Central & Eastern regions

May 2018 – September 2019

Winter/spring/summer breeding area outbreak

Desert Locust Information Service
FAO, Rome
www.fao.org/ag/locusts

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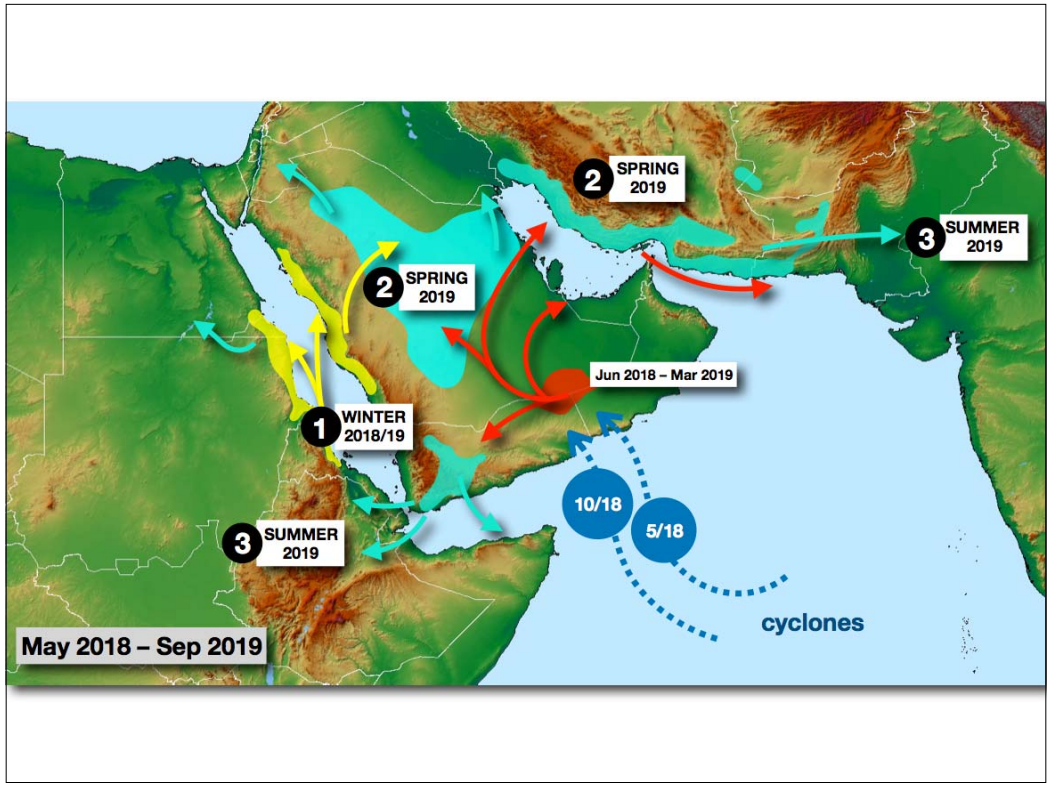
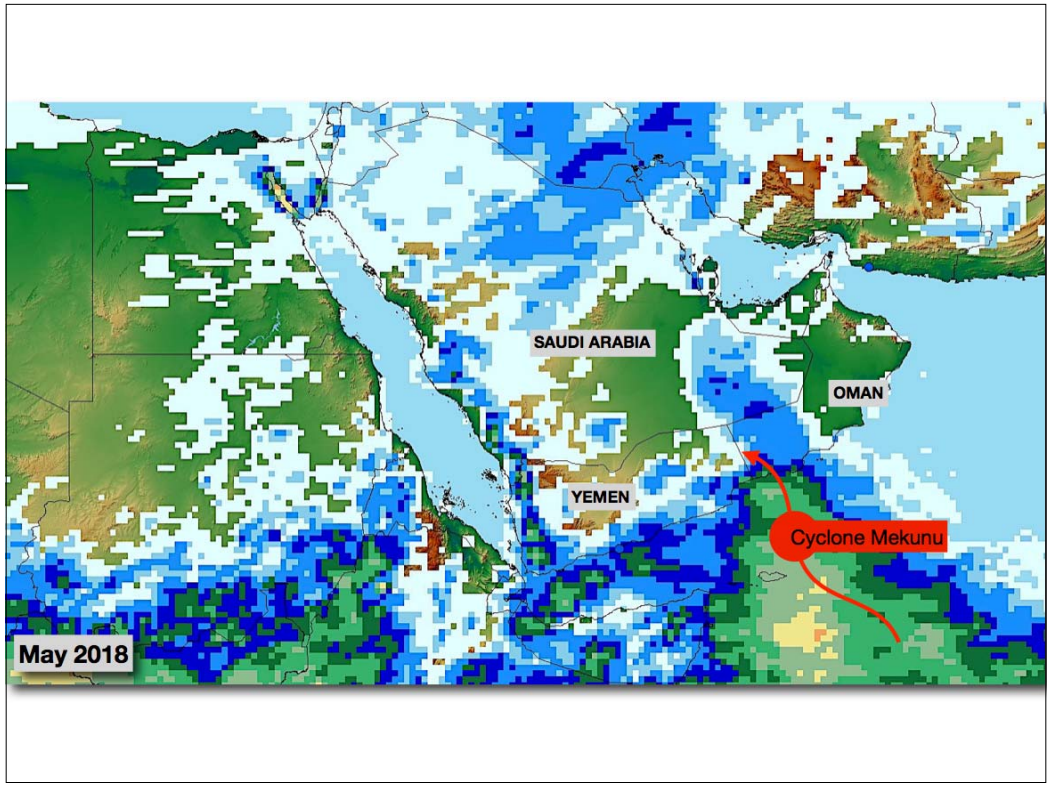
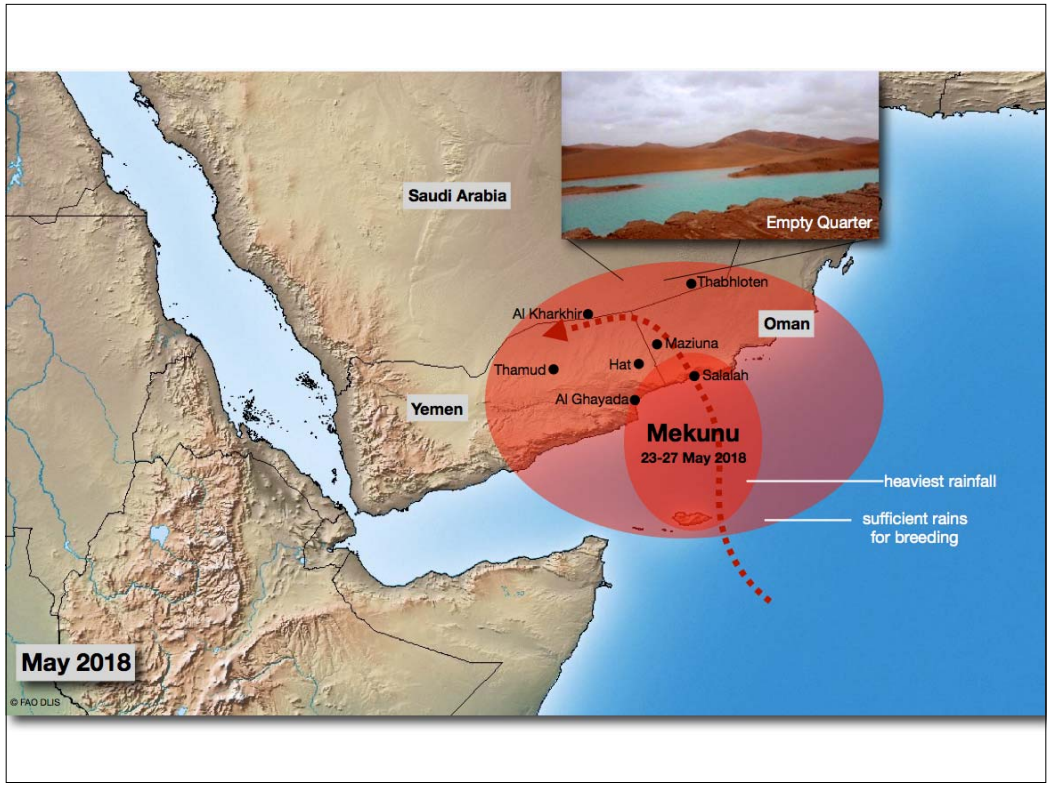
15 October 2019



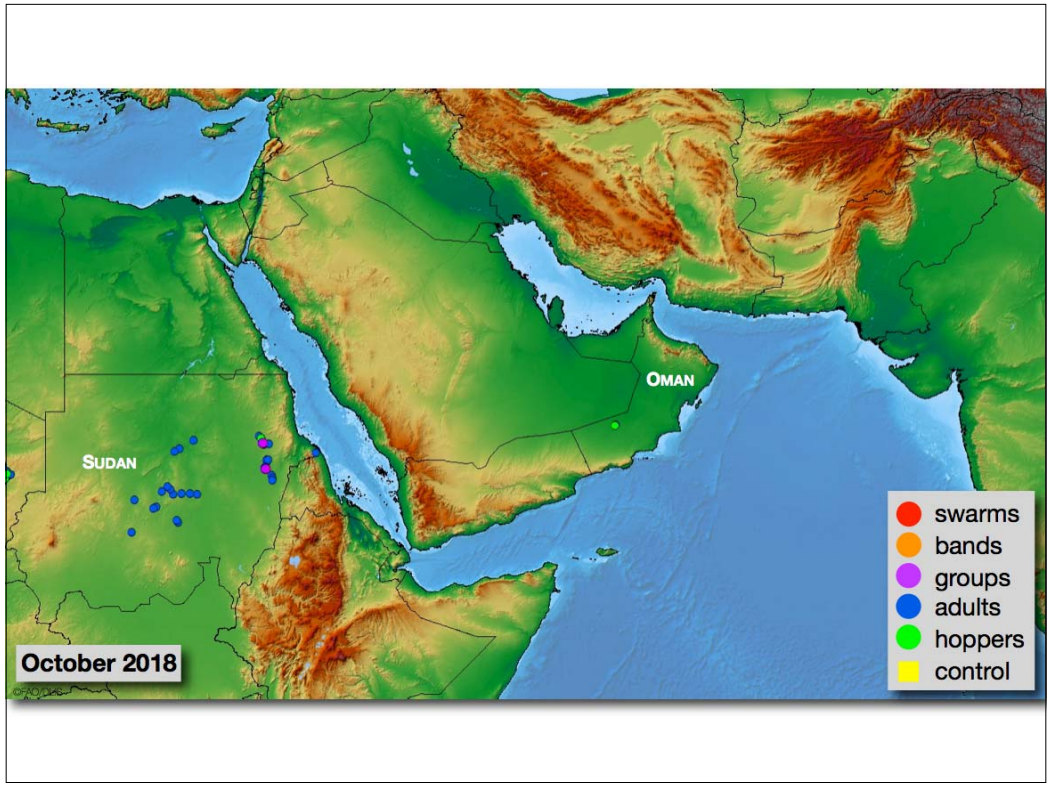
An overview of the Desert Locust outbreaks that occurred along the Red Sea coast during the winter of 2018/2019 that were exacerbated by two cyclones that brought heavy rains to the Empty Quarter on the Arabian Peninsula in May and October 2018. This allowed at least three generations of unprecedented breeding that was not detected. Swarms emigrated from these areas to spring breeding areas in the Central and Eastern regions from January to March 2019. Two generations of spring breeding occurred that spread to the Horn of Africa and to the Indo-Pakistan border in June. Two more generations occurred in the latter area as a result of the best monsoon rains in 25 years. Considerable control operations were conducted with the exception of Yemen where persistent civil conflict limited survey and control operations.



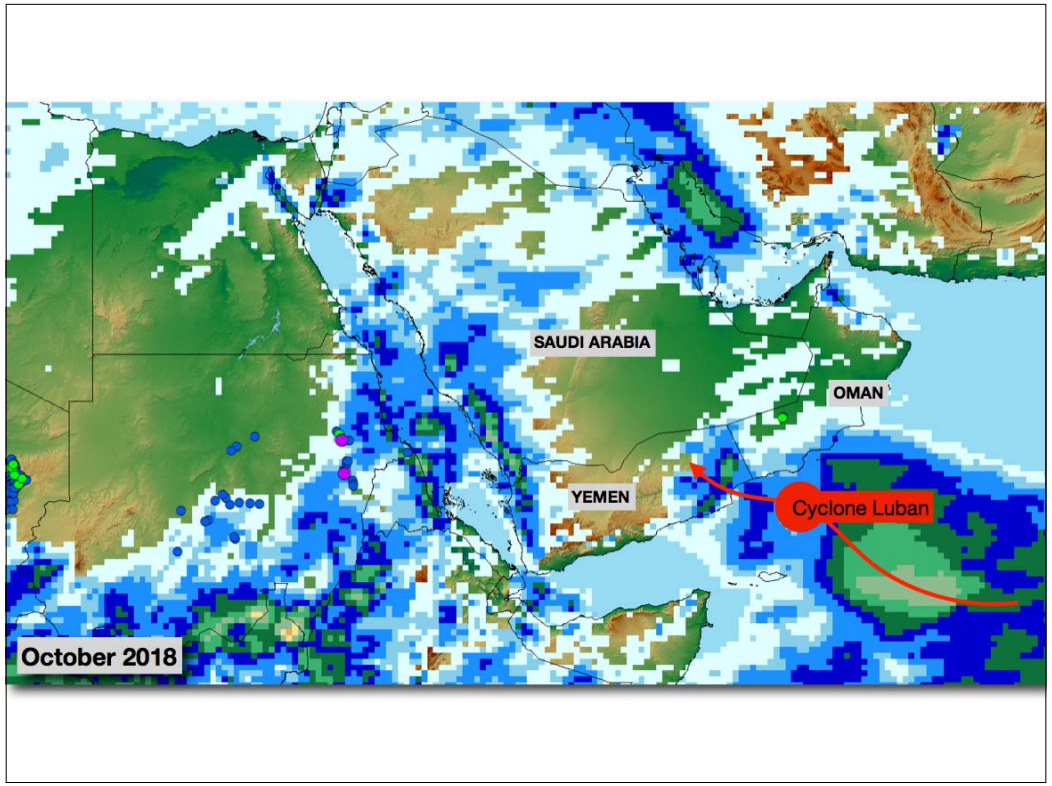
May 2018. Cyclone Mekunu developed in the Indian Ocean and moved towards the southern Arabian Peninsula, making landfall on the coast of southern Oman near Salalah on the afternoon of 25 May with winds up to 200 kph. Heavy rains fell ahead of its landfall on the 24th and continued until the 26th. A total of 278 mm fell which is three times the annual rainfall of Salalah. Massive flooding occurred on the Salalah coastal plains from extreme runoff in the Dhofar Hills, causing damage and loss of life.



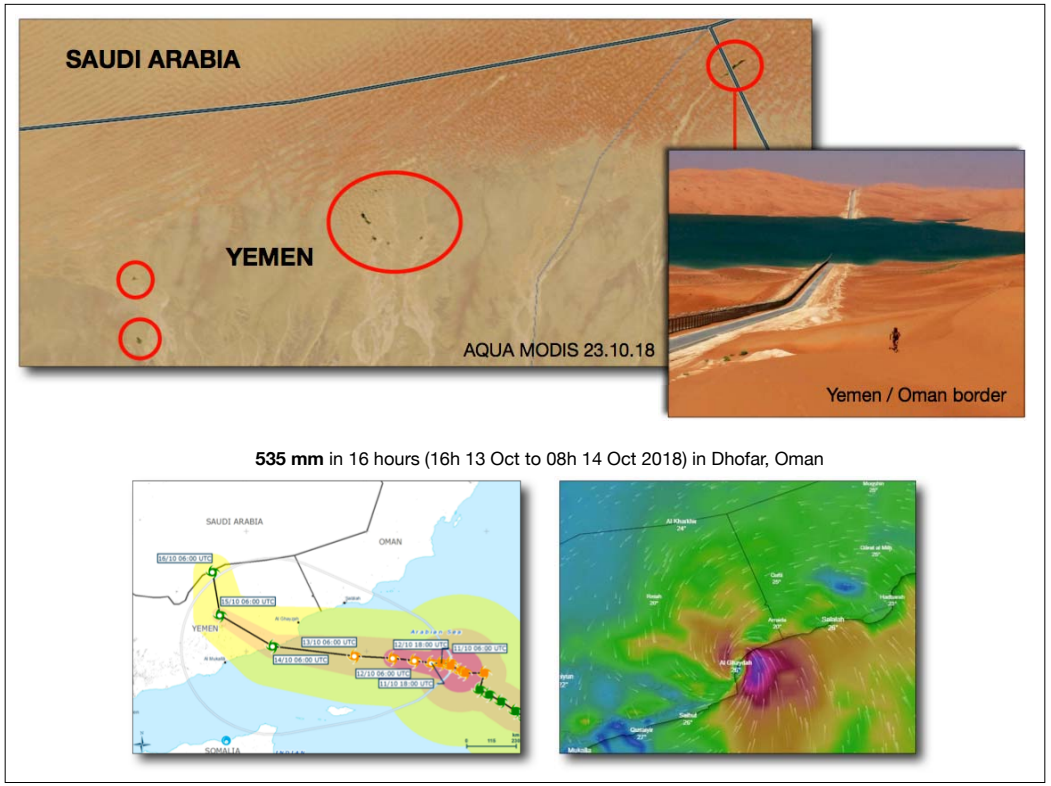
May 2018. The cyclone weakened as it crossed the Dhofar Hills and continued over the desert plateau where it reached the Yemen/Oman/Saudi border north of Maziuna, Oman into northeast Yemen, north of Hat where it veered on a westerly course towards Thamud. It brought strong winds, dusty conditions and some 10–50 mm or more of rain to the plateau between Thamud, Rumah and Hat, including the Empty Quarter along the Yemen/Saudi border near Al Kharkhir (185138N/510746E) to Thabhloten (194224N/535745E) along the Oman/Saudi border. Clouds with some light rains in a few limited places were present along the Yemen/Saudi border, reaching as far west as Thamud until the end of May. By 1 June, skies were clear again. As a result of Mekunu, heavy rains fell in eastern Yemen coastal and interior areas of Al Mahrah province from Al Ghayada on the coast to Dhofar region in southern Oman, as far as Ash Shuwaymiyyah on the Omani coast to the Saudi Arabian border in the interior. Lakes formed in between the dunes in the Empty Quarter.



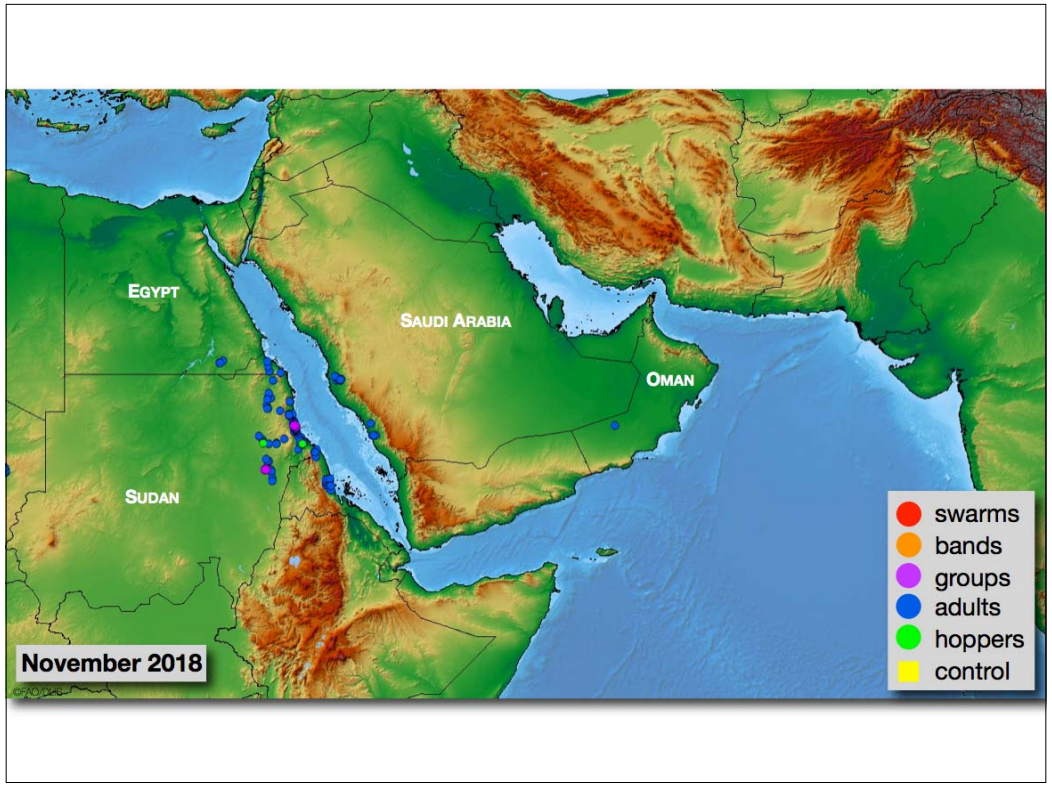
October 2018. Small-scale breeding occurred in the interior of Sudan. The first indication of potential breeding in areas that received heavy rains from Cyclone Mekunu in May was received from southern Oman where scattered late instar hoppers were seen at one location on the edge of the Empty Quarter in early October. This suggests that egg-laying occurred in about mid-August. Adults were seen copulating in the same area towards the end of October.



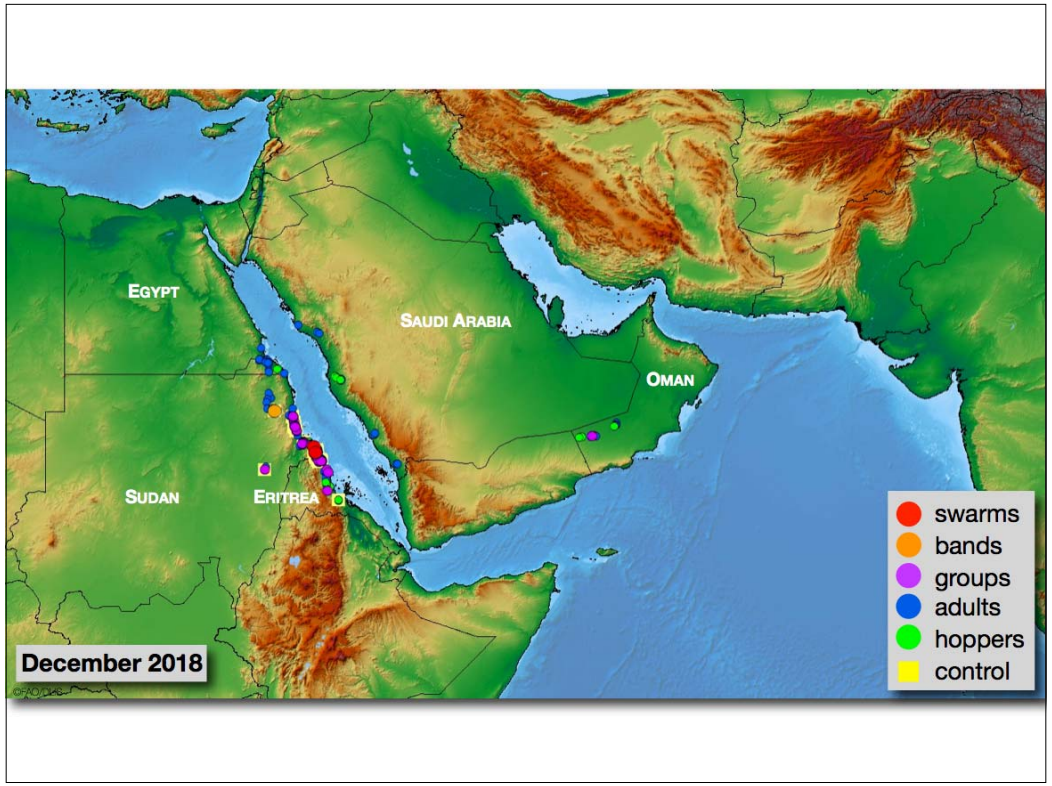
October 2018. Cyclone Luban developed on 6 October in the central Arabian Sea and moved west-northwestwards to the southern Arabian Peninsula. It made landfall near Al Ghayada in eastern Yemen on 14 October with winds up to 75 kph. The storm quickly weakened over the dry, mountainous terrain before dissipating on the 15th. Cyclone Luban brought heavy rains and flooding to coastal and interior areas of eastern Yemen and southern Oman that reached as far north as the southern edge of the Empty Quarter at the Yemen / Saudi Arabia border.



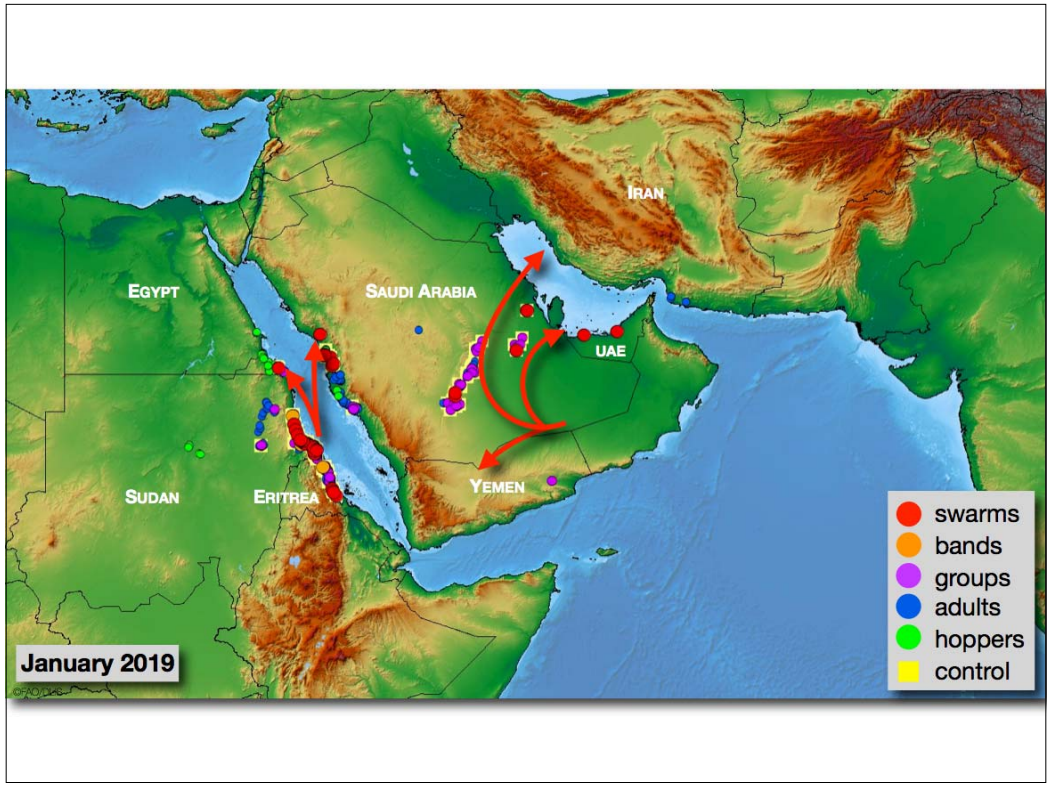
October 2018. The heavy rains from Cyclone Luban caused flooding, damage and loss of life in eastern Yemen and southern Oman. Some 535 mm of rain fell in 16 hours in the Dhofar province of southern Oman. Salalah reported 138 mm. As a result, standing lakes formed in the interior along the Yemen /Oman border and in the edges of the Empty Quarter. This was confirmed by actual photos from the area as well as satellite imagery. This was nearly the same area that had received exceptionally heavy and unusual rainfall from Cyclone Mekunu five months earlier. The impact of these two cyclones allowed breeding conditions to be favourable for Desert Locust from June 2018 to March 2019 – a period of nine months, which is equivalent to three generations of breeding.



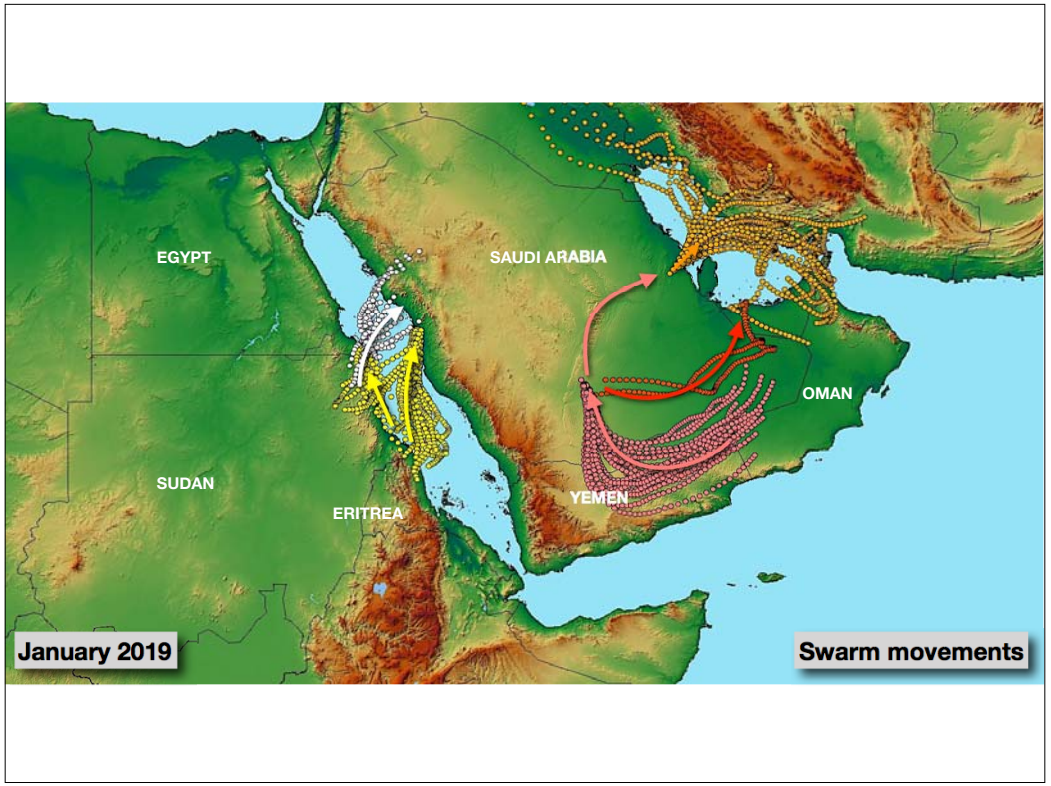
November 2018. Groups of adults started to form in the interior of Sudan from good rains during September and October, and moved to the Red Sea coastal plains. Good rains fell on the coast where small-scale breeding was already underway in Eritrea and commenced at the end of the month in Sudan. Low numbers of adults appeared on the Red Sea coast in Saudi Arabia.



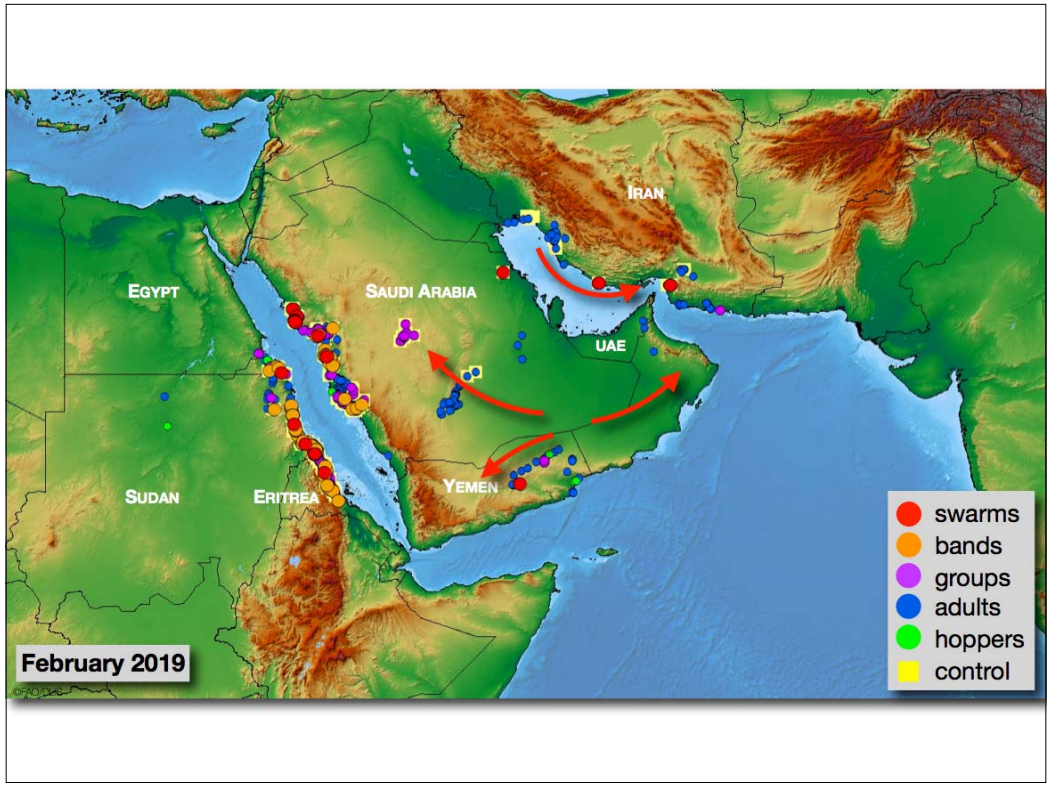
December 2018. Favourable ecological conditions and extensive breeding caused a Desert Locust outbreak to develop in the winter breeding areas along the Red Sea coast in Sudan and Eritrea. Although breeding commenced in mid-October and continued throughout November, it was not fully detected until December when widespread hatching occurred, groups of hoppers and adults began forming by mid-month, and adult groups moved back and forth across the Sudan/Eritrea border. By the end of December, a second generation of breeding had started as several mature swarms formed and laid eggs near the border. Ground teams treated 7235 ha in Eritrea and 1,247 ha in Sudan during December. Small-scale breeding occurred on the Red Sea coast in Saudi Arabia. In the areas of the two cyclones, breeding increased in southern Oman, hopper groups were detected and small lakes were seen on the edge of the Empty Quarter.



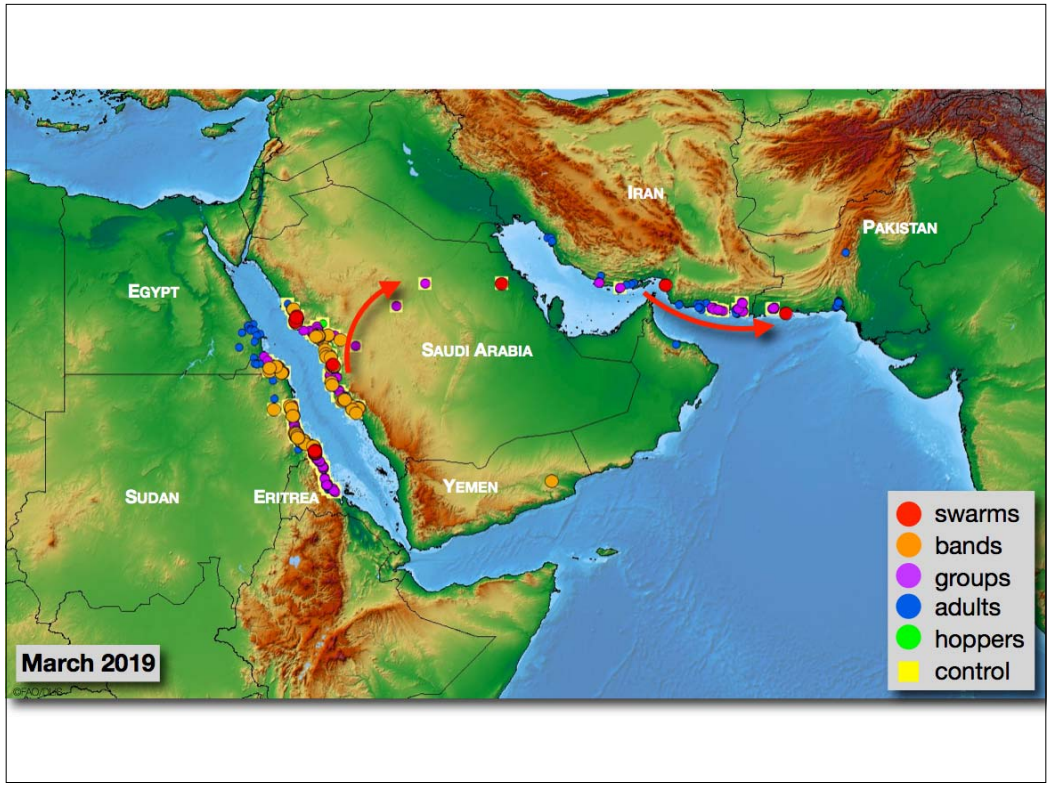
January 2019. The outbreak continued in Sudan and Eritrea where an increasing number of groups, bands and several swarms formed from a second generation of breeding. Some of these moved further north along the Red Sea coast to southeast Egypt and to Saudi Arabia. Immature swarms started to leave the Empty Quarter and moved to eastern Yemen, the interior of Saudi Arabia, the UAE coast and the coast of southwest Iran where locusts had not been reported for 50 years.



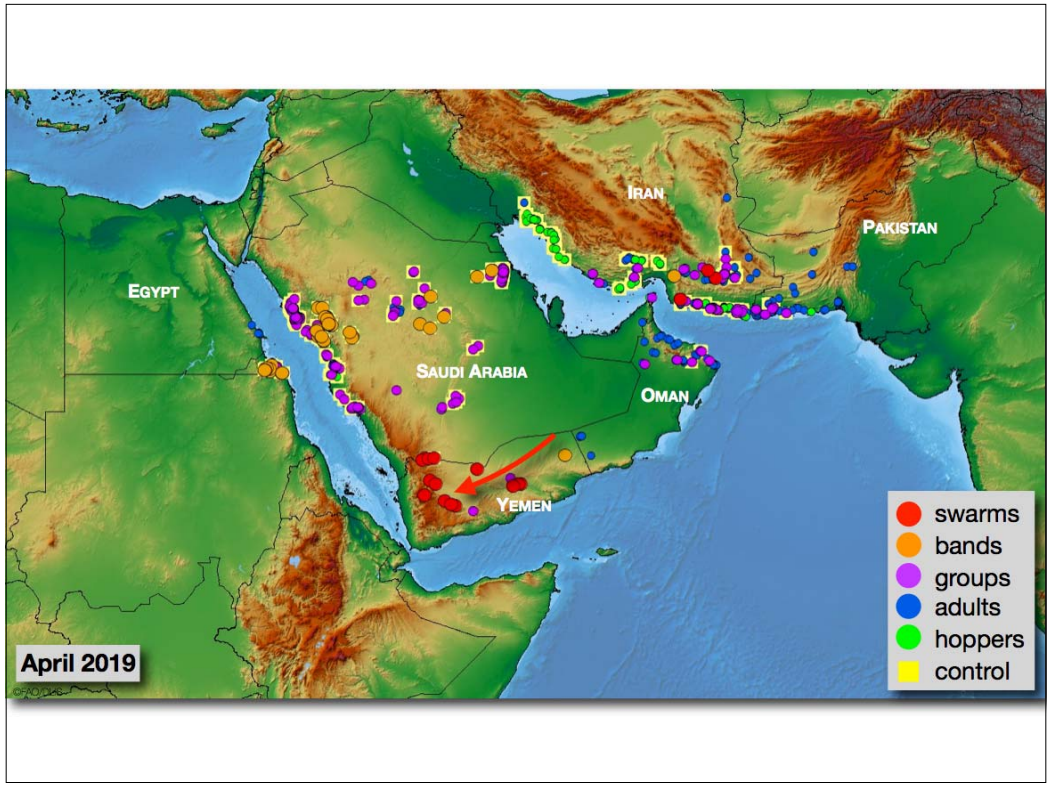
January 2019. Trajectory model analysis indicates six separate swarm movements during January: (1) from the southern Empty Quarter to eastern Yemen and the western edge of the Empty Quarter in the interior of Saudi Arabia, (2) a continuation to the Persian Gulf coast, (3) and across the Persian Gulf to southern Oman, (4) from the western edge of the Empty Quarter in the interior of Saudi Arabia to UAE, (5) from the Red Sea coastal plains along both sides of the Sudan-Eritrea border northwards, and (6) across the Red Sea to the coast of Saudi Arabia, and (7) from northeast Sudan across the Red Sea to the northern coast of Saudi Arabia.



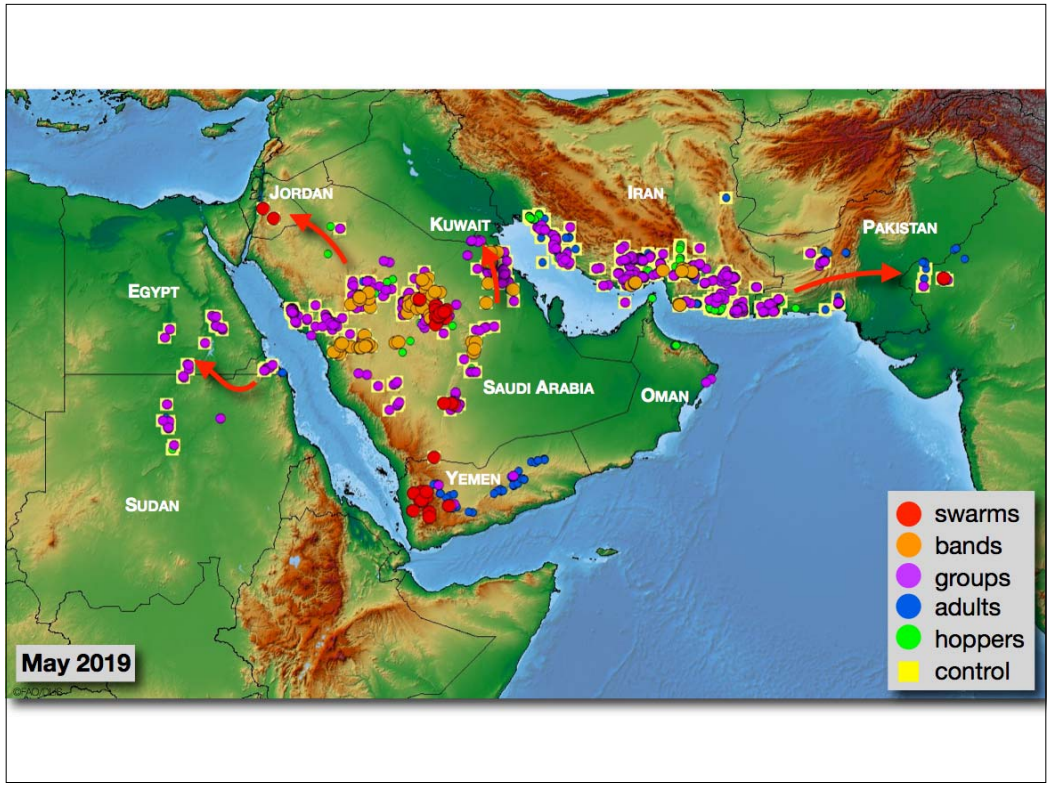
February 2019. Second-generation breeding continued along both sides of the Red Sea, causing additional groups, bands and swarms to form. By the end of the month, the situation started to improve as a result of control operations and drying conditions. Swarms continued to move from the Empty Quarter to eastern Yemen, southern Oman and the interior of Saudi Arabia. Breeding continued in the areas of eastern Yemen that had received heavy rains from cyclones Mekunu and Luban as well as in the interior of Saudi Arabia and in the northeast near Kuwait. Breeding also occurred along the southwest coast of Iran and extended to the southeast as swarms moved eastwards.



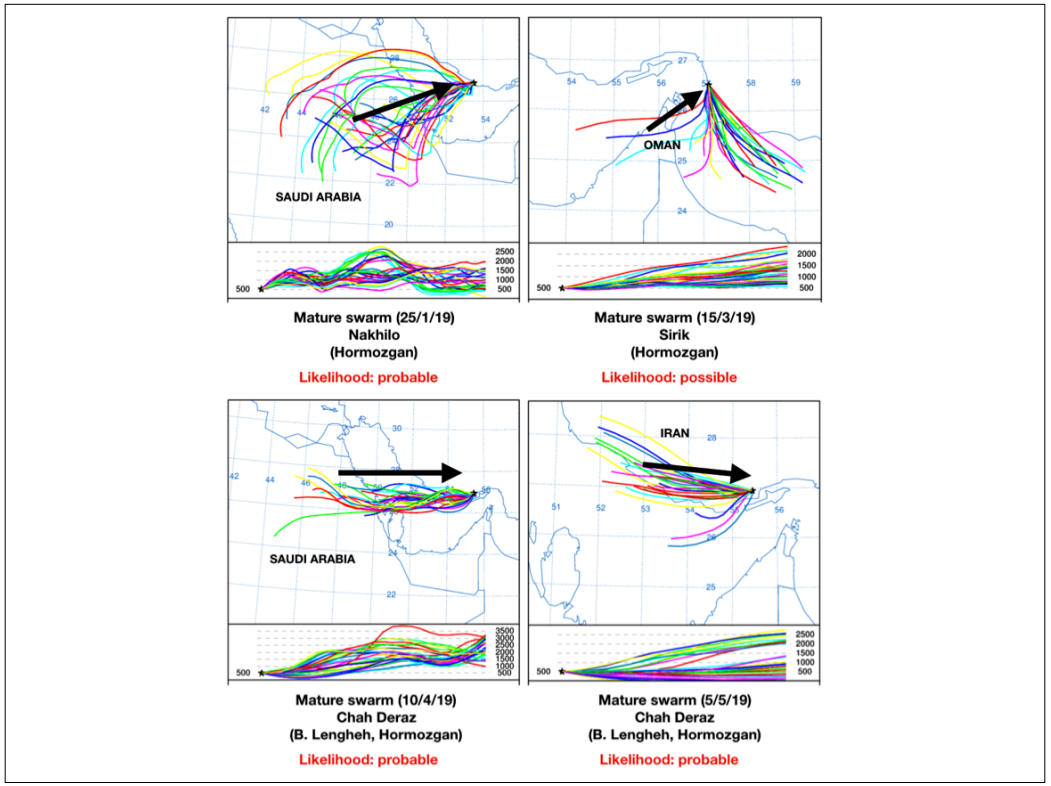
March 2019. The situation slowly improved along the Red Sea coastal plains as a result of intensive control operations and drying conditions. Nevertheless, second-generation breeding continued in parts of Sudan and Saudi Arabia, causing more groups, bands and swarms to form. Adult groups move to the spring breeding areas in the interior of Saudi Arabia where they laid eggs. Breeding and band formation continued in eastern Yemen, and was increasing in southern Iran, extending to southwest Pakistan as a result of groups and at least one swarm arriving from Iran.



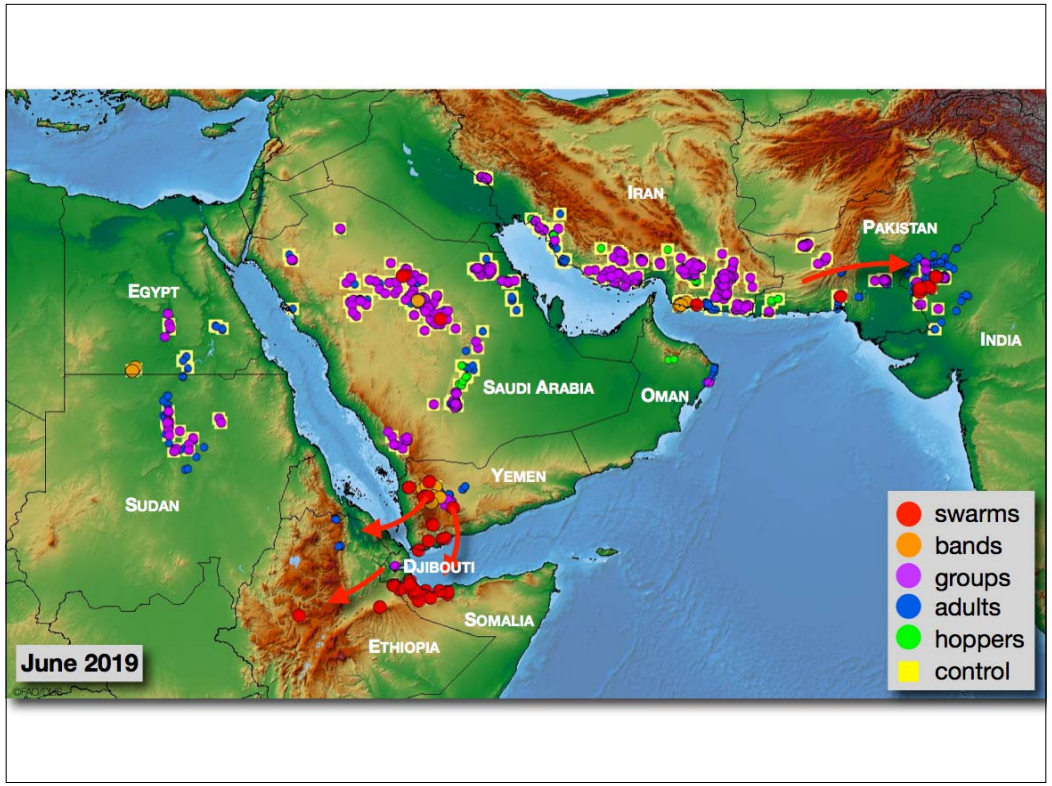
April 2019. Spring breeding intensified in the spring breeding areas of Saudi Arabia and Iran. Substantial aerial and ground control operations treated more than 86 000 ha in Iran where breeding continued for a third consecutive month within a large portion of the south, giving rise to groups of hoppers and adults, hopper bands and a few swarms. Smaller-scale breeding occurred in adjacent areas of southwest Pakistan and control was undertaken. Spring breeding commenced in the interior of Saudi Arabia where hoppers formed groups and bands. Aerial and ground teams treated more than 27 000 ha on the coast and in the interior. Swarms formed in Yemen from earlier breeding in the southern Empty Quarter and moved throughout the interior of the country where survey and control operations were not possible, so locals were catching and eating locusts. Several swarms moved to Najran, Saudi Arabia. A few small adult groups moved from eastern Yemen to northern Oman where they laid eggs and limited control operations were conducted.



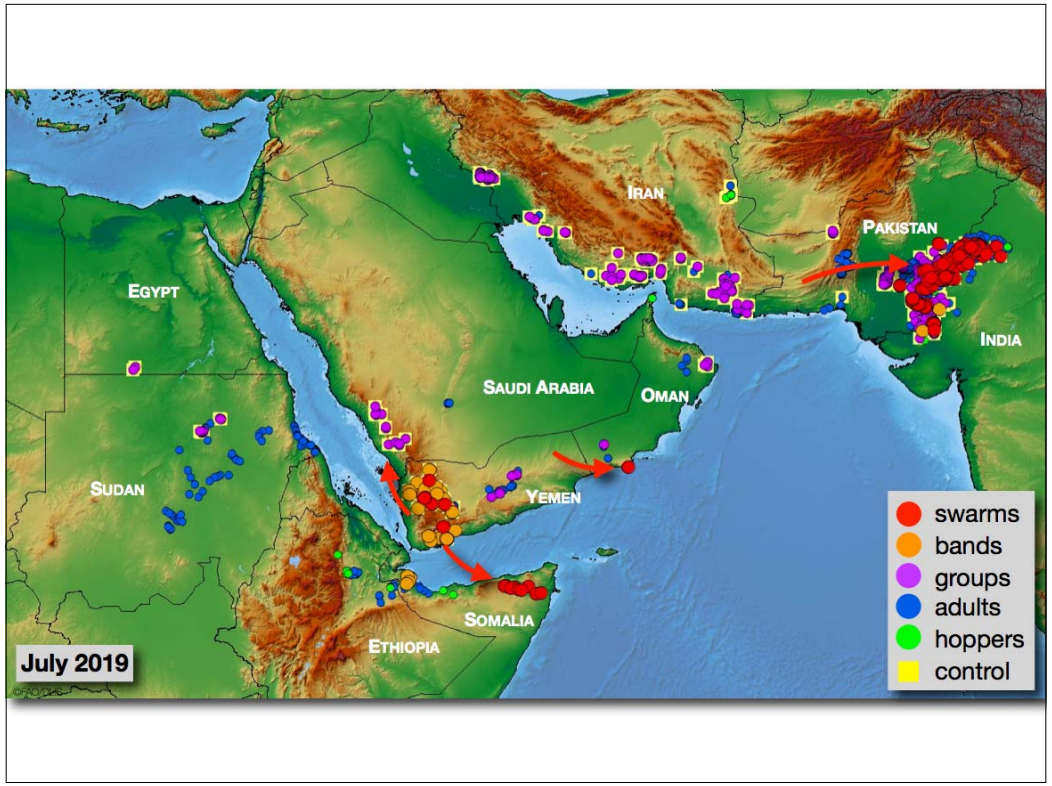
May 2019. Intensive ground and aerial control operations continued against widespread infestations of hopper and adult groups, bands and swarms in Saudi Arabia and Iran that developed from two generations of unprecedented spring breeding. Swarms moved from eastern Yemen into the central highlands and a few continued into southern Saudi Arabia. A few swarms moved to southern Jordan during a brief period of unusual southerly winds while hopper bands and immature adult groups were present along the Kuwait / Saudi Arabia border. Winter-bred immature adult groups persisted on the northern Red Sea coast of Saudi Arabia and the coast in southeast Egypt. At the end of May, adult groups appeared in the interior along both sides of the Egypt/Sudan border. Groups and swarms moved to the Indo-Pakistan border where rains fell some six weeks earlier than normal.



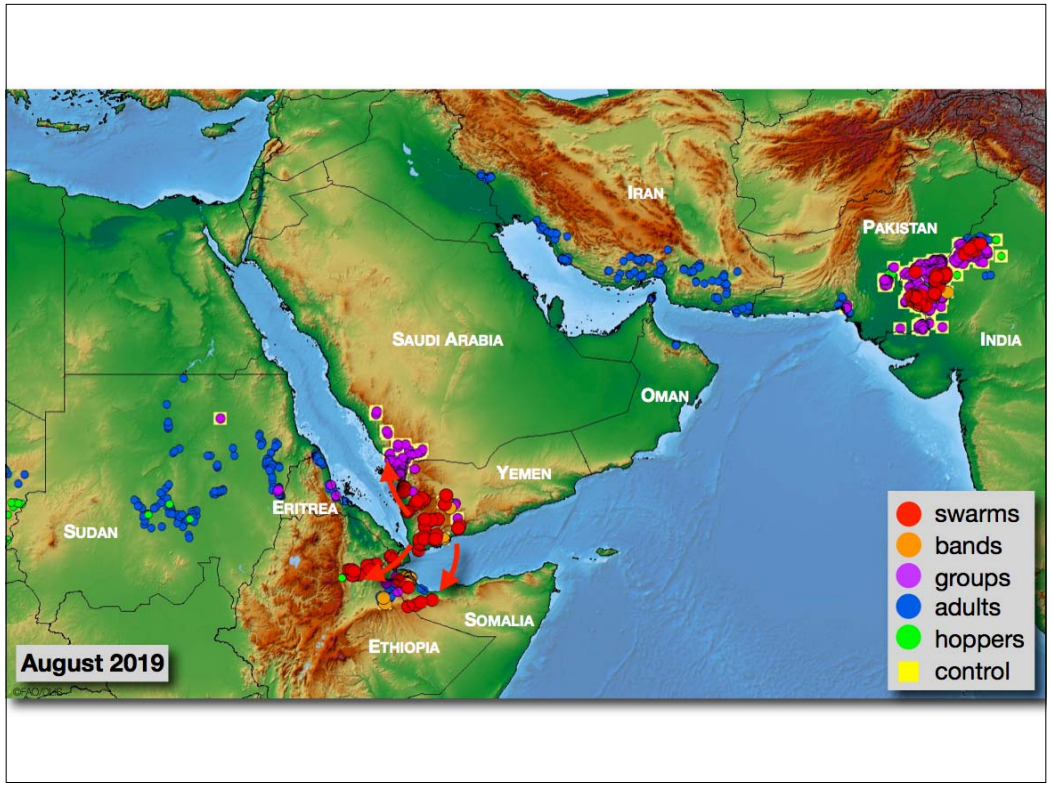
January–May 2019. Trajectory analysis of potential swarm movements from the Arabian Peninsula to southern Iran in January, March and April, and from southwest to southern Iran in May. The dates coincide with first reports of swarms in each of the field locations by locals or survey teams. The analysis shows the estimated source(s) of the swarms based on flights at various heights of 500–2000 m ASL.



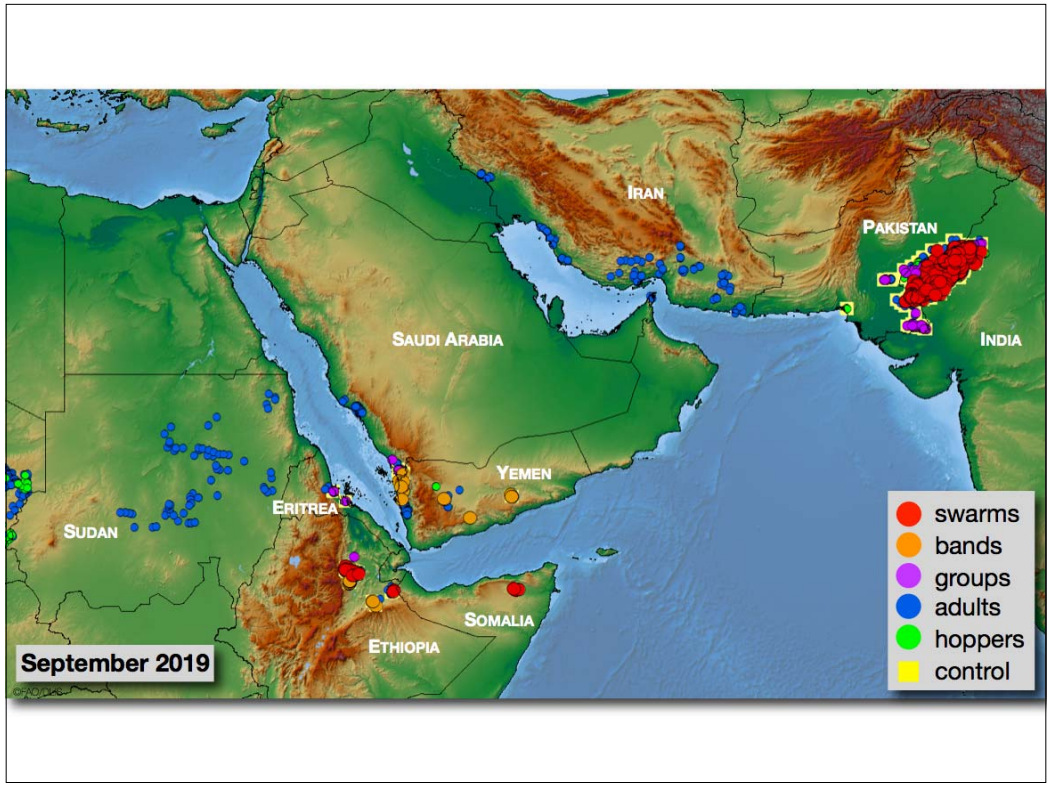
June 2019. Spring-bred infestations in Iran, Saudi Arabia and Pakistan declined due to continued intensive control operations, drying conditions and increasing temperatures. However, locusts increased along the Indo-Pakistan border as breeding continued and several swarms arrived in Rajasthan to lay eggs. Control operations were undertaken in both countries. Numerous mature swarms were seen in Yemen where some remained to lay eggs while others crossed the sea to northern Somalia, southern Eritrea and eastern Ethiopia. Groups of mature adults appeared in the Western Desert of Egypt at the end of June and persisted in northern Sudan.



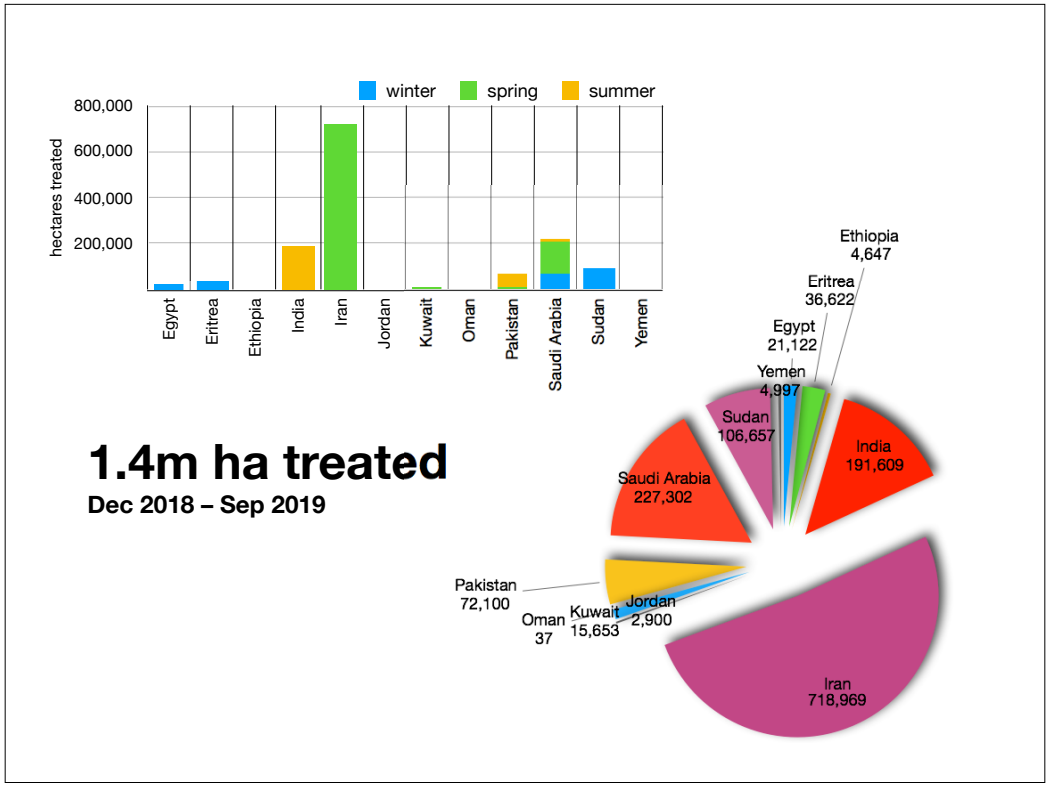
July 2019. Substantial ground control operations were carried out against numerous spring-bred swarms that appeared in Rajasthan, India during July and laid eggs, which hatched and caused hopper groups and bands to form. Smaller operations were conducted in adjacent areas of Pakistan. Numerous hopper bands were present in Yemen and new swarms began forming after mid-month. Several swarms migrated from Yemen, reaching southern Oman and northeast Somalia. A few hopper bands formed on the northwest coast of Somalia and small-scale breeding occurred in northeast Ethiopia. Adult groups were treated in the Nile Valley of northern Sudan.



August 2019. In Yemen, swarms moved in the highlands and reached the Red Sea and Gulf of Aden coasts while a few swarms migrated through Djibouti and reached Ethiopia. Adult groups formed on the northwest coast of Somalia and moved to eastern Ethiopia. Unusually good rains fell along both sides of the Red Sea in Yemen, Saudi Arabia and Eritrea. Swarm laying and widespread hatching caused numerous hopper groups to form in Rajasthan, India while a second generation of breeding occurred in Pakistan. Ground control operations increased in both countries. Scattered adults persisted in southern Iran.



September 2019. Swarms laid eggs in northeast Ethiopia that gave rise to hopper bands and aerial control operations were carried out. Hopper groups and bands formed on the Red Sea coast of Yemen and, to a lesser extent, in adjacent coastal areas of Saudi Arabia while breeding continued in the interior of Yemen. Control operations were undertaken in both countries. Unusually good rains fell in coastal and interior areas of Yemen. Ground control operations increased along both sides of the Indo-Pakistan border against swarms and a second generation of breeding that caused hopper groups and bands to form as a result of the monsoon rains being the heaviest in 25 years and lasting one month longer than usual, having withdrawn from Rajasthan in early October. Scattered adults persisted in southern Iran.



Control operations. In the winter breeding areas, control operations started in December 2018 in Eritrea and, to a lesser extent, in Sudan. They extended to Egypt and Saudi Arabia in January where they continued for several months before a further extension to spring breeding areas in Saudi Arabia (February–June), Iran (February–July) and Pakistan (March–July). Control operations were also undertaken in the summer breeding areas along both sides of the Indo-Pakistan border from May onwards, in Ethiopia (from August onwards) and in Yemen (from July onwards).