

Table S1. Summary of DNA barcoding analysis for pollen loads of *A.taraxaci orienticola* females

Sample ID	Sampling date	Sequenced range (bp)	Query cover (%)	1st candidate	Identity (%)	2nd candidate	Identity (%)	Notes
1	2015/4/18	255	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.22	
4	2015/4/18	255	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.22	
7	2015/4/18	244	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.18	
8	2015/4/18	258	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.22	
001	2015/4/9	245	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.18	
002	2015/4/9	255	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.22	
003	2015/4/9	262	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.24	
012	2015/4/9	247	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.19	
013	2015/4/9	246	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.19	
13	2015/4/18	244	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.18	
14	2015/4/18	265	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.25	
015	2015/4/9	262	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.24	
15	2015/4/18	257	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.22	
016	2015/4/9	263	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.24	
017	2015/4/9	265	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.25	
104	2015/4/9	265	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.25	
105	2015/4/9	249	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.2	
106	2015/4/9	267	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.25	
107	2015/4/9	267	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.25	
108	2015/4/9	266	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.25	
109	2015/4/9	261	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.23	
110	2015/4/9	252	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.21	Mixed signals
111	2015/4/9	262	100	<i>T. platycarpum</i>	100	<i>T. officinale</i>	99.24	

Table S1.(continued)

Sample ID	Sampling date	Sequenced r	Query cover (%)	1st candidate	Identity (%)	2nd candidate	Identity (%)	Notes
114	2015/4/9	255	100	T. platycarpum	100	T. officinale	99.22	
202	2015/4/18	Failure						Mixed signals
203	2015/4/18	246	100	T. platycarpum	100	T. officinale	99.19	Mixed signals
205	2015/4/18	235	100	T. platycarpum	100	T. officinale	99.15	
206	2015/4/18	256	100	T. platycarpum	100	T. officinale	99.22	
209	2015/4/18	258	100	T. platycarpum	100	T. officinale	99.22	
210	2015/4/18	261	100	T. platycarpum	100	T. officinale	99.23	
211	2015/4/18	264	100	T. platycarpum	100	T. officinale	99.24	
212	2015/4/18	259	100	T. platycarpum	100	T. officinale	99.23	
216	2015/4/18	262	100	T. platycarpum	100	T. officinale	99.24	

Table S2. Relationship between time of day and nectar availability in *T. platycarpum*

Date	Time	No. flowerets with nectar (in 10 flowerlets)
2021/4/7	8:00	0
2021/4/7	8:00	0
2021/4/7	8:00	0
2021/4/7	8:00	0
2021/4/7	8:00	0
2021/4/11	8:00	0
2021/4/11	8:00	0
2021/4/11	8:00	1
2021/4/11	8:00	1
2021/4/11	8:00	1
2021/4/12	8:00	0
2021/4/12	8:00	2
2021/4/12	8:00	1
2021/4/12	8:00	0
2021/4/12	8:00	0
2021/4/7	9:00	1
2021/4/7	9:00	0
2021/4/7	9:00	4
2021/4/7	9:00	1
2021/4/7	9:00	0
2021/4/11	9:00	2
2021/4/11	9:00	4
2021/4/11	9:00	1
2021/4/11	9:00	0
2021/4/11	9:00	2
2021/4/12	9:00	2
2021/4/12	9:00	5
2021/4/12	9:00	6
2021/4/12	9:00	1
2021/4/12	9:00	2
2021/4/7	10:00	1
2021/4/7	10:00	1
2021/4/7	10:00	0
2021/4/7	10:00	4
2021/4/7	10:00	0
2021/4/11	10:00	3
2021/4/11	10:00	4

Table S2 (continued).

Date	Time	No. flowerets with nectar (in 10 flowerlets)
2021/4/11	10:00	2
2021/4/11	10:00	3
2021/4/11	10:00	1
2021/4/12	10:00	2
2021/4/12	10:00	1
2021/4/12	10:00	3
2021/4/12	10:00	3
2021/4/12	10:00	0
2021/4/7	11:00	1
2021/4/7	11:00	1
2021/4/7	11:00	6
2021/4/7	11:00	1
2021/4/7	11:00	4
2021/4/11	11:00	3
2021/4/11	11:00	4
2021/4/11	11:00	3
2021/4/11	11:00	2
2021/4/11	11:00	0
2021/4/12	11:00	1
2021/4/12	11:00	4
2021/4/12	11:00	3
2021/4/12	11:00	6
2021/4/12	11:00	1
2021/4/7	12:00	9
2021/4/7	12:00	7
2021/4/7	12:00	3
2021/4/7	12:00	1
2021/4/7	12:00	7
2021/4/11	12:00	6
2021/4/11	12:00	2
2021/4/11	12:00	1
2021/4/11	12:00	0
2021/4/11	12:00	3
2021/4/12	12:00	5
2021/4/12	12:00	6
2021/4/12	12:00	3
2021/4/12	12:00	3

Table S2 (continued).

Date	Time	No. flowerets with nectar (in 10 flowerlets)
2021/4/12	12:00	4

Table S3. Relationship between time of day and nectar load at returning to the nest in *Andrena taraxaci orienticola* females

Date	Time	Crop volume (μ L)	Concentration (%)	Amount of sugar (mg)	Pollen loads
2016/4/11	8:41	0.732	49.5	0.444319425	+
2016/4/11	8:50	0		0	+
2016/4/11	9:00	0.854	51	0.538880576	+
2016/4/11	9:11	0		0	+
2016/4/11	9:18	0		0	+
2016/4/11	9:34	0.366	45	0.198409149	+
2016/4/11	9:46	0.732	46.5	0.411863204	+
2016/4/11	9:57	1.098	47	0.627209003	+
2016/4/11	10:07	6.344	57	4.596869378	-
2016/4/11	10:14	0.61	48	0.35745024	-
2016/4/11	10:21	0.976	55	0.676239168	+
2016/4/11	10:32	0.488			-
2016/4/11	10:39	1.464	55	1.014358752	+
2016/4/11	10:45	2.44	56	1.729151872	-
2016/4/11	10:51	0.732	55	0.507179376	+
2016/4/11	10:59	10.614	51.5	6.763177647	+
2016/4/11	11:10	3.05	54	2.06546976	+
2016/4/11	11:20	0.732	53.5	0.488914073	+
2016/4/11	11:33	2.684	58	1.987978142	+
2016/4/11	11:42	0		0	+
2016/4/12	8:29	0.244	49	0.14661045	+
2016/4/12	8:39	0		0	+
2016/4/12	8:46	0.488	50	0.30054456	+
2016/4/12	8:53	0.732	39.5	0.339279767	+
2016/4/12	9:06	0.488	52	0.315383078	+
2016/4/12	9:28	3.172	61.5	2.525557819	+
2016/4/12	9:37	0		0	+
2016/4/12	9:46	0.122			-
2016/4/12	9:53	0.244	56.5	0.174459073	+
2016/4/12	10:04	0.488	56	0.345830374	+
2016/4/12	10:13	0.366	59.5	0.279368422	-
2016/4/12	10:20	0.122			+
2016/4/12	10:28	1.22	56	0.864575936	+
2016/4/12	10:35	1.464	56	1.037491123	+
2016/4/12	10:41	1.22	55.5	0.852983496	+

Table S3 (continued).

Date	Time	Crop volume (μ L)	Concentration (%)	Amount of sugar (mg)	Pollen loads
2016/4/12	10:51	0.244	59	0.184680526	+
2016/4/12	10:58	10.004	59.5	7.636070207	+
2016/4/12	11:14	5.856	61	4.624661222	+
2016/4/12	11:22	5.856	51	3.695181091	+

Table S4. Relationship between time of day and size of pollen load in *Andrena taraxaci* *orienticola* females

Date	Time	Wet weight (mg)
2016/3/31	8:52	5.33
2016/3/31	8:57	4.5
2016/3/31	9:01	6.07
2016/3/31	9:03	8.4
2016/3/31	9:05	7.17
2016/3/31	9:24	4.94
2016/3/31	9:27	7.05
2016/3/31	9:29	6.94
2016/3/31	9:34	5.46
2016/3/31	9:35	7.16
2016/3/31	10:26	0.59
2016/3/31	10:56	1.12
2016/4/6	8:34	6.3
2016/4/6	8:35	5
2016/4/6	8:42	6.5
2016/4/6	8:46	6
2016/4/6	8:55	7.7
2016/4/6	9:05	4.9
2016/4/6	9:11	8.3
2016/4/6	9:12	7.2
2016/4/6	9:22	3.2
2016/4/6	9:24	5.3
2016/4/6	9:26	6.4
2016/4/6	9:33	6
2016/4/6	9:41	4.4
2016/4/6	9:48	7.4
2016/4/6	9:55	5.6
2016/4/6	10:04	4.3
2016/4/6	10:11	6.4
2016/4/6	10:14	6.9
2016/4/6	10:18	6.5
2016/4/6	10:23	6
2016/4/6	10:27	3.7
2016/4/6	10:30	3.6
2016/4/6	10:37	6.1
2016/4/6	11:04	5.3

Table S4. (continued)

Date	Time	Wet weight (mg)
2016/4/6	11:07	4.3
2016/4/16	8:53	9.32
2016/4/16	8:54	8.32
2016/4/16	8:56	6.94
2016/4/16	8:58	5.53
2016/4/16	9:04	6.57
2016/4/16	9:09	6.29
2016/4/16	9:17	6.29
2016/4/16	9:24	7.89
2016/4/16	9:38	7.87
2016/4/16	9:40	5.91
2016/4/16	9:43	5.08
2016/4/16	9:48	6.83
2016/4/16	10:11	8.75
2016/4/16	10:14	5.36
2016/4/16	10:18	3.73
2016/4/16	10:25	5.38
2016/4/16	10:30	5.1
2016/4/16	10:35	3.95
2016/4/16	10:37	5.46
2016/4/16	10:53	5.61
2016/4/16	10:55	6.18
2016/4/16	11:05	8.43

Table S5. Relationship between time of day and crop load at departing the nest in *Andrena taraxaci orienticola* females

Date	Order of flight	Time	Crop volume (μ L)	Concentration (%)	Amount of sugar (mg)
2017/4/15	1st	6:39	0.5769	68	0.524525787
2017/4/15	1st	6:47	0.3846		
2017/4/15	1st	6:52	0.1		
2017/4/15	1st	6:58	0.1		
2017/4/15	1st	7:02	0.3846		
2017/4/15	1st	7:06	1.3461	64.5	1.139644605
2017/4/15	1st	7:10	2.6922	58.5	2.011241797
2017/4/15	1st	7:18	0.7692	60	0.59477467
2017/4/15	1st	7:22	0		0
2017/4/15	1st	7:28	2.3076	62	1.86076972
2017/4/15	1st	7:37	2.6922	57.5	1.967883108
2017/4/15	1st	7:46	3.4614	60	2.676486013
2017/4/19	1st	6:43	0		0
2017/4/19	1st	6:48	0		0
2017/4/19	1st	6:52	0.9375	54	0.634878
2017/4/19	1st	6:57	0.1		
2017/4/19	1st	7:06	0.625	61	0.4935815
2017/4/19	1st	7:22	0.15625		
2017/4/19	1st	7:34	0		0
2017/4/19	1st	7:38	0.3125		
2017/4/19	1st	7:40	0.15625		
2017/4/19	1st	7:43	0.1		
2017/4/19	1st	7:47	0.15625		
2017/4/19	1st	7:48	2.1875	58	1.620231813
2017/4/19	1st	7:57	0.625	49.5	0.379371094
2017/4/19	1st	7:57	1.25	56	0.885836
2017/4/19	1st	8:02	0.46875	66	0.409847625
2017/4/19	1st	8:06	0.9375	61	0.74037225
2017/4/15	2nd	7:56	0.3846		
2017/4/15	2nd	8:00	0.1		
2017/4/15	2nd	8:03	0		0
2017/4/15	2nd	8:07	0		0
2017/4/15	2nd	8:07	0		0
2017/4/15	2nd	8:11	0.7692	54	0.520904701

Table S5 (continued).

Date	Order of flight	Time	Crop volume (μ L)	Concentration (%)	Amount of sugar (mg)
2017/4/15	2nd	8:16	0.3846		
2017/4/15	2nd	8:16	0.3846		
2017/4/15	2nd	8:16	0.3846		
2017/4/15	2nd	8:16	0		0
2017/4/15	2nd	8:32	0		0
2017/4/15	2nd	8:33	0.3846		
2017/4/15	2nd	9:20	0.3846		
2017/4/15	2nd	9:43	0.1		
2017/4/19	2nd	8:16	0.3125		
2017/4/19	2nd	8:18	0		0
2017/4/19	2nd	8:22	0.15625		
2017/4/19	2nd	8:22	0		0
2017/4/19	2nd	8:22	0		0
2017/4/19	2nd	8:22	0		0
2017/4/19	2nd	8:30	0		0
2017/4/19	2nd	8:30	0		0
2017/4/19	2nd	8:36	0		0
2017/4/19	2nd	8:39	0		0
2017/4/19	2nd	8:39	0.3125		
2017/4/19	2nd	8:39	0		0
2017/4/19	2nd	8:48	0		0
2017/4/19	2nd	8:51	0		0
2017/4/19	2nd	8:53	0.46875	69	0.434473594
2023/4/3	2nd	9:30	0		0
2023/4/3	2nd	9:32	0		0
2023/4/3	2nd	9:48	0		0
2023/4/3	2nd	9:51	0		0
2023/4/3	2nd	10:05	0.488	49	0.2932209
2023/4/3	2nd	10:06	0		0
2023/4/3	2nd	10:24	0		0
2023/4/5	2nd	10:10	0		0
2023/4/5	2nd	10:11	0.488	54	0.330475162
2023/4/5	2nd	10:14	0.976	52	0.630766157
2023/4/5	2nd	10:49	1.22	54	0.826187904
2023/4/10	2nd	10:24	0		0

Table S6. Foraging in fed and unfed *Andrena taraxaci orienticola* females.

Bee ID	Date of observation	Treatment	Time of departure	Time of return	Flight duration (min)	Returned with pollen loads?
170416-1	2017/4/17	Unfed	7:29	8:07	0:38:00	No
170416-2	2017/4/17	Fed	Not departed			
170416-3	2017/4/17	Unfed	7:05	7:28	0:23:00	Yes
170416-4	2017/4/17	Fed	Not departed			
170416-5	2017/4/17	Unfed	7:51	8:02	0:11:00	Yes
170416-6	2017/4/17	Fed	8:41	8:48	0:07:00	Yes
170416-7	2017/4/17	Unfed	7:29	8:25	0:56:00	No
170416-8	2017/4/17	Fed	Not departed			
170416-9	2017/4/17	Unfed	Not departed			
170416-10	2017/4/17	Fed	7:32	7:56	0:24:00	Yes
170416-11	2017/4/17	Unfed	Not departed			
170416-12	2017/4/17	Fed	7:08	7:51	0:43:00	Yes
170416-13	2017/4/17	Unfed	8:10	8:20	0:10:00	Yes
170416-14	2017/4/17	Fed	7:54	8:08	0:14:00	Yes
170416-15	2017/4/17	Unfed	Not departed			
170416-16	2017/4/17	Fed	Accidentally lost			
170416-17	2017/4/17	Unfed	Missed to observe	8:07		Yes
170416-18	2017/4/17	Fed	Accidentally lost			
170416-19	2017/4/17	Unfed	7:30	8:04	0:34:00	Yes
170416-20	2017/4/17	Fed	7:37	7:55	0:18:00	Yes
170416-21	2017/4/17	Unfed	8:15	8:45	0:30:00	No
170416-22	2017/4/17	Fed	Accidentally lost			
170416-23	2017/4/17	Unfed	7:10	7:22	0:12:00	No
170416-24	2017/4/17	Fed	7:32	Not returned		

Table S6. (continued)

Bee ID	Date of observation	Treatment	Time of departure	Time of return	Flight duration (min)	Returned with pollen loads?
170422-1	2017/4/23	Unfed	8:12	8:32	0:20:00	Yes
170422-2	2017/4/23	Fed	8:22	8:44	0:22:00	Yes
170422-3	2017/4/23	Unfed	Missed to observe	9:54		No
170422-4	2017/4/23	Fed	8:00	8:41	0:41:00	Yes
170422-5	2017/4/23	Unfed	7:04	7:14	0:10:00	No
170422-6	2017/4/23	Fed	8:27			
170422-7	2017/4/23	Unfed	9:47	10:16	0:29:00	No
170422-8	2017/4/23	Fed	10:19	10:36	0:17:00	No
170422-9	2017/4/23	Unfed	9:12	9:35	0:23:00	Yes
170422-10	2017/4/23	Fed	8:39	8:52	0:13:00	No
170422-11	2017/4/23	Unfed	8:55	9:46	0:51:00	No
170422-12	2017/4/23	Fed	9:00	9:24	0:24:00	Yes
170422-13	2017/4/23	Unfed	9:54	Not returned		
170422-14	2017/4/23	Fed	Not departed			
170422-15	2017/4/23	Unfed	Not departed			
170422-16	2017/4/23	Fed	Not departed			
170422-17	2017/4/23	Unfed	8:23	9:26	1:03:00	No
170422-18	2017/4/23	Fed	8:28	8:54	0:26:00	Yes
170422-19	2017/4/23	Unfed	8:41	9:01	0:20:00	Yes
170422-20	2017/4/23	Fed	8:18	8:45	0:27:00	Yes
170422-21	2017/4/23	Unfed	8:06	8:11	0:05:00	No
170422-22	2017/4/23	Fed	Not departed			

Table S7. Proportion of females returned with pollen loads in fed and unfed *Andrena taraxaci orienticola* females.

2017/4/16		
	Unfed	Fed
With pollen loads	5	5
Without pollen loads	4	0

2017/4/22		
	Unfed	Fed
With pollen loads	3	5
Without pollen loads	6	2