

Appendix 3. Survey results (cont.)

		1	2	3	4	5	6	
1. LOCATION	1-1	survey stop						
	1-2	date	98/04/19	98/04/19	98/04/21	98/04/21	98/04/23	
	1-3	name	Chiatar	Padag	Borko(I)	Borko(II)	Borko-Naro	Bostan
	1-4	latitude (°N)	285729	285903	280714	280946	281328	265406
	1-5	longitude (°E or W)	650704	651508	652224	651823	651235	640443
	1-6	area (ha)	100	100	500	100	200	200
	1-7	topography	sand dunes	plain	sandy plain	sandy plain	sandy plain	gravel plain
2. PRESENCE	2-1	present	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	2-2	absent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. APPEARANCE	3-1	Solitary	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	3-2	transiens	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3-3	gregarious	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. BEHAVIOUR	4-1	copulating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-2	laying	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-3	hatching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-4	Settled	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	4-5	flying (direction & time passing overhead)						
	4-6	flying (height & width)						
5. MATURITY	5-1	instar of fledgling (1 2 3 4 5 6 F)						
	5-2	immature adult	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5-3	mature adult	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. DENSITY & SIZE	6-1	hoppers/m2 or bush						
	6-2	adults/transect or ha	1/1300 trans.	3/1000 trans.	3/3000 trans.	1/500 trans.	6/1100 trans.	
	6-3	band density (Low Medium Dense) and size (m2)						
	6-4	swarm density (Low Medium Dense) & size (km2)						
7. ECOLOGY	7-1	date of last rain	98/03/28	98/03/28	?	?	?	98/05/03
	7-2	rain amount (Low Moderate High)	9 mm	9 mm	?	?	?	low
	7-3	vegetation (dry, greening, green, drying)	Drying	drying	green	green	green	green
	7-4	vegetation density (Low Medium Dense)	Low	low	medium	medium	medium	medium
	7-5	soil moisture (wet, dry)	Dry	dry	dry	dry	dry	dry
8. CONTROL	8-1	pesticide name & formulation						
	8-2	application rate (l/ha)						
	8-3	quantity (l)						
	8-4	area treated (ha)						
	8-5	ground or air						
	8-6	estimated % kill						
9. COMMENTS		Temp. = 35 C RH = 26% wet =20 09:55	Temp. = 37 C RH = 22% Locust seen in fodder crops wet =20	Temp. = 35.5 RH = 20% wet = 19 10:04	Temp. = 35.5 RH = 20% wet = 19 11:16	Temp. = 35.5 RH = 20% wet = 19 11:54	Temp. = 31 RH = 56% wet = 24 09:30	

Prepared by: Iran and Pakistan Team

Appendix 3. Survey results (cont.)

1. LOCATION	1-1	survey stop	1	2	3	4	5	6
	1-2	date	98/04/23	98/04/23	98/04/23	98/04/25	98/04/26	98/04/27
	1-3	name	Sorvan	Darakedab	Parome	Sulaika	Gorani Chah	Chakuli
	1-4	latitude (°N)	265149	264804	264253	255320	251616	252536
	1-5	longitude (°E or W)	635806	635037	633003	624337	632102	631113
	1-6	area (ha)	10	10	100	50	150	10
	1-7	topography	sandy plain	wadi	gravel plain	sandy plain	sand dunes	sand dunes
2. PRESENCE	2-1	present	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	2-2	absent	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. APPEARANCE	3-1	solitary	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	3-2	transiens	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3-3	gregarious	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. BEHAVIOUR	4-1	copulating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-2	laying	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-3	hatching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-4	settled	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	4-5	flying (direction & time passing overhead)						
	4-6	flying (height & width)						
5. MATURITY	5-1	instar of fledgling (1 2 3 4 5 6 F)				4, 5		
	5-2	immature adult	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	5-3	mature adult	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6. DENSITY & SIZE	6-1	hoppers/m2 or bush				1-2/bush		
	6-2	adults/transsect or ha	9/800 trans.	9/800 trans.		13/1300 trans.	53/2500 trans.	3/800 trans.
	6-3	band density (Low Medium Dense) and size (m2)						
	6-4	swarm density (Low Medium Dense) & size (km2)						
7. ECOLOGY	7-1	date of last rain	?	two mons ago	two mons ago	98/03/03	?	early March
	7-2	rain amount (Low Moderate High)	?	high	high	high	?	high
	7-3	vegetation (dry, greening, green, drying)	Drying	drying	drying	drying	drying	drying
	7-4	vegetation density (Low Medium Dense)	Low	medium	medium	medium	dense	medium
	7-5	soil moisture (wet, dry)	Dry	dry	dry	dry	dry	dry
8. CONTROL	8-1	pesticide name & formulation						
	8-2	application rate (l/ha)						
	8-3	quantity (l)						
	8-4	area treated (ha)						
	8-5	ground or air						
	8-6	estimated % kill						
9. COMMENTS			Temp. = 34 RH = 54% wheat field wet =26 10:15	Temp. = 32.5 RH = 60% wet = 26 11:10	Temp. = 37 RH = 46% wet = 27 12:30	Temp. = 34 RH = 62% wet = 28 10:50	Temp. = 32 RH = 68% wet = 27 17:10	Temp. = 35 RH = 48% wet = 26 12:05

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Appendix 3. Survey results (cont.)

1. LOCATION	1-1	survey stop	1	2	3	4	5	6
	1-2	date	98/04/27	98/04/27	98/04/28	98/04/29	98/04/29	98/04/29
	1-3	name	Gano	Nalaint	Chhatti	Shooli	Suntsar	Beri chah
	1-4	latitude (°N)	252650	252153	251638	253522	253008	254232
	1-5	longitude (°E or W)	630631	624536	620748	620639	615058	623737
	1-6	area (ha)	50	20	5	80	50	10
	1-7	topography	sand dunes	garden	plain	sandy plain	valley	plain
2. PRESENCE	2-1	Present	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	2-2	absent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. APPEARANCE	3-1	solitary	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	3-2	transiens	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3-3	gregarious	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. BEHAVIOUR	4-1	copulating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-2	laying	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-3	hatching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-4	settled	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	4-5	flying (direction & time passing overhead)						
	4-6	flying (height & width)						
5. MATURITY	5-1	instar of fledgling (1 2 3 4 5 6 F)				5		
	5-2	immature adult	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5-3	mature adult	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. DENSITY & SIZE	6-1	hoppers/m2 or bush				Occasional		
	6-2	adults/transect or ha	10/800 trans.	2/300 trans.	3/200 trans.	65/1550 trans.	1/800 trans.	
	6-3	band density (Low Medium Dense) and size (m2)						
	6-4	swarm density (Low Medium Dense) & size (km2)						
7. ECOLOGY	7-1	date of last rain	early March	?	?	?	?	?
	7-2	rain amount (Low Moderate High)	High	?	?	?	?	?
	7-3	vegetation (dry, greening, green, drying)	Drying	drying	drying	drying	drying	Drying
	7-4	vegetation density (Low Medium Dense)	Medium	medium	dense	dense	medium	Low
	7-5	soil moisture (wet, dry)	Dry	dry	dry	dry	dry	Dry
8. CONTROL	8-1	pesticide name & formulation						
	8-2	application rate (l/ha)						
	8-3	quantity (l)						
	8-4	area treated (ha)						
	8-5	ground or air						
	8-6	estimated % kill						
9. COMMENTS			Temp. = 38 RH = 44% wet = 27 12:40	Temp. = 34 RH = 76% wet = 26.5 13:15	Temp. = 34 RH = 44% wet = 24 10:25 near maize field	Temp. = 40 RH = 75% wet = 36 17:30 seen 3 hoppers	Temp. = 34 RH = 73% wet = 29.5 10:50	Temp. = 37 RH = 56% wet = 29 18:00 strong southerly

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Appendix 3. Survey results (cont.)

1. LOCATION	1-1	survey stop	1	2	3	4	5	6
	1-2	date	98/04/30	98/05/01	98/05/06	98/05/06	98/05/06	98/05/06
	1-3	name	Sang kalat	Sabz ab	Shandan (I)	Shandan (II)	Khushab	Qadir abad (I)
	1-4	latitude (°N)	264059	271310	272256	272258	270902	270821
	1-5	longitude (°E or W)	635906	643929	615433	615518	614827	613414
	1-6	area (ha)	50	100	50	500	300	500
	1-7	topography	sand dunes	glaval plain	sand dunes	sand dunes	plain	sandy plain
	2-1	present	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	2-2	absent	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. APPEARANCE	3-1	solitary	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	3-2	transiens	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3-3	gregarious	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-1	copulating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-2	laying	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-3	hatching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-4	settled	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	4-5	flying (direction & time passing overhead)						
	4-6	flying (height & width)						
5. MATURITY	5-1	instar of fledgling (1 2 3 4 5 6 F)	2,3,4,5					
	5-2	immature adult	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5-3	mature adult	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	6-1	hoppers/m2 or bush	occasional					
	6-2	adults/transect or ha	47/1200 trans.		3/700 trans.	29/1400 trans.	9/1300 trans.	
	6-3	band density (Low Medium Dense) and size (m2)						
	6-4	swarm density (Low Medium Dense) & size (km2)						
7. ECOLOGY	7-1	date of last rain	?	?	98/04/04	98/04/04	98/03/17	98/04/03
	7-2	rain amount (Low Moderate High)	?	?	low	low	High	High
	7-3	vegetation (dry, greening, green, drying)	dry	drying	drying	drying	Drying	Drying
	7-4	vegetation density (Low Medium Dense)	medium	low	dense	medium	Dense	Dense
	7-5	soil moisture (wet, dry)	dry	dry	dry	dry	Dry	Dry
	8-1	pesticide name & formulation						
	8-2	application rate (l/ha)						
	8-3	quantity (l)						
	8-4	area treated (ha)						
	8-5	ground or air						
	8-6	estimated % kill						
9. COMMENTS			Temp. = 36 RH = 44% wet = 26 16:10	Temp. = 32 RH = 51% wet = 24 southeastrly 10:10	Temp. = 27 RH = 50% wet = 19.5 southeasterly 10:10	Temp. = 27 RH = 50% wet = 19.5 southeasterly 10:15	Temp. = 30 RH = 14% wet = 15 Calm 12:15	Temp. = 30.5 RH = 15% wet = 15 Westerly 13:15

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Appendix 3. Survey results (cont.)

1. LOCATION	1-1	survey stop						
	1-2	Date	98/05/06	08/05/07	98/05/07	98/05/07	98/05/07	
	1-3	Name	Qadir abad (II)	Motor davari(I)	Motor davari(II)	Koureh memari	Sardegal	Bampour
	1-4	latitude (°N)	270838	270773	270719	270731	271347	271255
	1-5	longitude (°E or W)	613345	604340	604349	604018	602526	602730
	1-6	area (ha)	300	300	200	30	200	100
	1-7	Topography	sandy plain	sand dunes	sand dunes	sand dunes	sand dunes	sand dunes
	2-1	Present	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	2-2	Absent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. APPEARANCE	3-1	Solitary	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	3-2	Transiens	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	3-3	Gregarious	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	4-1	Copulating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	4-2	laying	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	4-3	Hatching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	4-4	Settled	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	4-5	flying (direction & time passing overhead)						
	4-6	flying (height & width)						
5. MATURITY	5-1	instar of fledgling (1 2 3 4 5 6 F)		2, 3, 4, 5	2, 3, 4, 5	2, 3	3,4,5	3,4,5
	5-2	immature adult	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	5-3	mature adult	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	6-1	hoppers/m2 or bush		20/bush	20/m2	4/bush	2/10 bushes	1-2/10 bushes
	6-2	adults/transect or ha	15/1200 trans.	70/1000 trans.	50/1000 trans.	10/1000 trans.	57/1750 trans.	35/1750 trans.
	6-3	band density (Low Medium Dense) and size (m2)			dense, 20 m2			
	6-4	swarm density (Low Medium Dense) & size (km2)						
7. ECOLOGY	7-1	date of last rain	98/04/03	98/03/03	98/03/03	98/03/03	98/03/03	98/03/03
	7-2	rain amount (Low Moderate High)	High	high	high	High	high	high
	7-3	vegetation (dry, greening, green, drying)	Drying	drying	drying	Drying	drying	drying
	7-4	vegetation density (Low Medium Dense)	Dense	medium	medium	Medium	medium	medium
	7-5	soil moisture (wet, dry)	Dry	dry	dry	Dry	dry	dry
	8-1	pesticide name & formulation						
	8-2	application rate (l/ha)						
	8-3	quantity (l)						
	8-4	area treated (ha)						
	8-5	ground or air						
	8-6	estimated % kill						
9. COMMENTS			Temp. = 30.5 RH = 15% wet = 15 Westerly 13:15	Temp. = 29 RH = 49% wet = 21 3th stage hoppers more 08:15	Temp. = 29 RH = 49% wet = 21 09:30 hoppers marching	Temp. = 27 RH = 26% wet = 15 10:30	Temp. = 36 RH = 10% wet = 15 17:20 EL = 470 m	Temp. = 36 RH = 10% wet = 15 17:20 EL = 470 m

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Appendix 3. Survey results (cont.)

1. LOCATION	1-1	survey stop						
	1-2	date	98/05/08	98/05/08	98/05/08	98/05/08	98/05/10	
	1-3	name	Garon	Garon	Dehnou	Baghenil	Gargdar	
	1-4	latitude (°N)	270004	270114	270153	270637	252547	
	1-5	longitude (°E or W)	591859	591828	591338	592721	600520	
	1-6	area (ha)	400	500	600	200	300	800
	1-7	topography	sandy plain	sand dunes	sand dunes	sand dunes	sand dunes	plain
	2-1	present	○	○	☒	☒	○	
	2-2	absent	☒	☒	○	○	☒	
3. APPEARANCE	3-1	solitary	○	○	☒	☒	○	
	3-2	transiens	○	○	○	○	○	
	3-3	gregarious	○	○	○	○	○	
	4-1	copulating	○	○	○	○	○	
	4-2	laying	○	○	○	○	○	
	4-3	hatching	○	○	○	○	○	
	4-4	settled	○	○	☒	☒	○	
	4-5	flying (direction & time passing overhead)						
	4-6	flying (height & width)						
5. MATURITY	5-1	instar of fledgling (1 2 3 4 5 6 F)				2,3,4	2,3,4	
	5-2	immature adult	○	○	○	○	○	
	5-3	mature adult	○	○	☒	☒	○	
	6-1	hoppers/m2 or bush				2/bush	5/bush	
	6-2	adults/transect or ha			4/1000 trans.	2/650 trans.	25/1200 trans.	
	6-3	band density (Low Medium Dense) and size (m2)						
	6-4	swarm density (Low Medium Dense) & size (km2)						
7. ECOLOGY	7-1	date of last rain	98/03/03	98/03/03	98/03/03	98/03/03	98/03/03	?
	7-2	rain amount (Low Moderate High)	high	high	high	high	High	?
	7-3	vegetation (dry, greening, green, drying)	drying	drying	drying	drying	Drying	Drying
	7-4	vegetation density (Low Medium Dense)	medium	medium	medium	dense	Dense	Medium
	7-5	soil moisture (wet, dry)	dry	dry	dry	dry	Dry	Dry
	8-1	pesticide name & formulation						
	8-2	application rate (l/ha)						
	8-3	quantity (l)						
	8-4	area treated (ha)						
	8-5	ground or air						
	8-6	estimated % kill						
9. COMMENTS			Temp. = 31.5 RH = 14% wet = 15.5 08:40 EL = 480 m	Temp. = 31.5 RH = 14% wet = 15.5 09:30 EL = 556 m	Temp. = 35.5 RH = 10% wet = 16.5 10:30 EL = 476 m	Temp. = 36.5 RH < 10% wet = 15.5 11:30 EL = 314 m	Temp. = 36.5 RH < 10% wet = 15.5 11:30 EL = 314 m	Temp. = 32.5 RH = 73% wet = 28 08:45 EL = 18 m

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Appendix 3. Survey results (cont.)

1. LOCATION	1-1	survey stop						
	1-2	date	98/05/10	98/05/10	98/05/10	98/05/10	98/05/11	
	1-3	name	Bir(I)	Bir(II)	Darak	Poshti	Kaki	Hojdan
	1-4	latitude (°N)	253257	252645	252810	252959	253111	254233
	1-5	longitude (°E or W)	600056	594642	593017	592630	592418	575758
	1-6	area (ha)	50	100	50	200	100	100
	1-7	topography	plain	sandy plain	sandy plain	sandy plain	sandy plain	sandy plain
	2-1	present	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	2-2	absent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. APPEARANCE	3-1	solitary	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	3-2	transiens	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3-3	gregarious	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-1	copulating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-2	laying	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-3	hatching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-4	settled	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	4-5	flying (direction & time passing overhead)						
	4-6	flying (height & width)						
5. MATURITY	5-1	instar of fledgling (1 2 3 4 5 6 F)				4,5,F	F	
	5-2	immature adult	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	5-3	mature adult	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	6-1	hoppers/m2 or bush				occasional		
	6-2	adults/transect or ha	6/1300 trans.	3/750 trans.	4/1300 trans.	500/1000 trans.	130/1200 trans.	4/1150 trans.
	6-3	band density (Low Medium Dense) and size (m2)						
	6-4	swarm density (Low Medium Dense) & size (km2)						
7. ECOLOGY	7-1	date of last rain	?	?	?	?	?	98/03/03
	7-2	rain amount (Low Moderate High)	?	?	?	?	?	High
	7-3	vegetation (dry, greening, green, drying)	drying	drying	drying	drying	drying	Drying
	7-4	vegetation density (Low Medium Dense)	medium	dense	medium	dense	dense	Dense
	7-5	soil moisture (wet, dry)	dry	dry	dry	dry	dry	Dry
	8-1	pesticide name & formulation						
	8-2	application rate (l/ha)						
	8-3	quantity (l)						
	8-4	area treated (ha)						
	8-5	ground or air						
	8-6	estimated % kill						
9. COMMENTS			Temp. = 34 RH = 21% wet = 21 09:30 EL = 20 m	Temp. = 34.5 RH = 38% wet = 23 10:30 EL = 54 m	Temp. = 33 RH = 58% wet = 26 EL = 71 11:05	Temp. = 34 RH = 45% wet = ? EL = 40 11:35	Temp. = 35.5 RH = 66% wet = ? EL = 123 12:35	Temp. = 36.5 RH = 46% EL = 20 m 08:10 wet = ?

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Appendix 3. Survey results (cont.)

1. LOCATION	1-1	survey stop						
	1-2	Date	98/05/11	98/05/11	98/05/12	98/05/12	98/05/13	
	1-3	Name	Yekdar	Jegin	Ramin	Kachoo	Bris	Brejdar
	1-4	latitude (°N)	254115	254431	251625	251348	251153	252640
	1-5	longitude (°E or W)	580609	581258	604729	605601	610446	604423
	1-6	area (ha)	50	100	100	50	100	150
	1-7	Topography	garden	sandy plain	sand dunes	sand dunes	coastal plain	Plain
	2-1	Present	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	2-2	Absent	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. APPEARANCE	3-1	Solitary	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	3-2	Transiens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	3-3	Gregarious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	4-1	Copulating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	4-2	laying	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	4-3	Hatching	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	4-4	Settled	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	4-5	flying (direction & time passing overhead)						
	4-6	flying (height & width)						
5. MATURITY	5-1	instar of fledgling (1 2 3 4 5 6 F)			4			
	5-2	immature adult	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	5-3	mature adult	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	6-1	hoppers/m2 or bush			occasional			
	6-2	adults/transect or ha			125/1200 trans.	37/1100 trans.	16/1450 trans.	21/1550 trans.
	6-3	band density (Low Medium Dense) and size (m2)						
	6-4	swarm density (Low Medium Dense) & size (km2)						
7. ECOLOGY	7-1	date of last rain	98/03/03	98/03/03	?	?	?	98/03/03
	7-2	rain amount (Low Moderate High)	high	high	?	?	?	High
	7-3	vegetation (dry, greening, green, drying)	drying	drying	drying	drying	drying	Drying
	7-4	vegetation density (Low Medium Dense)	medium	dense	dense	dense	dense	Dense
	7-5	soil moisture (wet, dry)	dry	dry	dry	dry	dry	Dry
	8-1	pesticide name & formulation						
	8-2	application rate (l/ha)						
	8-3	quantity (l)						
	8-4	area treated (ha)						
	8-5	ground or air						
	8-6	estimated % kill						
9. COMMENTS			Temp. = 38.5 RH = 42% EL = 26 09:15 wet = ?	Temp. = 40.5 RH < 10% EL = 25 m 10:02 wet = ?	Temp. = 29.5 RH = 80% wet = 26.5 southerly EL = 57m	Temp. = 27.5 RH = 93% wet = 26 southerly EL = 51 m	Temp. = 29 RH = 85% wet = 27 southerly EL = 21m	Temp. = 29.5 RH = 74% wet = 26 Calm EL = 36 m

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Appendix 3. Survey results

1. LOCATION	1-1	survey stop	1	2	3	4	5	6
	1-2	Date	98/05/13	98/05/13	98/05/13			
	1-3	Name	Maleki	Daj	Turkani			
	1-4	latitude (°N)	252759	253520	283808			
	1-5	longitude (°E or W)	604122	604628	605238			
	1-6	area (ha)	200	50	100			
	1-7	Topography	plain	plain	plain			
	2-1	Present	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2-2	Absent	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. APPEARANCE	3-1	Solitary	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3-2	Transiens	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3-3	Gregarious	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-1	Copulating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-2	laying	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-3	Hatching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-4	Settled	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4-5	flying (direction & time passing overhead)						
	4-6	flying (height & width)						
5. MATURITY	5-1	instar of fledgling (1 2 3 4 5 6 F)						
	5-2	immature adult	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5-3	mature adult	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6-1	hoppers/m2 or bush						
	6-2	adults/transect or ha	35/1300 trans.	2/500 trans.				
	6-3	band density (Low Medium Dense) and size (m2)						
	6-4	swarm density (Low Medium Dense) & size (km2)						
7. ECOLOGY	7-1	date of last rain	98/03/03	98/03/03	98/03/03			
	7-2	rain amount (Low Moderate High)	high	high	high			
	7-3	vegetation (dry, greening, green, drying)	dry	dry	dry			
	7-4	vegetation density (Low Medium Dense)	dense	dense	dense			
	7-5	soil moisture (wet, dry)	dry	dry	dry			
	8-1	pesticide name & formulation						
	8-2	application rate (l/ha)						
	8-3	quantity (l)						
	8-4	area treated (ha)						
	8-5	ground or air						
	8-6	estimated % kill						
9. COMMENTS			Temp. = 33 RH = 53% wet = 25 calm EL = 69 m	Temp. = 38.5 RH = 55% wet = 30.5 easterly EL = 42 m	Temp. = 40 RH = 47% wet = 29.5 easterly EL = 18 m			

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