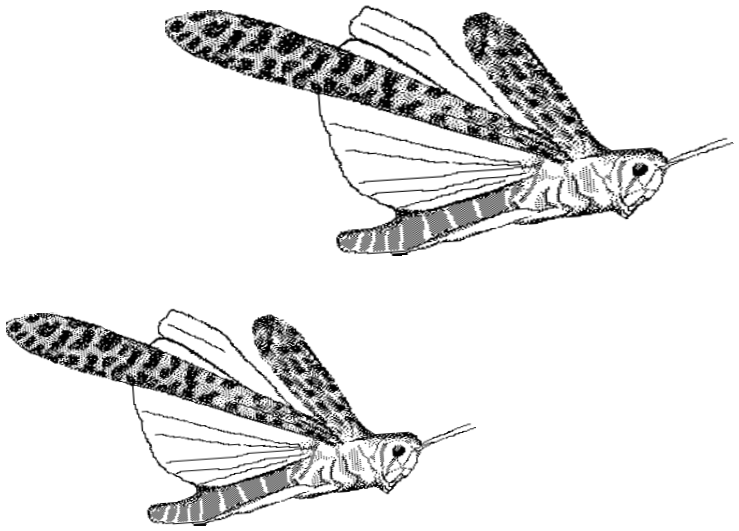
Desert Locust Joint Survey in the Spring Breeding Areas of the I.R. Iran and Pakistan

April 2005



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

April 2005

Fakhar ul Zaman
S. R. Fani
Ghulam Raza
A. Ahmadi

FOOD AND AGRICULTURE ORGANIZATION
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The team is extremely grateful to the FAO Representations in Islamabad and Tehran for providing general operating expenses and daily subsistence allowances to each team, and especially to Mr. Keith Cressman, Locust Forecasting Officer, in DLIS at FAO Headquarters for his assistance and technical support before, during and after the survey. Finally the team acknowledges the dedicated efforts made by the maintenance assistants, environmental assistant, drivers and the district locust officers in both countries without whom the undertaking of a successful survey would have been a dream.

Summary and Recommendations

The 2005 Desert Locust Joint Survey was the 11th survey of the spring breeding areas in Pakistan and I.R. Iran. [1] The survey was undertaken for a period of 32 days from 1 April to 1 May 2005. The joint survey team consisted of two Desert Locust experts from each country. The first half of the survey was conducted in Pakistan from 1 to 16 April 2005 and covered 4,780 km while the second half was undertaken in I.R. Iran from 17 April to 1 May 2005 and covered 5,310 km.

The team did not observe any gregarious Desert Locust activity in either country but low populations of isolated immature and mature solitarious adults and first to third instar hoppers were found near Chabahar, I.R. Iran. Sufficient rain fell during January, February and March 2005 on both sides of the border to allow habitat conditions in most of the surveyed areas to be suitable for Desert Locust breeding, except in some places of Jask, Bandar Abbas and Kahnoj where soil moisture and annual vegetation were drying out.

The team suggests the following recommendations to improve the planning, implementation and execution of future Desert Locust joint surveys in Pakistan and I.R. Iran.

1. Energetic qualified locust experts based on their experience and knowledge in locust survey should be nominated for the joint survey because it is a tough job rather than an opportunity to be availed.
2. At least two drivers in both countries should be nominated from the Baluchistan provinces based on their experience and should be familiar with off-road driving in the desert and in sandy terrain.
3. Three drivers and one vehicle mechanic / fitter cum driver should be nominated by Pakistan in the future. The vehicle mechanic, besides driving the vehicle, would be responsible for repairing the vehicles in the desert and difficult sandy terrain. He should be equipped with necessary tools and spare parts.
4. Maintenance assistants should be nominated based on their experience and knowledge of cooking and serving their officers in the best way.
5. The communication equipment recommended by the 2004 joint survey team (satellite phone and walkie-talkies) should be provided by FAO to Pakistan in time for the next joint survey.
6. Two new HF radio (mobile wireless) sets must be provided in Pakistan for communication.
7. First aid kits should be procured locally, from general operating expenses if necessary, and provided to each team.
8. A laptop computer and RAMSES should be provided to the Iranian and Pakistani teams by FAO.
9. In Kharan (Pakistan), three overnights should be scheduled in order to survey vast area of Naru, Shamsi and Kharan.
10. Proper arrangement of guesthouses in Pakistan may be considered as in I. R. Iran. Arrangements this year were not adequate in Pakistan.
11. As the Iranian environmental assistant works in the desert like other locust officers, his DSA should be more than the Pakistani maintenance assistant.
12. As the joint survey is a tough job, the DSA rate must be increased in view of inflation.[2]
13. Terra-Modis satellite images that were provided by FAO in 2004 were useful and effective to find suitable spots of potentially green vegetation by the team. These images were not provided this year. DLIS should make these images available on the FAO FTP site so that both countries can download and use them for future joint surveys.
14. In order to better manage the joint survey, the Locust Unit Head of I.R. Iran should provide guidance to the team so that they can use RAMSES during the survey to view routes, satellite images and other data while in the field.
15. Recommendation six of the 2004 joint survey report ("four vehicles may exclusively be maintained and reserved in I.R. Iran, like Pakistan, for the Joint Survey") should be implemented.
16. A final technical meeting should be held on the last day in Zahedan and attended by the Locust Unit Heads of each country in order to help the team leaders in formulating recommendations for future surveys. DSA for the Locust Unit Heads should be paid from general operating expenses.

[1] Additional analysis and revision provided by K. Cressman (FAO, DLIS)
[2] In the past, the DSA rate was decreased because expenses in the field during the survey are limited and high DSA rates have attracted unsuitable participants.

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

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Introduction

Joint surveys in the Desert Locust spring breeding areas in Baluchistan, I.R. Iran and Pakistan were regularly undertaken in 1960's and 1970's, but afterwards they stopped. After a gap of 20 years and in fulfillment of a recommendation made by 19th session of the FAO Commission for Controlling the Desert Locust in the Southwest Asia in 1994, FAO organized a joint survey in the spring breeding areas of Pakistan and I.R. Iran in 1995 and since then joint surveys have been conducted on an annual basis. The present survey was the 11th Desert Locust joint survey carried out in the spring breeding areas of Pakistan and I.R. Iran.

The main objective of the joint survey is to check all potential Desert Locust spring breeding areas in Pakistan and I.R. Iran and to collect information to assess the locust situation and habitat conditions in both countries. The results are used in determining what follow-up action is required during the remainder of the spring in terms of further surveys and, if needed, control operations. The results are also used for planning survey and control operations in the summer breeding areas along the Indo-Pakistan border from June to November.

The joint survey team consisted of two Desert Locust experts from each country (Appendix 1). The survey commenced on 1 April 2005 in Pakistan and concluded on 1 May 2005 in I.R. Iran for a total of 32 days. The team covered 10,090 km during this year's joint survey, surveying an estimated area of 8,710 ha (79 stops) in Pakistan and 5,555 ha (78 stops) in I.R. Iran (Appendix 2).

The survey was carried out according to the itinerary proposed by FAO DLIS with minor modifications in Pakistan because of inaccessible and unapproachable roads due to heavy rains (Appendix 3.).

The weather was pleasant – not so hot or dry because of the recent rain. Low, medium and dense vegetation in the entire area surveyed was either becoming green or was already green except in some areas of Bandar Abbas, Kahnoj and west of Iranshahr in I.R. Iran where annual vegetation was drying out but perennial bushes were green. The soil was wet in most of the areas surveyed except the aforementioned areas of I.R. Iran where it was dry.

No locusts were seen except for solitarious populations near Chabahar, I.R. Iran (Appendices 4-5).

Methodology

The Desert Locust joint survey was conducted according to the guidance provided in the *FAO Desert locust Guidelines II. Survey*. The joint survey team checked all potential areas for Desert Locust including traditional or historical breeding habitats. Special emphasis was also given to the areas of green vegetation and the areas of recent rainfall. A total of 157 stops were made in both countries. Only one SPOT -VGT coordinate suggested by PPO in Tehran, I.R. Iran was approached in Turbat, Pakistan with the help of the GPS GOTO function. The remaining SPOT-VGT coordinates were not approachable in either country. In most cases, foot transects were used for collecting data at each stop. Four to five surveyors walked in different directions with a foot transect length of about 300-400 meters and width of about 1 to 4 meters. In some cases, vehicle transects were made in homogenous areas of vegetation such as plains.

Daily surveys commenced between 6:30 and 7:30 AM. In survey areas situated far away from the place of overnight stay, surveys started somewhat later. On some days, surveys continued throughout the entire day in order to cover the potential areas.

Each team used eLocust for recording information. Although eLocust was used by the team leaders of each country, a back up set of results was also recorded on the *FAO Desert Locust Survey and Control Forms* by the locust officers of both countries. Temperature and relative humidity were not measured

because these fluctuate throughout the day and are of little significance to Desert Locust. Each country provided all the necessary equipment required during survey.

The joint survey team made all efforts to collect daily rainfall data from each Locust Outpost in the area of survey. The data obtained covered the period from April 2004 to April 2005. The data were entered into a spread sheet on the handheld Psion computer.

This year PPO I.R. Iran nominated an environmental assistant instead of maintenance assistant to be responsible for taking photos of interesting habitats with a digital camera during the survey. He also recorded coordinates of the location and the date and time of each photo. Information regarding the locust situation and last rainfall was also gathered from shepherds and local people. At the end of each day, the locust experts in the survey team sat down together to compile and discuss the results, identify problems that were faced, and review the next day's program as per the approved itinerary.

The joint survey team finished the first half of the survey in Pakistan on 16 April 2005 and crossed into I.R. Iran. The completed eLocust file was downloaded from the Psion to a PC at the Agriculture Office in Zahedan, I.R. Iran and sent to DLIS in Rome, PPO in Tehran and DPP in Karachi on 17 April 2005 by email. Similarly the results of second half of the survey in I.R. Iran were sent to DLIS, PPO and DPP on 29 April. The last day of the survey was spent in Zahedan for drafting and preparing the final report. Photos taken by the digital camera and data on the Psion were downloaded to the PC at the Agriculture Office in Zahedan and copied onto a CD for both team leaders. The data and final report were sent to DLIS. The CD was sent by the FAO Representative in Tehran, I.R. Iran to DLIS. For the first time, a satellite telephone that was provided to PPO by FAO was used during the joint survey in Pakistan as well as in I. R. Iran. Its communication was found to be satisfactory and very useful in both countries.

Results

For the sake of the preparation of final report, the spring breeding areas of Baluchistan in both Pakistan and I.R. Iran can be divided geographically into three parts: northern, central and southern. Rainfall data and survey results downloaded from eLocust are presented in Appendices 3 and 5. A map of the survey route is given in Appendix 4. Photos taken during the survey are presented in Appendix 7.

Northern Baluchistan

The northern part of Baluchistan is the area that extends from north of the Taftan Mountains in I.R. Iran and Ras Kooh Mountains in Pakistan. High elevation sandy and rocky plains from Zahedan, I.R. Iran to Nushki, Pakistan are situated on the northern side of these mountains. The vegetation between Taftan to Nushki was green in most the areas with varying densities. Light to heavy rains fell in late December 2004, in mid-February 2005, and in late February and early March. As a result, soil moisture was wet in most of the areas surveyed. Patchy green fields of wheat, cumin, onion and barley were cultivated between Taftan and Nushki areas. Ecological conditions were conducive for Desert Locust breeding in this region. No solitary or gregarious locust activity was observed throughout the areas surveyed.

Central Baluchistan

The central part of Baluchistan extends from south of the Taftan and Ras Kooh Mountains to the Kech Band Mountains north of Turbat in Pakistan. This region consists of the Great Sandy Desert west of Kharan, the Kharan valley and the Rakhshan valley of Panjgur that extends west to the Saravan, Suran, Zaboli valleys in I.R. Iran, and eventually ending west of the Jaz Murian Basin near Kahnoj. As a result of the moderate to heavy rainfall that occurred sporadically from December 2004 to March 2005, vegetation in this region varied between greening and green at low to medium densities except in the areas of Kahnoj and Jaz Murian where annual vegetation was drying and perennial bushes were green. Soil moisture in this region was wet in most of the areas surveyed in Pakistan and I.R. Iran except near Kahnoj and Jaz Murian, I.R. Iran. No locust were seen or reported in central Baluchistan in both countries during the survey although ecological conditions were conducive for locust breeding in most of areas.

Southern Baluchistan

The southern part of Baluchistan consists of the coastal plains that extend from Bandar Abbas, Jask and Chabahar in I.R. Iran to the Jiwani, Gwadar, the Kulanch valley, Pasni, Ormara, Angol and Othal in Pakistan. It includes the sub-coastal areas of the Dasht and Kech valleys in Turbat, Pakistan. This region is famous for Desert Locust breeding and contains some of the best habitats between Ormara, Pasni, Turbat and Chabahar. Last year, low density solitarious populations were observed near Gwadar and this year isolated immature and mature adults and first, second and third instar hoppers were observed in six stops near Chabahar:

1. Gabulan (25 29 59 N, 60 28 13 E) = 1 mature solitary adult/1,200 m^2 foot transect was observed on 21.4.2005
2. Lipar (25 16 27 N, 60 50 42 E) = 1 immature solitary adult/3,000 m^2 foot transect was observed on 22.4.2005
3. Reekdam (25 27 46 N 60 52 03 E) = 5 immature solitary adults/7,500 m^2 foot transect were observed on 23.4.2005
4. Maleki (25 27 27 N, 60 41 49 E) = 3 solitary immature and mature adults/7,500 m^2 foot transect were observed on 23.4.2005
5. Poshti (25 29 44 N, 59 26 54 E) = 1 third instar hopper and 8 immature and mature solitary adults/15,000 m^2 were observed on 24.4.2005
6. Kaki (25 31 20 N, 59 24 20 E) = 3 first and second instar hoopers/7,500 m^2 were observed on 24.4.2005

In this region, moderate to heavy rainfall occurred mainly in late December 2004 and in early March 2005 with smaller falls in January and February. Vegetation in this region was green in many places and the soil was wet except in few places. If an additional rainfall does not occur, the present vegetation will dry up and Desert Locust activity will decline in this region.

The prevailing weather in both countries was not so hot or dry in most of the areas except near Chabahar, Bandar Abbas and Kahnoj where it was hot and dry.

Discussion

This year the entire area in Pakistan and I.R. Iran received good rains during the last six months and ecological conditions had become unusually favourable for breeding over a wide area in both countries. This was confirmed during the survey in which green or greening vegetation was seen at 82 percent of the stops. The annual seasonal vegetation was green in most of the areas surveyed but drying out in some places. The perennial bushes were becoming green and or were already green. Most of the rain fell in late December 2004 and early March 2005 and, to a lesser extent in mid-February. Nevertheless, dry soil was found at more than half (53 percent) of the stops made during the joint survey, perhaps as a result of the increasing temperatures since the last rain. It is thought that almost seven years of drought in Baluchistan has had a negative impact on vegetation and ultimately on Desert Locust populations. Ecological conditions will eventually decline if no additional rainfall is received in both countries during the remainder of the spring.

Despite the unusually good rainfall and ecological conditions this year, locusts were seen at only four percent of the 157 stops made during the survey. This suggests that resident population levels are extremely low and that the long drought in the region has had a negative impact on breeding during the spring and summer in recent years.

APPENDICES

Appendix 1. List of participants

Iran

Team Leader:	Seyed Reza Fani	Plant Protection Expert	Zahedan
Locust Officer:	Abbas Ahmadi Kahnali	Plant Protection Expert	Kahnooj
Maintenance Asst:	Ali Akbar Soltan Mohammadi		Tehran
Drivers:	Akbar Razaghi Kashani		Tehran
	Mohammad Alipoor		Iranshahr
	Hamid Sabarook		Zadean
	Sherafat Amiri		Jiroft

Pakistan

Team Leader:	Fakhar ul Zaman	Assistant Entomologist	Bahawelpur
Locust Officer:	Ghulam Reza	Locust Officer	Torbat
Maintenance Asst:	Kachkol	Maintenance Asst.	Torbat
Drivers:	Imam Bukhsh		Bahawalpur
	Ghulam Mustafa		Mirpur Khas
	Muhammad Sharif		Uthal
	Muhammad Tariq		Multhan

Appendix 2. Itinerary

Date	Route	km	Overnight
	PAKISTAN		
1 Apr	Taftan, Nukundi, Nukundi	238	Nukundi
2 Apr	No survey due to strike	0	Nukundi
3 Apr	Nuk., Dalb., Padag, Nushki, Kharan	510	Kharan
4 Apr	Kharan area	210	Kharan
5 Apr	Khran, Basima, Nag, Panjgur	371	Panjgur
6 Apr	Panjgur area, Prome	231	Panjgur
7 Apr	Panjgur, Hoshab, Torbat	266	Turbat
8 Apr	Turbat area, Mand	287	Turbat
9 Apr	Turbat, Sulika, Shooli, Sunsar, Jiwani	259	Jiwani
10 Apr	Jiwani, Gwadar, Pasni	245	Pasni
11 Apr	Pasni area, Kulanch	168	Pasni
12 Apr	Pasni, Ormara, Aghore, Uthal	462	Othal
13 Apr	Uthal, Lasbela, Awaran, Mashkey, Nall, Khuzdar	532	Khuzdar
14 Apr	Khuzdar, Surab, Kalat, Mastung, Quetta	315	Quetta
15 Apr	Rest day	0	Quetta
16 Apr	Quetta, Taftan	700	Taftan
	I.R. IRAN		
17 Apr	Taftan, Mirjaveh, Zahedan	200	Zahedan
18 Apr	Zahedan, Khash area, Gosht, Dehak	420	Sravan
19 Apr	Saravan, Zaboli, Suran, Paskooh	325	Sravan
20 Apr	Esfandak, Saravan, Khash, Iranshahr area	630	Iranshahr
21 Apr	Bampoor area, Espakeh area, Chabahar	475	Chabahar
22 Apr	Chabahar, Bris , Sham, Gwatr, Chabahar	380	Chabahar
23 Apr	Chabahar, Dambdar, Brinjdar, Reekdim, Maleki	410	Chabahar
24 Apr	Chabahar, Zarabad, Jask	440	Jask
25 Apr	Jask area, Minab, Bandar Abbas	370	Bandar Abbas
26 Apr	Bandar Abbas, Rudan, Kahnoj	220	Kahnooj
27 Apr	Kahnoj, Solan, western Jasmurian, Kahnoj	410	Kahnooj
28 Apr	Kahnoj, Dalgan, Golgeh Chah Hashem	510	Iranshahr
29 Apr	Iranshahr, Zahedan, send 2nd half results	320	Zahedan
30 Apr	Send final report to DLIS.	0	Zahedan
1 May	Pakistan team cross border at Mirjaveh/Taftan	200	

Appendix 3. Rainfall in Baluchistan (December 2004 - March 2005)

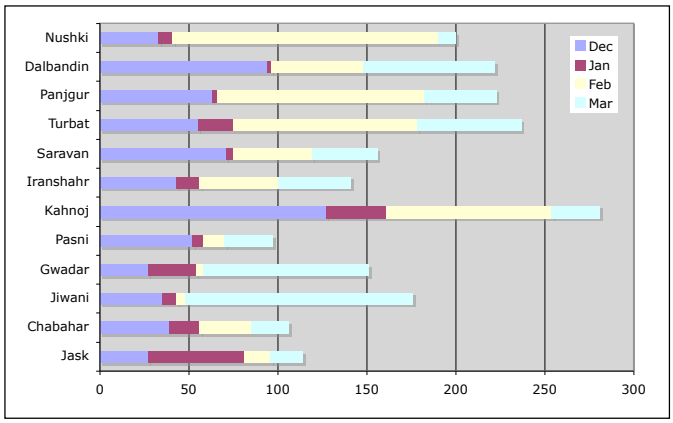
December	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	total
coastal																																
Jask																										2	19	6				**27**
Chabahar			20																								17	2				**39**
Jiwani																												14		21		**35**
Gwadar																												20		7		**27**
Pasni																											34	5	13			**52**
total	*0*	*0*	*20*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*2*	*70*	*47*	*13*	*28*	*0*	*180*
central																																
Kahnoj										11							16									68	26	6				**127**
Iranshahr																										11	30					**41**
Saravan																											50	6				**56**
Turbat																											44	11				**55**
Panjgur																											28	35				**63**
total	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*11*	*0*	*0*	*0*	*0*	*0*	*0*	*16*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*79*	*178*	*58*	*0*	*0*	*0*	*342*
northern																																
Dalbandin																												54	40			**94**
Nushki																										5			19		9	**33**
total	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*5*	*0*	*54*	*59*	*0*	*9*	*127*
Daily total	0	0	20	0	0	0	0	0	0	11	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	86	248	159	72	28	9	

January	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	total
coastal																																
Jask											4								1	1	12		26	10								**54**
Chabahar											15									1	1											**17**
Jiwani																								8								**8**
Gwadar																								27								**27**
Pasni																									6							**6**
total	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*19*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*2*	*13*	*0*	*26*	*45*	*6*	*0*	*0*	*0*	*0*	*0*	*0*	*112*
central																																
Kahnoj						3					13								1	7			10									**34**
Iranshahr								2			2								3	2			2	2								**13**
Saravan								1												1			2									**4**
Turbat												20																				**20**
Panjgur												1									2											**3**
total	*0*	*0*	*0*	*0*	*0*	*3*	*0*	*3*	*0*	*0*	*15*	*21*	*0*	*0*	*0*	*0*	*0*	*0*	*4*	*10*	*2*	*0*	*14*	*2*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*74*
northern																																
Dalbandin																					2											**2**
Nushki												8																				**8**
total	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*8*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*2*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*10*
Daily total	0	0	0	0	0	3	0	3	0	0	34	29	0	0	0	0	0	0	5	12	17	0	40	47	6	0	0	0	0	0	0	

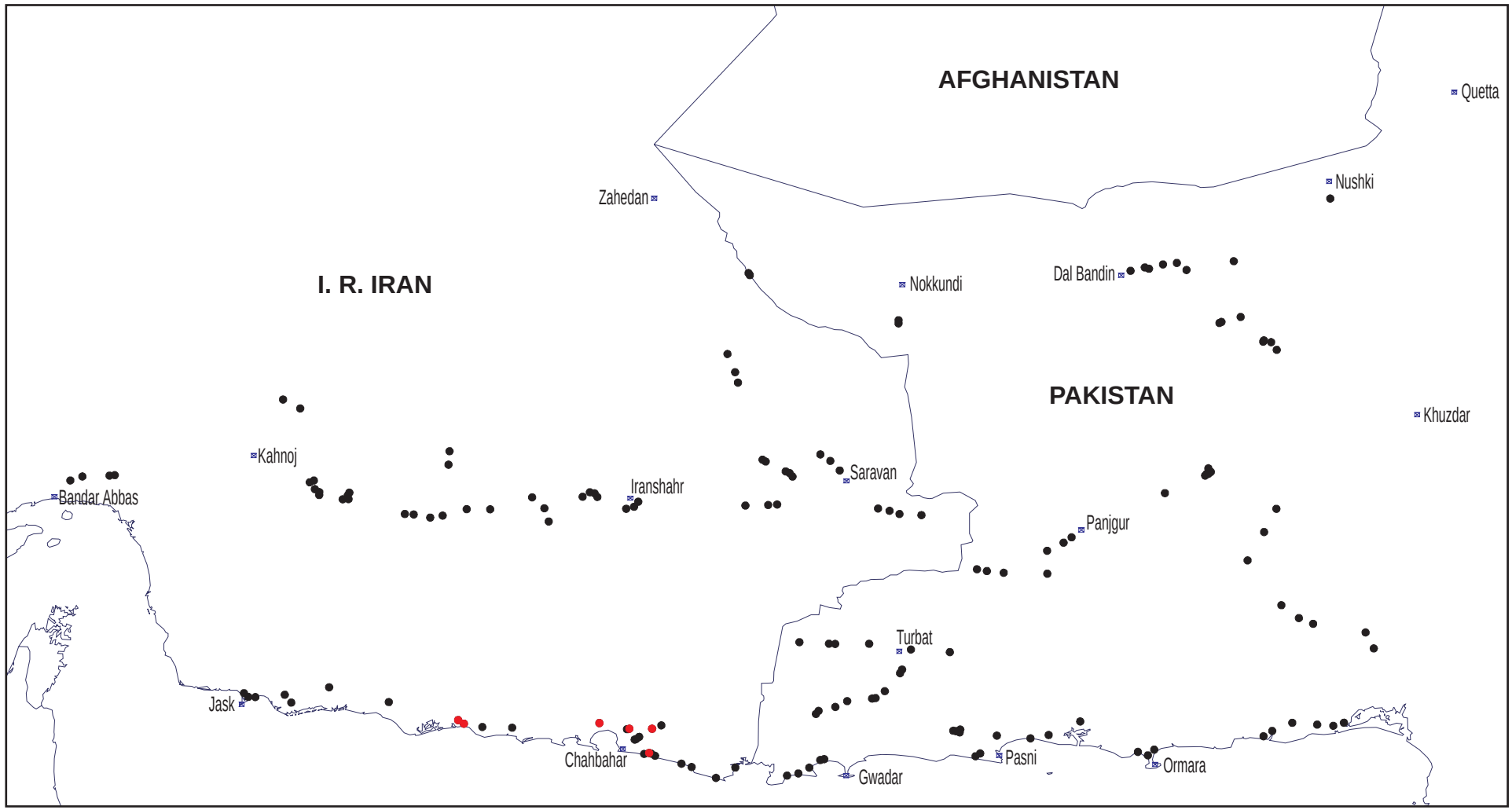
February	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28				total
coastal																																
Jask													5										2				8					**15**
Chabahar									7														2	2	2			16				**29**
Jiwani										4														1								**5**
Gwadar										1														2	1							**4**
Pasni									1	9				2																		**12**
total	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*8*	*14*	*0*	*0*	*5*	*2*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*4*	*5*	*3*	*0*	*8*	*16*				*65*
central																																
Kahnoj													75											1	12	3	2					**93**
Iranshahr							1	1	1				10	12									9	7	1	2						**44**
Saravan								10	1				13	6									3	4	2	4	1					**44**
Turbat								45	2	51															2		3					**103**
Panjgur								25		48														1	2	3	15	22				**116**
total	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*81*	*4*	*99*	*0*	*0*	*98*	*18*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*13*	*14*	*20*	*9*	*21*	*22*				*400*
northern																																
Dalbandin									3					23	15											1	10					**52**
Nushki														61	10								12		10	15	25	16				**149**
total	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*3*	*0*	*0*	*0*	*0*	*84*	*25*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*12*	*0*	*10*	*16*	*35*	*16*				*201*
Daily total	0	0	0	0	0	0	2	162	27	226	0	0	206	124	25	0	0	0	0	0	0	0	46	38	56	34	93	92				

March	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	total
coastal																																
Jask	18																															**18**
Chabahar	21																															**21**
Jiwani	9	116							3																							**128**
Gwadar	12	77							4																							**93**
Pasni		22						5																								**27**
total	*60*	*215*	*0*	*0*	*0*	*0*	*0*	*5*	*7*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*287*
central																																
Kahnoj	7	12	1												1	6																**27**
Iranshahr	21	15															1		1	3												**41**
Saravan	19	4	4																	10												**37**
Turbat	46							13																								**59**
Panjgur	9	26	3																1	2												**41**
total	*102*	*57*	*8*	*0*	*0*	*0*	*0*	*13*	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*6*	*1*	*0*	*2*	*15*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*205*
northern																																
Dalbandin	1	13	11	7				2	30								1	9														**74**
Nushki	10																															**10**
total	*11*	*13*	*11*	*7*	*0*	*0*	*0*	*2*	*30*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*9*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*84*
Daily total	173	285	19	7	0	0	0	20	37	0	0	0	0	0	1	6	2	9	2	15	0	0	0	0	0	0	0	0	0	0	0	

	Dec	Jan	Feb	Mar	Total
Jask	27	54	15	18	114
Chabahar	39	17	29	21	106
Jiwani	35	8	5	128	176
Gwadar	27	27	4	93	151
Pasni	52	6	12	27	97
Kahnoj	127	34	93	27	281
Iranshahr	43	13	44	41	141
Saravan	71	4	44	37	156
Turbat	55	20	103	59	237
Panjgur	63	3	116	41	223
Dalbandin	94	2	52	74	222
Nushki	33	8	149	10	200



Appendix 4. Survey map



Stops made during the 2005 Joint Survey where locusts were present (in red) and absent (in black).

Appendix 5. Survey results

Date	Time	Name	Latitude	Longitude	Area (ha)	Habitat	Last rain	Amount	Vegetation	Density	Soil	Locusts	Hoppers	Phase	Density	Adults	Phase	Transect (L)	Transect (W)	Adults seen	Density/ha
1/4/05	10:46:15	Talab1	28.89285	60.76280	100	Plains	24/3/05	High	Green	Medium	Dry	Absent									
1/4/05	12:08:44	Talab2	28.87713	61.60388	150	Wadi	24/3/05	High	Green	Medium	Wet	Absent									
1/4/05	17:49:38	Durake 1	28.51297	62.72480	100	Plains	24/3/05	High	Greening	Low	Wet	Absent									
1/4/05	18:14:14	Durake 2	28.53735	62.72437	100	Dunes	24/3/05	High	Dry	Low	Dry	Absent									
3/4/05	10:01:00	Dalbandin	28.90993	64.47335	150	Dunes	24/3/05	High	Green	Medium	Dry	Absent									
3/4/05	10:46:53	Lagab	28.93508	64.58055	100	Dunes	24/3/05	High	Green	Low	Wet	Absent									
3/4/05	11:14:56	Pishak	28.92528	64.61230	150	Dunes	24/3/05	High	Green	Medium	Wet	Absent									
3/4/05	11:48:11	Krodak	28.95765	64.71772	100	Dunes	24/3/05	High	Green	Low	Wet	Absent									
3/4/05	00:15:24	Nokcha	28.96928	64.82212	200	Dunes	24/3/05	High	Greening	Low	Wet	Absent									
3/4/05	00:45:46	Chitar	28.91580	64.89505	200	Dunes	24/3/05	High	Green	Low	Wet	Absent									
3/4/05	12:50:12	Padag	28.98213	65.25150	50	Crops	24/3/05	High	Green	Dense	Wet	Absent									
3/4/05	15:26:26	Batto	29.45465	65.97862	150	Dunes	24/3/05	High	Green	Dense	Wet	Absent									
4/4/05	08:06:25	Tagap	28.38555	65.47823	150	Dunes	20/3/05	Low	Green	Medium	Wet	Absent									
4/4/05	08:44:53	Nalli	28.37527	65.47305	50	Interdunes	20/3/05	Low	Green	Medium	Wet	Absent									
4/4/05	10:21:50	Naro	28.37169	65.53269	200	Dunes	20/3/05	Low	Green	Low	Wet	Absent									
4/4/05	11:04:33	Yelli	28.31382	65.57509	120	Dunes	20/3/05	Low	Green	Medium	Dry	Absent									
4/4/05	04:38:46	Bhopor Reek	28.56189	65.30316	100	Interdunes	20/3/05	Low	Green	Low	Wet	Absent									
4/4/05	05:44:57	Rudbar 1	28.52403	65.15827	100	Interdunes	20/3/05	Low	Green	Medium	Wet	Absent									
4/4/05	05:48:47	Rudbar 2	28.51648	65.14301	150	Dunes	20/3/05	Low	Green	Dense	Wet	Absent									
5/4/05	11:16:23	Nag area	27.39337	65.07833	150	Plains	20/3/05	Moderate	Green	Low	Wet	Absent									
5/4/05	11:14:07	Gol	27.37917	65.05988	100	Dunes	20/3/05	Moderate	Green	Low	Wet	Absent									
5/4/05	12:11:14	Jath 1	27.37978	65.04775	100	Interdunes	20/3/05	Moderate	Greening	Low	Wet	Absent									
5/4/05	12:37:06	Jath 2	27.36590	65.03557	150	Dunes	20/3/05	Moderate	Greening	Low	Wet	Absent									
5/4/05	15:30:13	Chad	27.42068	65.06013	200	Interdunes	20/3/05	Moderate	Greening	Low	Wet	Absent									
5/4/05	17:08:21	Kasug	27.23363	64.73258	20	Wadi	20/3/05	Low	Green	Low	Dry	Absent									
6/4/05	07:46:54	Bonistan	26.90058	64.02907	200	Plains	20/3/05	Low	Green	Medium	Wet	Absent									
6/4/05	08:21:58	Chakol	26.86007	63.96820	50	Wadi	20/3/05	Low	Greening	Low	Wet	Absent									
6/4/05	09:10:28	Darkdap	26.79898	63.84442	300	Wadi	20/3/05	Low	Green	Medium	Wet	Absent									
6/4/05	11:38:21	Daz Porom	26.65950	63.31575	300	Plains	20/3/05	Moderate	Green	Medium	Wet	Absent									
6/4/05	13:15:41	Nok Abad	26.64623	63.39067	200	Plains	20/3/05	Moderate	Greening	Medium	Dry	Absent									
6/4/05	14:09:03	Sir Porom	26.63328	63.51733	300	Dunes	20/3/05	Moderate	Greening	Medium	Wet	Absent									
6/4/05	15:21:29	Pol Abad	26.62595	63.84583	300	Dunes	20/3/05	Low	Greening	Medium	Wet	Absent									
8/4/05	09:23:03	Naser Abad	26.05448	62.81827	200	Plains	12/3/05	High	Green		Wet	Absent									
8/4/05	09:57:05	Rodbon	26.09753	62.50333	100	Wadi	12/3/05	High	Green	Medium	Wet	Absent									
8/4/05	10:39:01	Azayn Tump	26.09655	62.24672	150	Plains	12/3/05	High	Green	Medium	Wet	Absent									
8/4/05	11:05:16	Azayn area	26.09815	62.20065	100	Wadi	12/3/05	High	Green	Medium	Wet	Absent									
8/4/05	11:52:40	Mand Soro	26.10960	61.97753	100	Plains	12/3/05	Low	Green	Medium	Dry	Absent									
8/4/05	16:03:18	Jusak	26.03455	63.11113	100	Wadi	12/3/05	High	Green	Medium	Dry	Absent									
9/4/05	09:34:27	Sulika 1	25.90312	62.75147	100	Wadi	12/3/05	High	Green	Medium	Wet	Absent									
9/4/05	10:00:46	Solika 2	25.87570	62.73623	200	Dunes	12/3/05	High	Green	Low	Wet	Absent									
9/4/05	10:33:44	Kunchti	25.74067	62.62148	200	Wadi	12/3/05	High	Green	Low	Wet	Absent									
9/4/05	11:08:20	Kudan	25.68835	62.55168	50	Wadi	12/3/05	High	Green	Low	Wet	Absent									
9/4/05	11:23:25	Maksar	25.68478	62.52542	100	Dunes	12/3/05	High	Greening	Low	Wet	Absent									
9/4/05	12:25:35	Bashooli Area	25.66493	62.33803	100	Dunes	12/3/05	High	Greening	Low	Wet	Absent									
9/4/05	13:10:05	Chati	25.62140	62.24838	50	Plains	12/3/05	High	Green	Medium	Wet	Absent									
9/4/05	13:45:30	Shooli 1	25.59163	62.12202	200	Dunes	12/3/05	High	Greening	Medium	Wet	Absent									
9/4/05	14:04:53	Shooli 2	25.56885	62.10223	300	Plains	12/3/05	High	Greening	Low	Wet	Absent									
10/4/05	10:02:13	Gunz	25.10367	61.88447	20	Beach	12/3/05	High	Green	Medium	Wet	Absent									
10/4/05	10:40:53	Pishkan area	25.11995	61.96903	100	Dunes	12/3/05	High	Greening	Medium	Wet	Absent									
10/4/05	11:54:20	Pishkan	25.16390	62.05202	20	Beach	12/3/05	High	Greening	Low	Dry	Absent									
10/4/05	12:27:48	Akara 1	25.22125	62.13463	50	Beach	12/3/05	Low	Dry	Medium	Dry	Absent									

Appendix 5. Survey results (cont.)

Date	Time	Name	Latitude	Longitude	Area (ha)	Habitat	Last rain	Amount	Vegetation	Density	Soil	Locusts	Hoppers	Phase	Density	Adults	Phase	Transect (L)	Transect (W)	Adults seen	Density/ha
11/4/05	09:08:47	Doki(Chulanch)	25.42935	63.18555	100	Dunes	8/3/05	Low	Greening	Medium	Dry	Absent									
11/4/05	09:43:27	Gano	25.45110	63.18990	50	Plains	8/3/05	Low	Green	Medium	Wet	Absent									
11/4/05	10:11:37	Gohi(Kulanch)	25.43880	63.15805	20	Dunes	8/3/05	Low	Green	Low	Dry	Absent									
11/4/05	10:30:38	Koreg	25.44195	63.13737	100	Dunes	8/3/05	Low	Green	Medium	Dry	Absent									
11/4/05	15:36:13	Goranicheh	25.27102	63.34020	50	Dunes	8/3/05	Low	Greening	Medium	Dry	Absent									
11/4/05	16:02:36	Chur	25.24962	63.30463	50	Dunes	8/3/05	Low	Greening	Medium	Dry	Absent									
12/4/05	07:38:00	Pasni area	25.40510	63.46567	20	Dunes	8/3/05	Moderate	Green	Low	Wet	Absent									
12/4/05	08:10:43	Romro	25.38447	63.71917	50	Beach	8/3/05	Moderate	Green	Medium	Wet	Absent									
12/4/05	08:39:02	Kalmat	25.40998	63.85630	100	Interdunes	8/3/05	Low	Green	Dense	Dry	Absent									
12/4/05	09:24:40	Makola	25.51197	64.09400	50	Plains	8/3/05	Low	Green	Low	Wet	Absent									
12/4/05	13:00:22	Kandelak	25.28242	64.52873	50	Plains	8/3/05	Moderate	Green	Medium	Wet	Absent									
12/4/05	13:21:28	Ormara	25.25677	64.60370	100	Beach	8/3/05	Low	Green	Medium	Dry	Absent									
12/4/05	13:40:57	Hud goth	25.29958	64.65158	150	Plains	8/3/05	Low	Green	Medium	Dry	Absent									
12/4/05	15:40:38	Kund Malir	25.40053	65.47498	10	Beach	21/3/05	13 mm	Greening	Low	Dry	Absent									
12/4/05	16:18:33	Agore	25.44045	65.54112	50	Dunes	21/3/05	13 mm	Green	Medium	Dry	Absent									
12/4/05	16:34:59	Dewari	25.50192	65.69226	20	Plains	21/3/05	13 mm	Green	Medium	Dry	Absent									
12/4/05	17:03:02	Sapat	25.48810	65.88012	200	Dunes	21/3/05	Low	Greening	Low	Dry	Absent									
12/4/05	17:34:04	Phore	25.47947	66.00127	100	Interdunes	21/3/05	Low	Green	Medium	Dry	Absent									
12/4/05	17:48:59	Kandewari	25.50238	66.08165	50	Plains	21/3/05	Low	Green	Medium	Dry	Absent									
13/4/05	08:15:16	Mangia area	26.18330	66.24482	30	Plains	21/3/05	Low	Green	Medium	Dry	Absent									
13/4/05	08:59:10	Zaneb	26.06283	66.30692	100	Plains	21/3/05	Low	Green	Low	Dry	Absent									
13/4/05	11:08:12	Aro	26.24845	65.84925	50	Dunes	21/3/05	Low	Greening	Low	Dry	Absent									
13/4/05	11:28:02	Jaljahoo area	26.29178	65.74192	20	Wadi	12/3/05	Low	Green	Low	Wet	Absent									
13/4/05	11:52:45	Jaljaho	26.38870	65.61057	20	Wadi	12/3/05	Low	Green	Low	Wet	Absent									
13/4/05	15:59:32	Mangoli	26.72633	65.35538	20	Wadi	12/3/05	Low	Green	Low	Dry	Absent									
13/4/05	17:08:38	Malashband	26.94013	65.47973	10	Wadi	12/3/05	Low	Green	Low	Dry	Absent									
13/4/05	06:59:50	Mashkey	27.11514	65.57231	10	Wadi	12/3/05	Low	Green	Low	Dry	Absent									
18/4/05	09:44:00	Deh Bala	28.28283	61.43552	50	Wadi	24/3/05	Low	Green	Low	Wet	Absent									
18/4/05	11:26:23	Garanchin 1	28.08432	61.49310	100	Plains	24/3/05	Low	Green	Medium	Wet	Absent									
18/4/05	11:52:42	Garanchin 2	28.06685	61.51418	50	Plains	24/3/05	Moderate	Green	Medium	Wet	Absent									
18/4/05	13:24:57	Chahe Shahi	27.52538	62.13538	200	Wadi	20/3/05	Low	Greening	Low	Wet	Absent									
18/4/05	13:58:56	Shams Abad	27.47650	62.21060	50	Plains	20/3/05	Low	Greening	Medium	Wet	Absent									
18/4/05	14:21:33	Hoshak	27.40440	62.28118	10	Wadi	20/3/05	Low	Green	Low	Wet	Absent									
18/4/05	19:00:12	Pole Mashkil	27.10028	62.65700	100	Wadi	20/3/05	Low	Green	Low	Wet	Absent									
19/4/05	08:38:36	Rig Jehi Bala	27.35860	61.92570	20	Interdunes	20/3/05	Low	Green	Low	Dry	Absent									
19/4/05	09:26:27	Shandan	27.38495	61.90382	50	Dunes	20/3/05	Low	Green	Low	Dry	Absent									
19/4/05	10:28:21	Chah Amigh	27.39775	61.87397	20	Plains	20/3/05	Low	Green	Medium	Dry	Absent									
19/4/05	11:11:39	Gar Paskooh	27.48587	61.69982	50	Wadi	20/3/05	Low	Green	Medium	Wet	Absent									
19/4/05	11:29:27	Paksh Seylab	27.47162	61.72348	10	Plains	20/3/05	Low	Greening	Low	Dry	Absent									
19/4/05	12:20:52	Hoshab Hoot Omar	27.14797	61.80953	30	Plains	20/3/05	Low	Green	Medium	Dry	Absent									
19/4/05	12:40:31	Haji Abad	27.14392	61.74230	100	Plains	20/3/05	Low	Green	Medium	Dry	Absent									
19/4/05	13:26:33	Ghader Abad	27.13993	61.57068	50	Plains	20/3/05	Low	Green	Dense	Dry	Absent									
20/4/05	08:31:35	Dehak	27.11772	62.57053	50	Wadi	20/3/05	Low	Greening	Medium	Dry	Absent									
20/4/05	09:36:05	Esfandak Mashkil	27.06783	62.89747	50	Wadi	20/3/05	Low	Green	Low	Wet	Absent									
20/4/05	10:20:09	Daridar Mashkil	27.07637	62.73212	60	Wadi	20/3/05	Low	Green	Medium	Wet	Absent									
20/4/05	17:28:47	Motor Davari	27.13063	60.73115	100	Dunes	20/3/05	Low	Green	Medium	Dry	Absent									
20/4/05	18:22:02	Koorehaye Memari	27.11568	60.67202	80	Dunes	20/3/05	Low	Green	Medium	Dry	Absent									
20/4/05	18:56:20	Sarkahooran	27.16875	60.76280	30	Dunes	20/3/05	Low	Drying	Medium	Dry	Absent									
21/4/05	08:05:15	Ghale Bampoor	27.20483	60.45475	20	Dunes	20/3/05	Low	Green	Medium	Wet	Absent									
21/4/05	08:26:29	Sardegal 1	27.23213	60.43383	30	Interdunes	20/3/05	Low	Green	Low	Wet	Absent									
21/4/05	08:44:55	Sardegal 2	27.24040	60.39855	50	Interdunes	20/3/05	Moderate	Green	Medium	Wet	Absent									
21/4/05	09:31:29	Shams Abad Bampoor	27.20662	60.34385	100	Dunes	20/3/05	Low	Drying	Medium	Dry	Absent									
21/4/05	10:36:50	Deraz chah Espakeh	27.11923	60.05577	200	Dunes	20/3/05	Low	Drying	Medium	Dry	Absent									

Appendix 5. Survey results (cont.)

Date	Time	Name	Latitude	Longitude	Area (ha)	Habitat	Last rain	Amount	Vegetation	Density	Soil	Locusts	Hoppers	Phase	Density	Adults	Phase	Transect (L)	Transect (W)	Adults seen	Density/ha
22/4/05	07:56:30	Gowatr	25.16513	61.49520	10	Beach	1/3/05	Moderate	Greening	Low	Wet	Absent									
22/4/05	08:40:43	Pasabandar area	25.08662	61.34888	50	Beach	1/3/05	High	Green	Medium	Wet	Absent									
22/4/05	09:21:44	Beris	25.16863	61.16553	10	Beach	8/3/05	Low	Green	Medium	Wet	Absent									
22/4/05	09:47:01	Sham	25.19368	61.08860	20	Beach	8/3/05	Low	Green	Medium	Dry	Absent									
22/4/05	10:33:30	Lipar	25.27422	60.84507	100	Plains	1/3/05	Moderate	Green	Medium	Wet	Present				Immature	Solitary	1,000	3	1	3
22/4/05	11:02:05	Kochok 1	25.27048	60.85889	20	Plains	1/3/05	Moderate	Green	Dense	Wet	Absent									
22/4/05	11:34:24	Kochok 2	25.25367	60.89026	30	Plains	1/3/05	Moderate	Green	Medium	Dry	Absent									
22/4/05	11:58:08	Ramin	25.26745	60.80785	20	Plains	1/3/05	Moderate	Greening	Medium	Dry	Absent									
22/4/05	16:47:53	Afkan 1	25.37968	60.74708	50	Plains	1/3/05	Moderate	Drying	Medium	Dry	Absent									
22/4/05	18:05:17	Afkan 2	25.37552	60.73610	5	Plains	1/3/05	Moderate	Greening	Medium	Dry	Absent									
22/4/05	18:45:06	Vashnam Kadkhoda Yousef	25.39573	60.76992	100	Plains	1/3/05	Moderate	Green	Medium	Wet	Absent									
23/4/05	09:05:04	Majiroo Dambdap	25.48268	60.93695	20	Plains	1/3/05	Moderate	Drying	Medium	Dry	Absent									
23/4/05	10:21:03	Reek Dim	25.45727	60.86731	100	Plains	1/3/05	Moderate	Green	Medium	Dry	Present				Immature	Solitary	2,500	3	5	7
23/4/05	10:55:10	Maleki	25.45727	60.69690	200	Plains	1/3/05	Moderate	Green	Medium	Dry	Present				All	Solitary	2,500	3	3	4
23/4/05	11:33:15	Brenjdar	25.45368	60.67852	300	Plains	1/3/05	Moderate	Green	Medium	Dry	Absent									
24/4/05	08:07:37	Birdaf	25.46487	59.81293	50	Dunes	28/2/05	Low	Drying	Medium	Dry	Absent									
24/4/05	09:14:56	Bandini	25.47035	59.58778	5	Wadi	24/2/05	Low	Drying	Medium	Dry	Absent									
24/4/05	09:34:32	Poshti	25.49555	59.44845	100	Dunes	24/2/05	Low	Drying	Medium	Dry	Present	L3	Solitary	1/site	All	Solitary	5,000	3	8	5
24/4/05	10:22:47	Kaki	25.52233	59.40565	100	Dunes	24/2/05	Low	Drying	Medium	Dry	Present	L1, L2	Solitary	3/site						
24/4/05	13:19:22	Lirdaf	25.65817	58.88325	20	Plains	1/3/05	Low	Greening	Medium	Dry	Absent									
24/4/05	14:18:01	Jask area	25.76962	58.43347	50	Wadi	1/3/05	Low	Drying	Medium	Dry	Absent									
25/4/05	06:56:17	Bahal	25.69597	57.87695	15	Beach	1/3/05	Low	Drying	Medium	Dry	Absent									
25/4/05	07:31:24	Yekdar	25.71358	58.09872	30	Plains	1/3/05	Low	Drying	Low	Dry	Absent									
25/4/05	08:14:57	Soorgalm	25.65452	58.14790	5	Plains	1/3/05	Low	Drying	Low	Dry	Absent									
25/4/05	10:32:27	Kahooti	25.69718	57.82467	10	Beach	1/3/05	Low	Green	Low	Dry	Absent									
25/4/05	10:40:46	Tal	25.72547	57.79160	50	Dunes	1/3/05	Low	Drying	Medium	Dry	Absent									
25/4/05	15:42:59	Hasan Langi 1	27.36565	56.77783	30	Plains	20/3/05	Low	Drying	Medium	Dry	Absent									
26/4/05	15:31:09	Bandar Abbas area	27.32918	56.48272	5	Plains	20/3/05	Low	Dry	Dense	Dry	Absent									
26/4/05	15:54:08	Ghala Ghazi	27.35920	56.57343	100	Dunes	20/3/05	Low	Drying	Medium	Dry	Absent									
26/4/05	16:27:06	Hasan Langi 2	27.36923	56.81770	50	Plains	20/3/05	Low	Drying	Medium	Dry	Absent									
27/4/05	08:24:38	Chah Jazi 1	27.31543	58.28682	50	Dunes	17/3/05	Low	Green	Medium	Dry	Absent									
27/4/05	08:49:07	Chah Jazi 2	27.32908	58.31855	30	Dunes	17/3/05	Low	Green	Low	Dry	Absent									
27/3/05	09:38:39	Mazrea	27.26410	58.32538	200	Dunes	17/3/05	Low	Green	Medium	Dry	Absent									
27/4/05	10:18:23	Kalat Malek	27.21918	58.35810	20	Plains	17/3/05	Low	Drying	Medium	Dry	Absent									
27/4/05	10:44:08	Kertaki	27.24090	58.35950	100	Plains	17/3/05	Low	Green	Medium	Wet	Absent									
27/4/05	12:01:18	Ziarat Karkan	27.18682	58.53582	50	Dunes	17/3/05	Low	Green	Medium	Dry	Absent									
27/4/05	12:35:18	Jangal Abad Solan	27.21560	58.57303	50	Wadi	17/3/05	Low	Green	Low	Wet	Absent									
27/4/05	12:47:30	Zehan	27.23752	58.58590	20	Wadi	17/3/05	Low	Green	Medium	Wet	Absent									
27/4/05	13:11:14	Tooreek	27.18840	58.57948	30	Wadi	17/3/05	Low	Green	Low	Wet	Absent									
28/4/05	06:55:48	Chil Gorg	27.93937	58.08610	50	Dunes	17/3/05	Low	Drying	Dense	Dry	Absent									
28/4/05	07:21:38	Sardi	27.87170	58.21533	100	Dunes	17/3/05	Low	Drying	Medium	Dry	Absent									
28/4/05	11:02:20	Chah Mohammad	27.54957	59.34082	100	Plains	20/3/05	Low	Green	Low	Dry	Absent									
28/4/05	11:35:19	Robahi	27.44820	59.33293	300	Plains	20/3/05	Low	Green	Medium	Wet	Absent									
28/4/05	12:54:32	Motor Esfandyar	27.07273	59.07052	70	Plains	20/3/05	Low	Drying	Low	Dry	Absent									
28/4/05	13:15:52	Ziarat	27.07650	59.00393	100	Dunes	20/3/05	Low	Green	Low	Dry	Absent									
28/4/05	15:25:25	Shah Taghi	27.04972	59.19505	200	Dunes	20/3/05	Low	Drying	Medium	Dry	Absent									
28/4/05	15:37:32	Chah Shoorak	27.06412	59.28876	50	Dunes	20/3/05	Low	Green	Medium	Dry	Absent									
28/4/05	15:55:34	Mand	27.11292	59.47007	100	Dunes	20/3/05	Low	Drying	Medium	Dry	Absent									
28/4/05	16:13:01	Chah Ali	27.11173	59.64720	100	Dunes	20/3/05	Low	Drying	Medium	Dry	Absent									
28/4/05	16:44:47	Dulabkan	27.20180	59.96323	150	Dunes	20/3/05	Low	Drying	Medium	Dry	Absent									

Appendix 6. Proposed joint survey itinerary for 2006

Date	Route & Area to survey	Overnight
	PAKISTAN	
1 Apr	Taftan, Nukkundi, Dalbandin	Dalbandin
2 Apr	Dalbandin, Chagai Hills, Nushki	Nushki
3 Apr	Kharan area	Kharan
4 Apr	Kharan, Basima, Nag, Panjgur	Kharan
5 Apr	Panjgur, Prome	Panjgur
6 Apr	Panjgur, Hoshab, Turbat	Turbat
7 Apr	Turbat, Mand	Turbat
8 Apr	Turbat, Shooli, Sunstar, Jiwani	Jiwani
9 Apr	Jiwani, Gwadar	Gwadar
10 Apr	Gwadar, Kulanch, Pasni	Pasni
11 Apr	Pasni area	Pasnni
12 Apr	Pasni, Ormara, Uthal	Uthal
13 Apr	Uthal, Khuzdar	Khuzdar
14 Apr	Khuzdar, Quetta	Quetta
15 Apr	Rest day	Quetta
16 Apr	Quetta, Nushki, Taftan	Taftan
	I.R. IRAN	
17 Apr	Taftan, Mirjaveh (cross into Iran), send 1st results	Zahedan
18 Apr	Zahedan, Khash, Gosht, Saravan	Saravan
19 Apr	Saravan, Suran, Esfandak, Saravan	Saravan
20 Apr	Saravan, Zaboli, Saravan, Khash, Iranshahr	Iranshahr
21 Apr	Iranshahr, Espakeh, Nikshahr, Chabahar	Chabahar
22 Apr	Chabahar, Beris, Sham, Gwater	Gwater
23 Apr	Chabahar, Vashnam, Dashtiari, Negur	Chabahar
24 Apr	Chabahar, Zar Abad, Jask	Jask
25 Apr	Jask area, Jask, Minab, Bandar Abbas	Bandar Abbas
26 Apr	Resr day, Bandar Abbas, Kahnoj	Kahnoj
27 Apr	Kahnoj, Ghale ganj, Sowlan	Kahnoj
28 Apr	East Jaz Murian, Dalgan, Jolgeh Chah Hashem	Iranshahr
29 Apr	Iranshahr, Zahedan, send 2nd half report	Zahedan
30 Apr	Send final report	Zahedan
1 May	Pakistani team crosses at Mirjaveh/Taftan border	

Appendix 7. Photos

Northern Baluchistan (Pakistan). Green vegetation from recent rainfall near Nokundi at 284920N/624511E.
(3 April 2005)

Northern Baluchistan (Pakistan). Green vegetation from recent rainfall near Nokundi at 284920N/624511E.
(3 April 2005)

Central Baluchistan (Pakistan). Green vegetation from recent rainfall in the Kharan Valley near Batto (292728N/655841E).
(3 April 2005)

Central Baluchistan (Pakistan). Green vegetation from recent rainfall near Pajgur at Daz Porom (263933N/631857E).
(6 April 2005)

Southern Baluchistan (Pakistan). Drying vegetation on the coastal plains west of Pasni near Garanich (251615N/632625E).
(11 April 2005)

Southern Baluchistan (Pakistan). Drying vegetation on the coastal plains east of Pasni near Romra (252303N/634308E).
(12 April 2005)

Southern Baluchistan (Pakistan). Green vegetation on the coastal plains near Omara at Hod God (251758N/643905E).
(12 April 2005)

Central Baluchistan (I.R. Iran). Green vegetation near Bampur at Sardagal (271422N/602355E).
(21 April 2005)

Southern Baluchistan (I.R. Iran). Solitarious adult on the coastal plains near Chabahar at Gaboolan (252956N/602814E).
(21 April 2005)

Southern Baluchistan (I.R. Iran). Drying vegetation on the coastal plains east of Chabahar near Beris (251134N/610520E).
(22 April 2005)

Southern Baluchistan (I.R. Iran). Visit of the Plant Protection Organization Director on the coastal plains west of Chahabar near Ramin (251559N/604829E).
(22 April 2005)

Southern Baluchistan (I.R. Iran). Solitarious adult on the coastal plains west of Chahabar near Zarabad (253117N/592420E).
(24 April 2005)

Southern Baluchistan (I.R. Iran). Solitarious hopper on the coastal plains west of Chahabar near Zarabad (253117N/592420E).
(24 April 2005)

Reporting. Sending survey results to the Desert Locust Information Service (DLIS) at FAO Headquarters, Rome.

Planning. Reviewing the day's survey route and becoming familiar with the terrain.

2005 Joint Survey team.