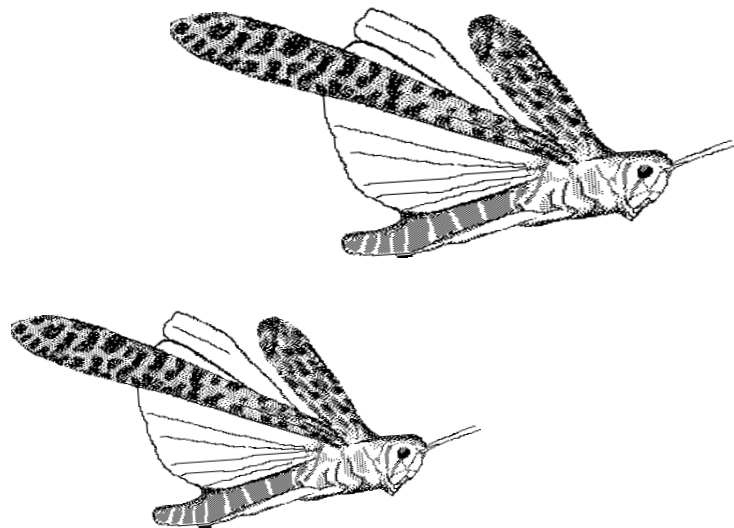


Desert Locust Joint Survey in the Spring Breeding Areas of the I.R. Iran and Pakistan

April 2002



FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS

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by

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**FOOD AND AGRICULTURE ORGANIZATION
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Rome, May 2002**

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Summary and Recommendations

1. The eighth joint Desert Locust survey in the spring breeding areas of I.R. Iran and Pakistan was carried out during 1-30 April 2002. Funding was provided by the FAO Commission for Controlling the Desert Locust in South-West Asia.
2. Two locust experts and one maintenance assistant from each country participated in the survey, spending 15 days each in I.R. Iran and Pakistan (Appendices 1 and 2). Each country provided four drivers and four vehicles during the portion of the survey that was carried out in their country.
3. One of the characteristics of this year's survey was to use new technologies. The Desert Locust Information Service (DLIS) at FAO HQ provided SPOT-VGT imagery and analysis to both countries prior to the start of the survey to help identify those areas where environmental conditions were favourable and that required survey. Based on this information, surveys of the suitable areas were carried out using the GOTO function of the GPS in combination with 1:500,000 scale TPC maps. This method was quite useful from various aspects. We would recommend this methodology for future surveys. Radios with maximum coverage of 8 km were used for the survey in I.R. Iran for the first time this year. Portable radios play an important role in organizing efficient surveys.
4. During the survey, No Desert Locust populations were observed during the survey in either country (Appendix 3). Natural vegetation was dry because of poor rainfall in the region for the past two years, and green vegetation consisted of fruit, vegetable and cereal cultivations. (Appendices 4 and 5)
5. A total of 57 areas in I.R. Iran and 41 in Pakistan were surveyed consisting of places identified by satellite imagery, called primary areas, and those normally surveyed, called traditional (or scheduled) areas (Appendix 6). Photographs were taken in both areas (Appendix 7). Some areas could not be surveyed due to driving difficulties in sand and dunes and because of heavy dust storms.
6. At the end of the survey in each country, the two teams briefed Mr. Farid, Head of the Agriculture Organization in Sistan Baluchistan, I.R. Iran, and Abdolsalam Rakhshani, Director-General of Agriculture in Quetta, Pakistan on the findings of the joint survey.

7. The survey team would like to stress the necessity of GPS training for locust officers in both countries. Additional 1:500,000 scale TPC maps are needed in Pakistan.
8. The preparation of a single joint report of the survey or separate reports by each country should be discussed at the next Commission meeting.

Acknowledgements

The Joint Survey Team is thankful to Mr. Tariq Shafiq Khan, Plant Protection Adviser and Director-General, Department of Plant Protection, Pakistan and Mr. Farid, Head of Sistan Baluchistan Agricultural Organization, Zahedan, I.R. Iran for their personal efforts in making the necessary arrangements and coordination for the successful joint survey between the two countries in 2002. The team wishes to thank the regional authorities and locust staff in Sistan Baluchistan, Hormozgan and Kerman, I.R. Iran and Baluchistan, Pakistan for their help and coordination during the survey in their respective areas. Lastly, the team is grateful to FAO, in particular the Representations in I.R. Iran and Pakistan, and the Locust Group staff at FAO Headquarters in Rome for their assistance, as well as to Mr. K. Cressman for finalizing a single version of the report for distribution.

Desert Locust Joint Survey in the Spring Breeding Areas of the I.R. Iran and Pakistan

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Introduction

This was the eighth joint Desert Locust survey carried out in the spring breeding areas of I.R. Iran and Pakistan since 1995. This survey differed from those carried out in the past because, for the first time, satellite imagery was used to assist in identifying those areas where conditions may be suitable for Desert Locust. SPOT-VGT imagery covering the spring breeding areas of I.R. Iran and Pakistan for the second dekad of March 2002 was supplied by the Desert Locust Information Service (DLIS) at FAO Headquarters (Appendix 7). An analysis indicating the coordinate locations of potential green vegetation was also provided. In this case, the experience and knowledge gained by the FAO Locust Officer from participating in previous joint surveys was very helpful. Consequently, this year's survey can be considered to be one that was more precise. Apart from checking the traditional breeding areas and adjoining desert areas, in-depth surveys were carried out in the primary areas identified by satellite imagery. These areas were mainly a variety crops, orchards, perennial trees and bushes. This survey method makes use of available modern technologies and it could be considered as a significant improvement for future survey activities.

Work Details

The survey team consisted of four locust experts, two each from I.R. Iran and Pakistan accompanied by a maintenance assistant from each country (Appendix 1). Each team had a team leader who was responsible for the portion of the survey carried out in their own country. Different Pakistani maintenance assistants and locust experts, other than the Team Leader, were used in I.R. Iran and Pakistan.

The Pakistani team crossed the Mirjavah/Taftan border on 1 April 2002 and joined the I.R. Iran team on the same day. The joint team surveyed the primary areas of I.R. Iran on 1-13 April and entered Pakistan at the Mirjavah/Taftan border on 16 April. The team then surveyed the primary areas as well as the traditional breeding areas in Baluchistan for 15 days

until 30 April. The Iranian team returned to their country the next day (Appendix 2). The survey team stayed in Government rest houses in I.R. Iran and in hotels and Government rest houses in Pakistan. Four 4WD vehicles and drivers were provided by each country. These were used for the portion of the survey that was conducted in their own country. They did not cross the border.

The survey was carried out by forming two teams, each consisting of one Pakistani locust expert and one Iranian expert. In order to establish and maintain good coordination between the two teams, walkie-talkie radios were used for the first time. The use of satellite imagery mentioned above was also tried out for the first time this year. Prior to undertaking the survey, the Iranian team entered the coordinates of each primary area provided by DLIS into the GPS with the help of 1:500,000 scale TPC maps. The GPS's GOTO function was used to determine the distance and direction to each survey site. Since the GOTO function is based on straight-line aerial distance, local people familiar with minor and dirt roads are needed. Local locust officers helped in finding such roads. The use of the TPC maps speeded up survey in the Iranian side. Data collected in the field was recorded on the *FAO Desert Locust Survey & Control Form* (Appendix 3). Rainfall data was collected from sources in both countries (Appendices 4 and 5). Descriptions of the primary areas in both countries are provided in Appendix 6. Photographs were taken in most of the primary and many of the traditional areas (Appendix 8).

Conclusions and Recommendations

A. Desert Locust

The survey results indicate that the Desert Locust situation in both countries is calm. In I.R. Iran, 1995-97 rainfall was above average reaching 370-440 mm in areas such as Khash, Chabahar and Nikshahr. In 1998, there was a drastic reduction, falling below the average for the past thirty years. This continued in 1999 when rainfall in Sistan Baluchistan was 20-30 percent less than the average for the region. Due to this unprecedented reduction in rainfall during 1998-2002, southern Baluchistan, I.R. Iran experienced significant hardship in the agriculture and livestock sectors that was unprecedented in the past seventy years. In view of the near absence of locust populations and the unfavourable ecological conditions caused by poor rainfall in the spring breeding areas in I.R. Iran and Pakistan, there is no possibility of any significant locust activity during the current season.

B. Joint Survey of 2003

Based on the experience and the results of this year's joint survey, the team recommends the following:

1. In view of the usefulness of the walkie-talkie radios used in I.R. Iran during the survey, each team should be supplied with these in future surveys. This should be included in the agenda of 23rd Session of the FAO Commission for Controlling the Desert Locust in South-West Asia.
2. Additional TPC maps covering western Pakistan should be supplied by FAO.
3. Contrary to perennial plant species or trees, crops such as wheat, barely, cumin, etc. are of short duration and subject to change in colour and availability in the field with the passage of time because of maturity and harvesting respectively. Therefore, it is imperative that SPOT-VGT satellite imagery supplied for the joint survey are not more than ten days old for I.R. Iran and Pakistan.
4. In view of the probable role of biotic factors in the periodicity of the Desert Locust cycle, it is suggested that the biodiversity of the desert, especially the desert fauna, may be taken into account during future joint surveys in I.R. Iran and Pakistan.
5. The survey team must cover vast distances by vehicle in difficult conditions, particularly in the mountainous belt of I.R. Iran and Pakistan. Thus, they are vulnerable to fatal accidents. It is suggested that some kind of short-duration life insurance coverage is provided by FAO for each team member.
6. During locust control campaigns, if some susceptible breeding areas encounter frequent use of pesticide, it is suggested that an impact assessment of pesticide on the fauna in the desert, if possible, may be undertaken.
7. Using the GPS GOTO function during survey is good but it is time consuming and sometimes it is very difficult to reach the earmarked target because of various obstacles such as sand dunes. It is therefore suggested that in each area, only one or two points should be given by FAO DLIS and the remaining points should be left to the joint survey team who will select the points with the help of local locust officers in I.R. Iran and Pakistan.
8. In view of the first time to use the GPS GOTO function for surveying green areas in the desert based on SPOT-VGT imagery, it is suggested that FAO DLIS provide comments after evaluation of the joint survey report to the Plant Protection Organization in I.R. Iran and the Department of Plant Protection in Pakistan. This may be useful for the next survey team.

9. In view of the joint undertaking of the survey, the I.R. Iran team proposes that a single report be prepared by both teams at the end of the joint survey. The FAO Locust and Other Migratory Pests Group should stress the joint preparation of the report when issuing the authorization. This issue should be further discussed at the next Commission meeting.