groups of adults from the Nile Valley appeared in winter breeding areas along the Red Sea coast in Sudan near Tokar and in Wadi Diib in September, which is earlier than normal. Adults and a few swarms continued to move from the interior to the coast until mid-December. Two generations of breeding occurred but, due to poor rainfall, infestations were confined mainly to the Tokar Delta and, to a lesser extent, in Wadi Diib near the Egyptian border. Small hopper bands formed in the Tokar Delta in November and ground and aerial control operations treated more than 12,000 ha from December 2007 to February 2008. By March, no further locusts were seen on the coast.

Elsewhere, small-scale breeding occurred in a few places along the Red Sea coast in Saudi Arabia (from adults that may have originated in the interior of Sudan), Eritrea and Yemen. Local breeding also occurred in the interior of Oman and ground teams treated hopper bands January (5,880 ha) and a few swarms formed in February. Some of the swarms moved to eastern Yemen and continued to farms on the northern edge of the Empty Quarter in Saudi Arabia, while others moved to northern Oman, UAE and to southeastern Iran. Although ground and aerial control (544 ha) were

immediately undertaken in Saudi Arabia, some egg laying and hatching occurred that gave rise to small hopper bands, which were treated (6,064 ha) by the farmers through the irrigation systems.

Several waves of swarms that originated from summer breeding in northern Somalia and Yemen moved south and laid eggs in the Ogaden in northeastern Ethiopia and central Somalia (October) and in southeastern Ethiopia and northeast Kenya (November). Hatching occurred until mid-December and hopper bands formed until about mid-January 2008. Ground control operations were quickly mounted in Kenya but were hindered in Ethiopia by insecurity. DLCO-EA conducted aerial control in Ethiopia (5,200 ha November-January) and Kenya (1,250 ha December). Immature swarms formed in eastern Ethiopia in early January and moved west and southwest to the highlands and Rift Valley of Oromiya region in southern Ethiopia where they concentrated and persisted during the spring. It is thought the adults perished in the highlands as no locusts were reported after April.

**Summer 2008 breeding.** The situation remained generally calm during the summer. Only scattered locusts were present in the interior of Yemen, Sudan and southern Egypt. Despite good rains, primarily in Sudan, no breeding was detected during the summer.

**Winter 2008 breeding.** Unusually heavy rains in late October caused flooding on the coast and in interior areas in southern Yemen. Consequently, small-scale breeding occurred during the winter near Aden and probably further east along the coast near Ahwar. A second generation of breeding was reported in early February when solitarious and *transiens* adults were seen laying eggs near Ahwar. In Eritrea, small-scale breeding started on the northern coast in November. Scattered adults were present on the Red Sea coast in Saudi Arabia and Yemen from November onwards, and in Sudan starting in December.

### Eastern Region

**Spring 2007 breeding.** Small-scale breeding occurred on the coast of western Pakistan from March to May. Unusually heavy and widespread rains in mid-March allowed breeding to continue somewhat longer than normal and extend into southeast Iran during April. Consequently, locust numbers increased, hoppers and adults gregarized to form small groups, bands and, in Pakistan, one small swarm. In June, locusts declined in both countries due to control operations since March (4,765 ha Iran and 2,000 ha Pakistan) and subsequent adult movement to the Indo-Pakistan summer breeding areas.

**Summer 2007 breeding.** Pre-monsoon rains in March and April allowed local breeding to occur in Rajasthan, India and control (290 ha) was undertaken. On 6-9 June, Tropical Cyclone Gonu caused heavy rains and flooding on the coast in southeast Iran and western Pakistan. This allowed medium to high densities of solitarious and *transiens* adults to breed in southeast Iran where they were treated (50 ha) in August. Scattered adults persisted in these areas during September and October, and bred again in November.

A second cyclone, Yemyin, brought heavy rains and flooding to the coast of southeast Pakistan and in adjacent areas of Rajasthan and Gujarat, India on 23-26 June. An increasing number of solitarious adults from western Pakistan appeared in the summer breeding areas and laid eggs in Khairpur and Cholistan deserts in Pakistan and in Rajasthan. At the end of June, monsoon rains started and some locusts appeared in early July on the Gujarat coast, probably carried by winds associated with the cyclone from western Pakistan or northern Somalia. One generation of breeding occurred during the summer on both sides of the Indo-Pakistan border, and control operations (880 ha) were carried out in August against hoppers on the coast west of Karachi.

In northern Baluchistan, ground teams controlled late instar hoppers near Kharan in late October (700 ha) and two small immature swarms in early November (250 ha). No locusts were seen in India after mid-October and in Pakistan after mid-November.

**Spring 2008 breeding.** Scattered adults that had been present since the summer on the southeast coast of Iran bred on a small-scale after rains fell in November 2007. A second generation occurred in early 2008 when unusually heavy rains fell over most of the spring breeding areas in southeast Iran and western Pakistan. In some places, more than five times the long-term average fell. This was compounded by the arrival of a few low-density mature swarms from the eastern Arabia in southeast Iran from 20 February to early March. The swarms dispersed and laid eggs on the coast and in the interior that hatched in March and April, and hoppers formed small groups and bands. Control operations treated nearly 35,000 ha from February to June, causing locust numbers to decline by July. In Pakistan, isolated adults were present on the coast west of Karachi during March and in the interior in April. Poor rainfall during the spring resulted in little breeding in Baluchistan except in parts of the northern interior in April and May when 145 ha were treated.

**Summer 2008 breeding.** Pre-monsoon rains fell for the second consecutive year along both sides of the Indo-Pakistan border in early April and throughout May. These were followed by light to moderate rains associated with the monsoon that reached Rajasthan in early June – about two weeks earlier than normal. Consequently, vegetation was greener earlier and remained green in Cholistan, Pakistan until late November. This allowed two generations of breeding to occur in Cholistan between May and October but control was not required. In India despite the early monsoon, isolated immature adults were seen only in July in central Rajasthan. The monsoon rains began to withdraw at the end of September, nearly one month later than normal, and by November no further locusts were reported in either country. In Iran, residual populations of isolated adults persisted on the southeast coast until November.

**Winter 2008.** Nearly double the average annual rainfall occurred in southeast Iran in late 2008 and early 2009, which caused ecological conditions to become unusually favourable for breeding.