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OCCURRENCES OF SWARMING LOCUSTS (ORTHOPETERA: ACRIDIDAE) IN THE MALTESE ISLANDS DURING 1988.

Louis F. Cassar [1]

ABSTRACT

Two species of acridids, *Schistocerca gregaria* Forsk. and *Locusta migratoria* L., were recorded from the Maltese Islands during April-June 1988. These records were the result of stragglers reaching Maltese shores from the major outbreak areas in North Africa. The correlation of these occurrences with prevailing meteorological conditions and with contemporary records from the European mainland is discussed.
The 1987-88 outbreaks in North Africa are also reviewed.

INTRODUCTION

The 1987/88 locust outbreaks in Africa were considered to be the worst swarmings in the last 50 years. The swarms spread through much of North and Western Africa and even crossed the Red Sea to reach Saudi Arabia.

During the course of the swarming, large numbers of locusts flew across the Mediterranean reaching the shores of southern Europe. With the wind direction favouring their northward spread, locusts departed the north African coast, particularly Tunisia, from points between Cap Blanc and the Gulf of Gabes, reaching, among other localities, central Italy as well as Crete in the eastern Mediterranean. (L. Brader, press comment — FAO Locust Emergency Centre, 1988).

The FAO Locust Emergency Centre compared this plague to an infestation in the 1950's which lasted more than a decade. The Centre, which feared a general infestation of the sub-Saharian region leading to famine in affected areas, termed the 1988 episode as "... an extremely dangerous situation which may have devastating affects on agricultural food production in Africa for years to come". (L. Brader, press comment — FAO Locust Emergency Centre, 1988).

In the Maghreb, where dense locust swarms attacked 3 - 6 million hectares, it was estimated that some 20 - 30 per cent of crops would be adversely affected. Apart from the ineffectiveness of the pesticides initially utilised, the wind direction was quite a significant factor in aiding the spread. For this reason FAO had urged the controlled use of Dieldrin over the affected areas in order to slow down the large-scale migration of locusts in May and June to the Sahel region of Africa.

OCCURRENCES IN THE MALTESE ISLANDS (fig. 1)

Migrating locusts reached Maltese shores in noticeable numbers on at least three known occasions. (fig 1) The first occurrence was that of six Desert Locusts, *Schistocerca gregaria* Forsk, discovered dead on 04 April 1988 at Ramla l-Hamra, Gozo. The condition of the specimens, which were washed ashore on this north facing sandy beach, indicated that these locusts may have been in the water for some days.

[1] *Foundation for International Studies, University of Malta, Valletta, Malta.*

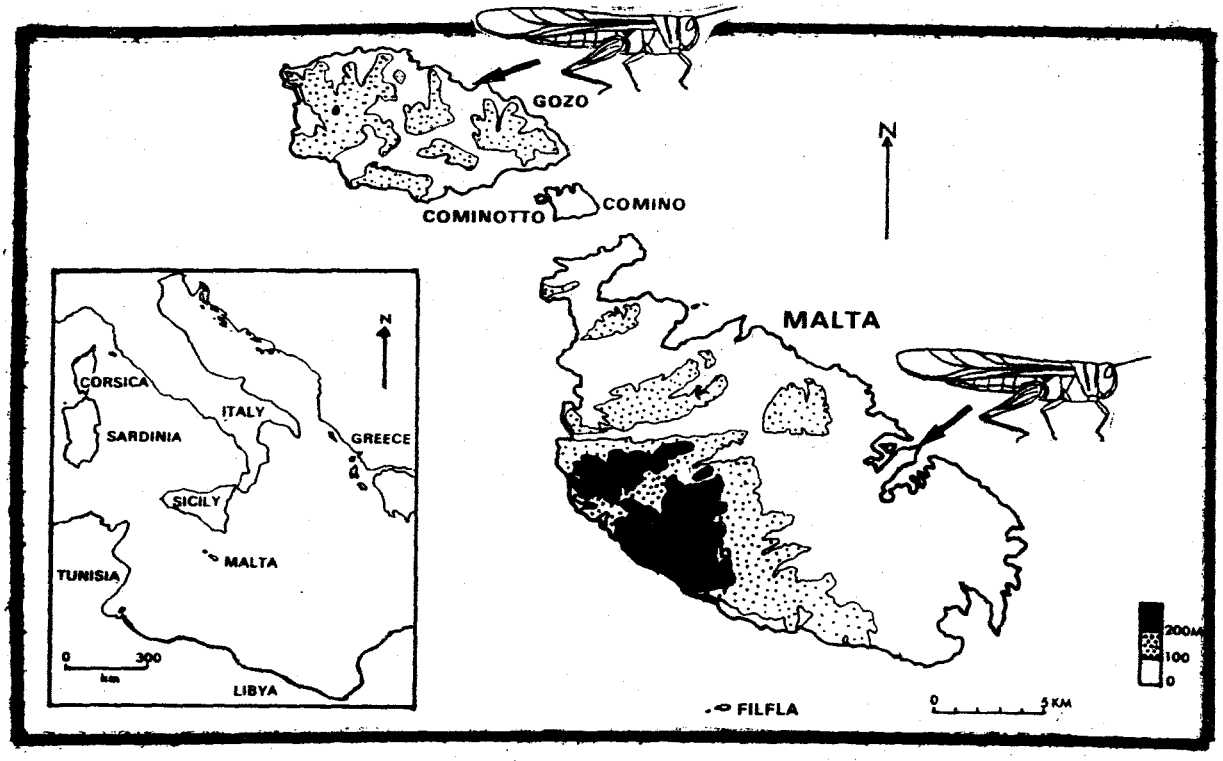

Fig. 1 Indication of occurrence sites *(Map: Courtesy of the MOS)*

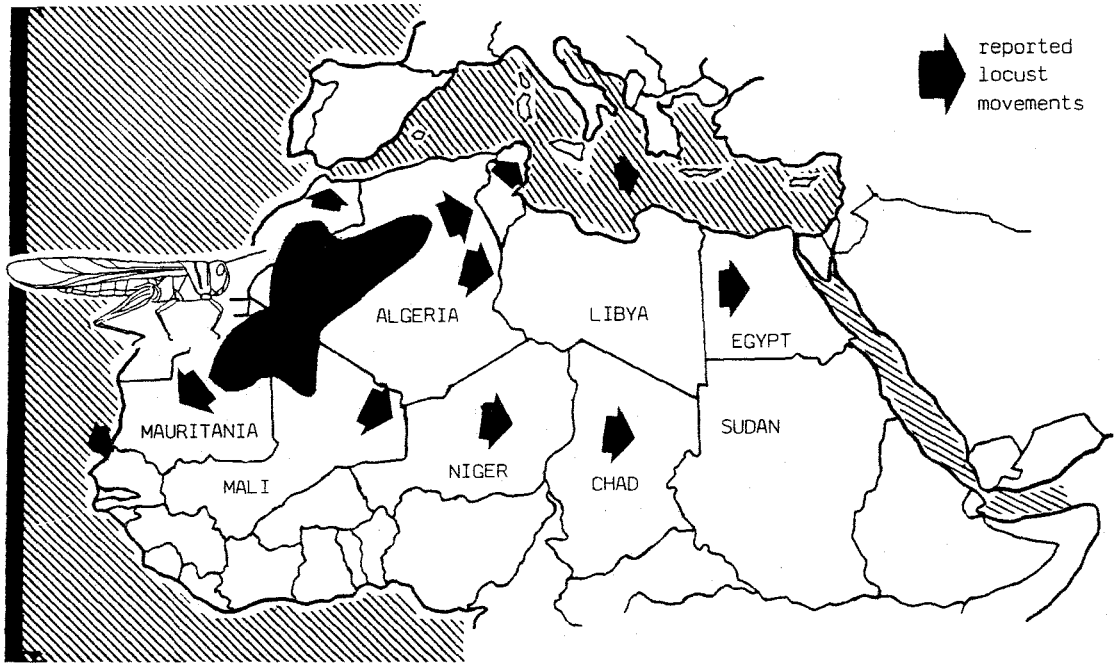

Fig 2. Reported locust movements from original outbreak area

FAO's Senior Migratory Pests Officer Jermey Roffey suggested that these specimens probably originated in Tunisia where there were numerous swarms in March and April. Furthermore, Desert Locusts were also reported from Italy, between Anzio and Rome, at approximately the same time as the locusts on the island of Gozo. (J. Roffey, personal communication 1988).

The average wind speed between 29 March and 03 April of that year was c. 16 knots blowing from a predominantly northwesterly direction. Assuming that the Ramla specimens had in fact formed part of the minor swarms undertaking the crossing towards the Italian mainland, the moderate to somewhat strong prevailing northwesterly winds may have been responsible for bringing the stragglers in close proximity to the north coast of Gozo.

Another occurrence of 5 specimens of *Schistocerca gregaria* was noted at the same locality on 15 June 1988. These specimens were also discovered dead on the shoreline and were probably washed ashore. (M. Gauci, personal communication 1988).

While swarms were still spreading across the northern part of the African Continent, where large scale control was being undertaken, another appearance was made in the Maltese Islands. On 12 May a southeast wind, which had been prevalent during the night, blew in an influx estimated at a few hundred insects. The low density swarm was concentrated mainly on the area between Castille Place in Valletta and the Granaries in Floriana, although numbers of scattered individuals were reported from various localities across the main island.

The number of locusts reaching Malta was not large enough to pose any threat to agriculture. Nonetheless, precautionary spraying was undertaken in various gardens and agricultural sites, in the event that larger swarms should reach the Maltese Islands.Fortunately, wind direction changed to northerly later on in the day and lessened the possibility of further invasions. In fact following this date there did not appear to have been any further reports of *S. gregaria* reaching the Islands.

It may be worth mentioning that the 130 or so specimens from the Valletta/Floriana area examined by the writer, all belonged to one species, namely *Schistocerca gregaria*. One female of *Locusta migratoria migratorioides* L. (Migratory Locust - African subspecies) in the gregarious phase was however taken at Ramla l-Hamra on 29 June, 1988.

Therefore of the five species reported swarming in Africa by FAO, (J. Roffey, personal communication 1990) only *Schistocerca gregaria* and *Locusta migratoria migratorioides* are known to have reached the Maltese Archipelago.

REVIEW OF THE SWARMING ON THE AFRICAN CONTINENT (fig 2.)

The situation in Africa, particularly the North West region, was considered quite serious. The plague continued to spread across to the Sahel Region. (FAO ECLO Locust & Grasshoper Bulletin no. 10).

Of the swarming African locust species, *Schistocerca gregaria* is by far the most damaging and perhaps the most arduous to control. This is because the species has no

geographically determined outbreak areas, unlike its co-swarming allies *Locusta migratoria migratorioides* and *Nomadacris septemfasciata* (The Red Locust) which are somewhat easier to control, as they recede to comparatively small areas after their migrations. *S. gregaria* on the other hand, with a very wide outbreak area presents a real international problem. Its distribution ranges over a relatively vast domain from the southern Iberian peninsula across the whole of northern Africa and Asia Minor, through Iran to Bangladesh and India: an area comprising some sixty countries.

The recent outbreaks followed excessive rains in much of the Sahel (UNDRO NEWS, 1987). Large infestations affected several areas, notably around the Mauritania - Mali borders, central parts of Niger as well as eastern Chad. The somewhat heavy rainful resulted in 'optimal conditions' which induced widespread breeding of locusts chiefly *S. gregaria*) mainly in Sudan and Chad, with further breeding reported in Mauritania, Mali and Niger.

From early Spring of 1987 through to the latter part of 1988, local organisations continued to combat the swarms through large scale ground and aerial control operation. Until mid-June 1988 large scale control of 'hopper' bands of both old and new generation swarms continued in the Maghreb (i.e. Morocco, Algeria and Tunisia), while moderate scale swarm and small scale 'hopper' band control continued in Libya, mainly in Hamada el Hamrah, Sebha, and Wadi el Hayat. Swarms in West African countries, namely Senegal, Mali and Gambia, were reported to be dispersing as control operations continued, while on the continent's eastern sector the situation was noted as calm. In Egypt swarms dispersed into dense groups which were reported in a number of oases in the desert region west of the Nile. Scattered locusts were also reported to have reached el Fayoum and Asyut on the Nile. The rest of East Africa consisting of Ethiopia, Sudan, Djibouti, Somalia, Uganda, Tanzania and Kenya, was by this time reported free of locusts.

Although most countries were in moderate control of the situation by mid-1988, further outbreaks of new generation swarms of varying densities occurred in north central African countries such as Chad (particularly at Bitkine and N'Djamena) and Niger, with major escapes spreading across central African borders. One particular case was that of Angola, where *Locusta migratoria* infestations were reported. (FAO ECLO Locust & Grasshopper Bull., 9). No fresh records were reported from the Mediterranean region after late Summer 1988

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