

Annexes

Annex 1. Participants

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Annex 2. Rainfall during the winter of 1998/99

(listed from north to south)

Location	Details
Oseif	light rain near Halaib in January 1999
Wadi Diib	no rain for two years
Sufiya	no rain for two years
Gebeit Mine	light rain in October 1998
Port Sudan	approximately 10mm first week of January 1999
Suakin	light rain 27 December and 8 January 1999
Tokar Delta	moderate rain 26 October 1998

NB. The only meteorological station on the Red Sea coast that is currently in operation is Port Sudan. The information listed above was obtained from PPD Locust Unit records and from locals in the area.

Annex 3. Coordinates of Populated Places

Name	Coordinates
Aram	184726N/372510E
Ashat	184137N/372103E
Bir Salala	203358N/370156E
Dungunab	210617N/370657E
Eit	200941N/370637E
Fodikwan	214500N/364429E
Gebeit Mine	210324N/361903E
Mohammad Qol	205404N/370930E
Oseif	214613N/365149E
Port Sudan	193616N/371216E
Suakin	190622N/371833E
Sufiya	211932N/361256E
Tokar	182536N/374352E

NB. The above coordinates were collected using a Garmin 12XL GPS.

Annex 4. Habitat description: Tokar to Karora

The coastal plains extend south of Tokar for about 90 km until the Eritrean border. South of Tokar Delta are low bushes followed by gravel plains, low sand dunes and another gravel plain with Acacia trees that is criss-crossed by many small wadi channels that are either rocky or sandy (Khor Ein, K. Elaga, K. Middeb). This area is not suitable for Desert Locust. Along the base of the Red Sea Hills from Jebel Tagdara to J. Fitrto are plains consisting of annual grasses and low Acacia trees. On the coastal plains, green cultivation is present near J. Fitrto. The village of Aqiq is located on the coast, opposite to the Jebel. South of Aqiq is Khor Nawarat where millet is grown followed by the small village of Adobana where plots of millet and sorghum are cultivated on the nearby sandy plains. Beyond Adobana, the area is not suitable for Desert Locust until Khor Balatat. Here, sorghum and millet are grown along the entire length of the sandy khor and in the smaller adjacent sandy khors. On the edge of the khors are low dunes, low Acacia trees and green scrub brush. South of the khor is a barren plain. South-west of this plain is Aitarba, a small village in a sandy khor at the base of the Red Sea Hills. A large plain of *Panicum* sp. and guera extends east of Aitarba towards the sea bounded to the south by J. Gedif, J. Meihtub, and J. Halibai on the Eritrean border and ends just on the other side of the border. The plain is about 8 km by 12 km. Small plots of millet are grown on the eastern base of J. Gedif and around the other jebels as well as in Khor Hambokaieb which is west of J. Gedif. The sandy khor continues from the foothills past J. Merimmer and J. Marharba towards Karora, the last village before Eritrea. This is a large millet growing area. At the base of the Red Sea Hills are patches of annual vegetation in between dunes and gravel plains.

NB. These are notes from observations made by K. Cressman during field surveys in December 1992. Please refer to the map on page 9.

Annex 5. Itinerary

Date	Survey area	Distance	Hours	Overnight
3-6 March	team assembles in Khartoum	-----	-----	Khartoum
7 March	fly to Port Sudan	-----	-----	Suakin
8 March	southern coastal plains Suakin - Tokar - Suakin	250 km	12 h	Suakin
9 March	central plains Suakin - Saloom - Port Sudan	150 km	5 h	Suakin
10 March	northern plains Port Sudan - Oseif	335 km	10 h	Oseif
11 March	northern subcoastal area Oseif - Sufiya	170 km	10 h	Sufiya
12 March	northern sub/coastal areas Sufiya - Port Sudan	390 km	11 h	Suakin
13 March	fly to Khartoum			
14 March	participants depart to Cairo			
		total distance surveyed:	1300 km	

Annex 6. Results of survey

The completed *FAO Desert Locust Survey and Control* forms used during the survey to collect and record the results and observations are presented in the following pages.

1	SURVEY STOP	1	2	3	4	5	6
1-1	date	8.3.99	8.3.99	8.3.99	8.3.99	8.3.99	8.3.99
1-2	name	Khor Gwob	Khor Ashat	Khor Sitarab	Ghaffer	Galelama	Eglim
1-3	latitude (N)	190302	184323	183805	182127	182104	182241
1-4	longitude (E or W)	372100	372254	372320	374218	374247	374511
2	ECOLOGY						
2-1	area (ha) of survey				67	1876	1340
2-2	habitat (wadi, plains, dunes, crops)	khor	khor	khor	crops	crops	crops
2-3	date of last rain	long time ago					
2-4	rain amount (mm, Low Moderate High, ?)	L M H ?	L M H ?	L M H ?	L M H ?	L M H ?	L M H ?
2-5	vegetation (dry, greening, green, drying)	dry	dry	dry	green	green	green
2-6	vegetation density (Low Medium Dense)	L	L	L	D	D	D
2-7	soil moisture (wet/dry)	D	D	D	D	D	D
3	LOCUSTS						
3-1	present or absent	A	A	A	A	A	A
3-2	area infested (ha)						
4	HOPPERS						
4-1	hopper stages (H123456F)	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F
4-2	appearance (solitary, transiens, gregarious)	S T G	S T G	S T G	S T G	S T G	S T G
4-3	behaviour (isolated, scattered, groups)	I S G	I S G	I S G	I S G	I S G	I S G
4-4	hopper density (/site, /m2, Low Med High)						
5	BANDS						
5-1	band stage (H12345F)	H 1 2 3 4 5 F	H 1 2 3 4 5 F	H 1 2 3 4 5 F	H 1 2 3 4 5 F	H 1 2 3 4 5 F	H 1 2 3 4 5 F
5-2	band density (/m2 or Low Medium High)						
5-3	band sizes (m2 or ha)						
5-4	number of bands						
6	ADULTS						
6-1	maturity (immature, mature)	I M	I M	I M	I M	I M	I M
6-2	appearance (solitary, transiens, gregarious)	S T G	S T G	S T G	S T G	S T G	S T G
6-3	behaviour (isolated, scattered, groups)	I S G	I S G	I S G	I S G	I S G	I S G
6-4	adult density (/transect, /ha, L M H)						
6-5	breeding (copulating, laying)	C L	C L	C L	C L	C L	C L
7	SWARMS						
7-1	maturity (immature, mature)	I M	I M	I M	I M	I M	I M
7-2	swarm density (/m2 or Low Medium High)						
7-3	swarm size (km2 or ha)						
7-4	number of swarms						
7-5	breeding (copulating, laying)	C L	C L	C L	C L	C L	C L
7-6	flying (direction, time passing)						
7-7	flying height (Low Medium High)	L M H	L M H	L M H	L M H	L M H	L M H
8	CONTROL						
8-1	pesticide name & formulation						
8-2	application rate (l/ha or kg/ha)						
8-3	quantity (l)						
8-4	area treated (ha)						
8-5	ground or air	G A	G A	G A	G A	G A	G A
8-6	estimated % kill						
9	COMMENTS						
	ROUTE: Suakin - southern coast: Khor Gwob - K. Ashat - K. Sitarab - Tokar - delta - return to Suakin via shore route		K. Ashat north end starts at Aram (184725/372510) south end at Ashat village (184137/372103)	drying small Tribulus low plants	one block = 67ha millet heads (Tokar)	mixed crops of cotton, ocra, sorghum, dry millet; farmer says no DL (Tokar)	green cotton & sorghum (Tokar)

kc 99.03

Was a GPS used to determine locations? yes

Is a brief interpretation or analysis of the results included? yes no

Country: SUDANLocust Officer: 1999 JOINT SURVEY

date: _____

cleared by: _____

date: _____

1	SURVEY STOP	1	2	3	4	5	6
1-1	date	9.3.99	9.3.99	9.3.99			
1-2	name	Handub	Hosheri	Saloom area			
1-3	latitude (N)	191651	192138	192325			
1-4	longitude (E or W)	371504	371634	370920			
2	ECOLOGY						
2-1	area (ha) of survey			5			
2-2	habitat (wadi, plains, dunes, crops)	plains	wadi	farms			
2-3	date of last rain						
2-4	rain amount (mm, Low Moderate High, ?)	L M H ?	L M H ?	L M H ?	L M H ?	L M H ?	L M H ?
2-5	vegetation (dry, greening, green, drying)	dry	dry	dry			
2-6	vegetation density (Low Medium Dense)	L	L	L	L M D	L M D	L M D
2-7	soil moisture (wet/dry)	D	D	D	W D	W D	W D
3	LOCUSTS						
3-1	present or absent	A	A	A	P A	P A	P A
3-2	area infested (ha)						
4	HOPPERS						
4-1	hopper stages (H123456F)	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F
4-2	appearance (solitary, transiens, gregarious)	S T G	S T G	S T G	S T G	S T G	S T G
4-3	behaviour (isolated, scattered, groups)	I S G	I S G	I S G	I S G	I S G	I S G
4-4	hopper density (/site, /m2, Low Med High)						
5	BANDS						
5-1	band stage (H12345F)	H 1 2 3 4 5 F	H 1 2 3 4 5 F	H 1 2 3 4 5 F	H 1 2 3 4 5 F	H 1 2 3 4 5 F	H 1 2 3 4 5 F
5-2	band density (/m2 or Low Medium High)						
5-3	band sizes (m2 or ha)						
5-4	number of bands						
6	ADULTS						
6-1	maturity (immature, mature)	I M	I M	I M	I M	I M	I M
6-2	appearance (solitary, transiens, gregarious)	S T G	S T G	S T G	S T G	S T G	S T G
6-3	behaviour (isolated, scattered, groups)	I S G	I S G	I S G	I S G	I S G	I S G
6-4	adult density (/transect, /ha, L M H)						
6-5	breeding (copulating, laying)	C L	C L	C L	C L	C L	C L
7	SWARMS						
7-1	maturity (immature, mature)	I M	I M	I M	I M	I M	I M
7-2	swarm density (/m2 or Low Medium High)						
7-3	swarm size (km2 or ha)						
7-4	number of swarms						
7-5	breeding (copulating, laying)	C L	C L	C L	C L	C L	C L
7-6	flying (direction, time passing)						
7-7	flying height (Low Medium High)	L M H	L M H	L M H	L M H	L M H	L M H
8	CONTROL						
8-1	pesticide name & formulation						
8-2	application rate (l/ha or kg/ha)						
8-3	quantity (l)						
8-4	area treated (ha)						
8-5	ground or air	G A	G A	G A	G A	G A	G A
8-6	estimated % kill						
9	COMMENTS						
	ROUTE: Suakin - Handub - Hosheri - Saloom - P. Sudan - Suakin	off-shore steady wind; no veg except thin Calitropis; traditional breeding area west of hwy	millet in wadi; dry grass on plain; dry this year; traditional breeding area east of hwy (bands in 1998)	traditional breeding area of small irrigated farms with veg at foothills base			

kc 99.03

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Is a brief interpretation or analysis of the results included? yes no

Country: SUDAN

Locust Officer : JOINT SURVEY 1999

date : _____

cleared by : _____

date : _____

1	SURVEY STOP	1	2	3	4	5	6
1-1	date	10.3.99	10.3.99	10.3.99	10.3.99	10.3.99	10.3.99
1-2	name	Marsa Arous	Eit Well	Sakanhelt Plain	Bir Salala	Khor Aritri	Mohamed Qol
1-3	latitude (N)	200007	200941	202407	203358	204131	205404
1-4	longitude (E or W)	371024	370637	370257	370156	370334	370931
2	ECOLOGY						
2-1	area (ha) of survey						
2-2	habitat (wadi, plains, dunes, crops)	plains	well	plains	well	wadi	coast
2-3	date of last rain						
2-4	rain amount (mm, Low Moderate High, ?)	L M H ?	L M H ?	L M H ?	L M H ?	L M H ?	L M H ?
2-5	vegetation (dry, greening, green, drying)	dry	dry	dry	dry	dry	dry
2-6	vegetation density (Low Medium Dense)	L	L	L	L	L	L
2-7	soil moisture (wet/dry)	D	D	D	D	D	D
3	LOCUSTS						
3-1	present or absent	A	A	A	A	A	A
3-2	area infested (ha)						
4	HOPPERS						
4-1	hopper stages (H123456F)	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F
4-2	appearance (solitary, transiens, gregarious)	S T G	S T G	S T G	S T G	S T G	S T G
4-3	behaviour (isolated, scattered, groups)	I S G	I S G	I S G	I S G	I S G	I S G
4-4	hopper density (/site, /m2, Low Med High)						
5	BANDS						
5-1	band stage (H12345F)	H 1 2 3 4 5 F	H 1 2 3 4 5 F	H 1 2 3 4 5 F	H 1 2 3 4 5 F	H 1 2 3 4 5 F	H 1 2 3 4 5 F
5-2	band density (/m2 or Low Medium High)						
5-3	band sizes (m2 or ha)						
5-4	number of bands						
6	ADULTS						
6-1	maturity (immature, mature)	I M	I M	I M	I M	I M	I M
6-2	appearance (solitary, transiens, gregarious)	S T G	S T G	S T G	S T G	S T G	S T G
6-3	behaviour (isolated, scattered, groups)	I S G	I S G	I S G	I S G	I S G	I S G
6-4	adult density (/transect, /ha, L M H)						
6-5	breeding (copulating, laying)	C L	C L	C L	C L	C L	C L
7	SWARMS						
7-1	maturity (immature, mature)	I M	I M	I M	I M	I M	I M
7-2	swarm density (/m2 or Low Medium High)						
7-3	swarm size (km2 or ha)						
7-4	number of swarms						
7-5	breeding (copulating, laying)	C L	C L	C L	C L	C L	C L
7-6	flying (direction, time passing)						
7-7	flying height (Low Medium High)	L M H	L M H	L M H	L M H	L M H	L M H
8	CONTROL						
8-1	pesticide name & formulation						
8-2	application rate (l/ha or kg/ha)						
8-3	quantity (l)						
8-4	area treated (ha)						
8-5	ground or air	G A	G A	G A	G A	G A	G A
8-6	estimated % kill						
9	COMMENTS						
	ROUTE: Suakin - P. Sudan - up northern coast: Marsa Arous - Eit - Bir Salala - Mohamed Qol - Dungunab - Oseif	hard plain with limited small sandy areas and dry panicum for breeding	wooden huts in wadi (tea); end of panicum area	large plain of dry panicum; potential for DL breeding if rain	well in sandy wadi surrounded by low rocky hills	potential breeding area with low panicum (if rain falls); last good area until Dungunab	fishing village; no vegetation to north or south; hard salt pan

kc 99.05

Was a GPS used to determine locations? yes

Is a brief interpretation or analysis of the results included? yes no

Country: SUDAN

Locust Officer: 1999 JOINT SURVEY TEAM

date: _____

cleared by: _____

date: _____

1	SURVEY STOP	1	2	3	4	5	6
1-1	date	10.3.99	10.3.99				
1-2	name	Dungunab	Oseif				
1-3	latitude (N)	210617	214613				
1-4	longitude (E or W)	370658	365149				
2	ECOLOGY						
2-1	area (ha) of survey						
2-2	habitat (wadi, plains, dunes, crops)	coast	coast				
2-3	date of last rain						
2-4	rain amount (mm, Low Moderate High, ?)	L M H ?	L M H ?	L M H ?	L M H ?	L M H ?	L M H ?
2-5	vegetation (dry, greening, green, drying)						
2-6	vegetation density (Low Medium Dense)	L	L	L M D	L M D	L M D	L M D
2-7	soil moisture (wet/dry)	D	D	W D	W D	W D	W D
3	LOCUSTS						
3-1	present or absent	A	A	P A	P A	P A	P A
3-2	area infested (ha)						
4	HOPPERS						
4-1	hopper stages (H123456F)	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F
4-2	appearance (solitary, transiens, gregarious)	S T G	S T G	S T G	S T G	S T G	S T G
4-3	behaviour (isolated, scattered, groups)	I S G	I S G	I S G	I S G	I S G	I S G
4-4	hopper density (/site, /m2, Low Med High)						
5	BANDS						
5-1	band stage (H12345F)	H 1 2 3 4 5 F	H 1 2 3 4 5 F	H 1 2 3 4 5 F	H 1 2 3 4 5 F	H 1 2 3 4 5 F	H 1 2 3 4 5 F
5-2	band density (/m2 or Low Medium High)						
5-3	band sizes (m2 or ha)						
5-4	number of bands						
6	ADULTS						
6-1	maturity (immature, mature)	I M	I M	I M	I M	I M	I M
6-2	appearance (solitary, transiens, gregarious)	S T G	S T G	S T G	S T G	S T G	S T G
6-3	behaviour (isolated, scattered, groups)	I S G	I S G	I S G	I S G	I S G	I S G
6-4	adult density (/transect, /ha, L M H)						
6-5	breeding (copulating, laying)	C L	C L	C L	C L	C L	C L
7	SWARMS						
7-1	maturity (immature, mature)	I M	I M	I M	I M	I M	I M
7-2	swarm density (/m2 or Low Medium High)						
7-3	swarm size (km2 or ha)						
7-4	number of swarms						
7-5	breeding (copulating, laying)	C L	C L	C L	C L	C L	C L
7-6	flying (direction, time passing)						
7-7	flying height (Low Medium High)	L M H	L M H	L M H	L M H	L M H	L M H
8	CONTROL						
8-1	pesticide name & formulation						
8-2	application rate (l/ha or kg/ha)						
8-3	quantity (l)						
8-4	area treated (ha)						
8-5	ground or air	G A	G A	G A	G A	G A	G A
8-6	estimated % kill						
9	COMMENTS						
		small dry area of panicum to north of village on a large bay	dry hard plains not suitable for DL breeding; military village (overnight)				

kc 99.03

Was a GPS used to determine locations? yes

Is a brief interpretation or analysis of the results included? yes no

Country: SUDAN

Locust Officer : 1999 JOINT SURVEY TEAM

date : _____

cleared by : _____

date : _____

1	SURVEY STOP	1	2	3	4	5	6
1-1	date	11.3.99	11.3.99	11.3.99	11.3.99	11.3.99	
1-2	name	K. Fodikwan	K. Tahamid area	Sufiya	Nurayet	W. Diib	
1-3	latitude (N)	214500	212519	211930	212820	212947	
1-4	longitude (E or W)	364428	363550	361255	360604	360615	
2	ECOLOGY						
2-1	area (ha) of survey						
2-2	habitat (wadi, plains, dunes, crops)	khore	khore	camp	wadi	wadi	
2-3	date of last rain				2 years ago	2 years ago	
2-4	rain amount (mm, Low Moderate High, ?)	L M H ?	L M H ?	L M H ?	L M H ?	L M H ?	L M H ?
2-5	vegetation (dry, greening, green, drying)	drying	dry	dry	dry	dry	
2-6	vegetation density (Low Medium Dense)	L	L	L	L	L	L M D
2-7	soil moisture (wet/dry)	D	D	D	D	D	W D
3	LOCUSTS						
3-1	present or absent	A	A	A	A	A	P A
3-2	area infested (ha)						
4	HOPPERS						
4-1	hopper stages (H123456F)	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F	H 1 2 3 4 5 6 F
4-2	appearance (solitary, transiens, gregarious)	S T G	S T G	S T G	S T G	S T G	S T G
4-3	behaviour (isolated, scattered, groups)	I S G	I S G	I S G	I S G	I S G	I S G
4-4	hopper density (/site, /m2, Low Med High)						
5	BANDS						
5-1	band stage (H12345F)	H 1 2 3 4 5 F	H 1 2 3 4 5 F	H 1 2 3 4 5 F	H 1 2 3 4 5 F	H 1 2 3 4 5 F	H 1 2 3 4 5 F
5-2	band density (/m2 or Low Medium High)						
5-3	band sizes (m2 or ha)						
5-4	number of bands						
6	ADULTS						
6-1	maturity (immature, mature)	I M	I M	I M	I M	I M	I M
6-2	appearance (solitary, transiens, gregarious)	S T G	S T G	S T G	S T G	S T G	S T G
6-3	behaviour (isolated, scattered, groups)	I S G	I S G	I S G	I S G	I S G	I S G
6-4	adult density (/transect, /ha, L M H)						
6-5	breeding (copulating, laying)	C L	C L	C L	C L	C L	C L
7	SWARMS						
7-1	maturity (immature, mature)	I M	I M	I M	I M	I M	I M
7-2	swarm density (/m2 or Low Medium High)						
7-3	swarm size (km2 or ha)						
7-4	number of swarms						
7-5	breeding (copulating, laying)	C L	C L	C L	C L	C L	C L
7-6	flying (direction, time passing)						
7-7	flying height (Low Medium High)	L M H	L M H	L M H	L M H	L M H	L M H
8	CONTROL						
8-1	pesticide name & formulation						
8-2	application rate (l/ha or kg/ha)						
8-3	quantity (l)						
8-4	area treated (ha)						
8-5	ground or air	G A	G A	G A	G A	G A	G A
8-6	estimated % kill						
9	COMMENTS						
	ROUTE: Useif - K. Fodikwan - Khor Gabitat (2141N/3645E) with dams - Khor Adashia (2130N/3638E) - Sufiya	patches of drying panicum west of Oseif and in K. Fodikwan (village)	rocky khore	PPD camp and small hut in valley between several peaks NB. Low clouds from coast at 12 GMT (15Z) with dusty conditions & sun blocked; NE wind gusty	jct. of K. Sufiya at W. Diib; unusually ry	very dry; only drying Calitropus	

kc 99.05

Was a GPS used to determine locations? yes

Is a brief interpretation or analysis of the results included? yes no

Country: SUDAN

Locust Officer: 1999 JOINT SURVEY

date: _____

cleared by: _____

date: _____

1	SURVEY STOP	1	2	3	4	5	6
1-1	date	12.3.99	12.3.99	12.3.99	12.3.99	12.3.99	12.3.99
1-2	name	Gebeit Mine	K. Tomiki area	K. Doimalal	K. Mog	K. Kamoikwan	---
1-3	latitude (N)	210303	210030	205813	210253	210207	203114
1-4	longitude (E or W)	361904	361923	363709	370053	365548	370154
2	ECOLOGY						
2-1	area (ha) of survey						
2-2	habitat (wadi, plains, dunes, crops)	khorr	khorr	khorr	khorr in dunes	khorr	coastal plains
2-3	date of last rain	Oct-98					
2-4	rain amount (mm, Low Moderate High, ?)	L	L M H ?	L M H ?	L M H ?	L M H ?	L M H ?
2-5	vegetation (dry, greening, green, drying)	dry	dry	dry	dry	drying	dry
2-6	vegetation density (Low Medium Dense)	L	L	L	L	L	L
2-7	soil moisture (wet/dry)	D	D	D	D	D	D
3	LOCUSTS						
3-1	present or absent	A	A	A	A	A	A
3-2	area infested (ha)						
4	HOPPERS						
4-1	hopper stages (H123456F)	H I 2 3 4 5 6 F	H I 2 3 4 5 6 F	H I 2 3 4 5 6 F	H I 2 3 4 5 6 F	H I 2 3 4 5 6 F	H I 2 3 4 5 6 F
4-2	appearance (solitary, transiens, gregarious)	S T G	S T G	S T G	S T G	S T G	S T G
4-3	behaviour (isolated, scattered, groups)	I S G	I S G	I S G	I S G	I S G	I S G
4-4	hopper density (/site, /m2, Low Med High)						
5	BANDS						
5-1	band stage (H12345F)	H I 2 3 4 5 F	H I 2 3 4 5 F	H I 2 3 4 5 F	H I 2 3 4 5 F	H I 2 3 4 5 F	H I 2 3 4 5 F
5-2	band density (/m2 or Low Medium High)						
5-3	band sizes (m2 or ha)						
5-4	number of bands						
6	ADULTS						
6-1	maturity (immature, mature)	I M	I M	I M	I M	I M	I M
6-2	appearance (solitary, transiens, gregarious)	S T G	S T G	S T G	S T G	S T G	S T G
6-3	behaviour (isolated, scattered, groups)	I S G	I S G	I S G	I S G	I S G	I S G
6-4	adult density (/transect, /ha, L M H)						
6-5	breeding (copulating, laying)	C L	C L	C L	C L	C L	C L
7	SWARMS						
7-1	maturity (immature, mature)	I M	I M	I M	I M	I M	I M
7-2	swarm density (/m2 or Low Medium High)						
7-3	swarm size (km2 or ha)						
7-4	number of swarms						
7-5	breeding (copulating, laying)	C L	C L	C L	C L	C L	C L
7-6	flying (direction, time passing)						
7-7	flying height (Low Medium High)	L M H	L M H	L M H	L M H	L M H	L M H
8	CONTROL						
8-1	pesticide name & formulation						
8-2	application rate (l/ha or kg/ha)						
8-3	quantity (l)						
8-4	area treated (ha)						
8-5	ground or air	G A	G A	G A	G A	G A	G A
8-6	estimated % kill						
9	COMMENTS						
	ROUTE: Sufiya - Gebeit mine - coast south of Dungunab - Mohamed Qol - Bir Salala - Eit - Marsa Arous - Port Sudan via coast track - Suakin	area from Sufiya to Gebeit of rocky khorr in hills with dry veg	dry panicum in two small valleys east of Gebeit	rocky khorr with Acacia trees and Calitropus (breakfast)	dry panicum; very good area if rain but difficult access inside dunes and deep sand	drying panicum; good potential area if rain	

lc 99.03

Was a GPS used to determine locations? yes no

Is a brief interpretation or analysis of the results included? yes no

Country: SUDAN

Locust Officer : 1999 JOINT SURVEY _____

date : _____

cleared by : _____

date : _____

Annex 7. Photos

The following pages contain photos taken during the survey on the Red Sea coastal plains and in subcoastal areas, from south to north. These photos were taken using a Kodak DC40 digital camera.





Sakanbitt, Plain (202407N/370257E)
10.3.99



south of Mohammed Qol (205404N/370931E)
12.3.99



W. Dilib (212947N/360615E)
11.3.99



Sufiya (211930N/361255E)
12.3.99

