Results of Camera Studies on Three Sites in 2018

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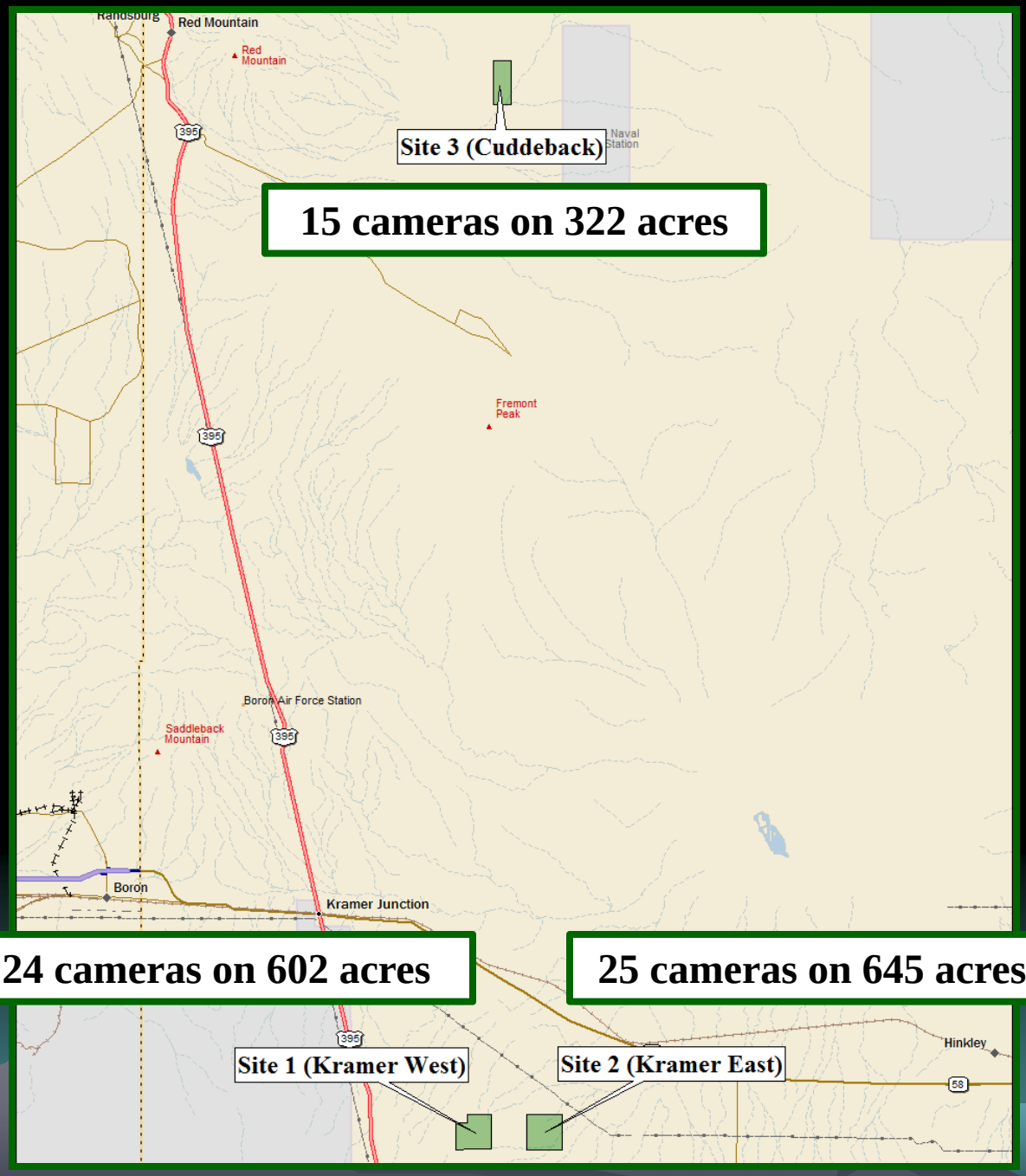
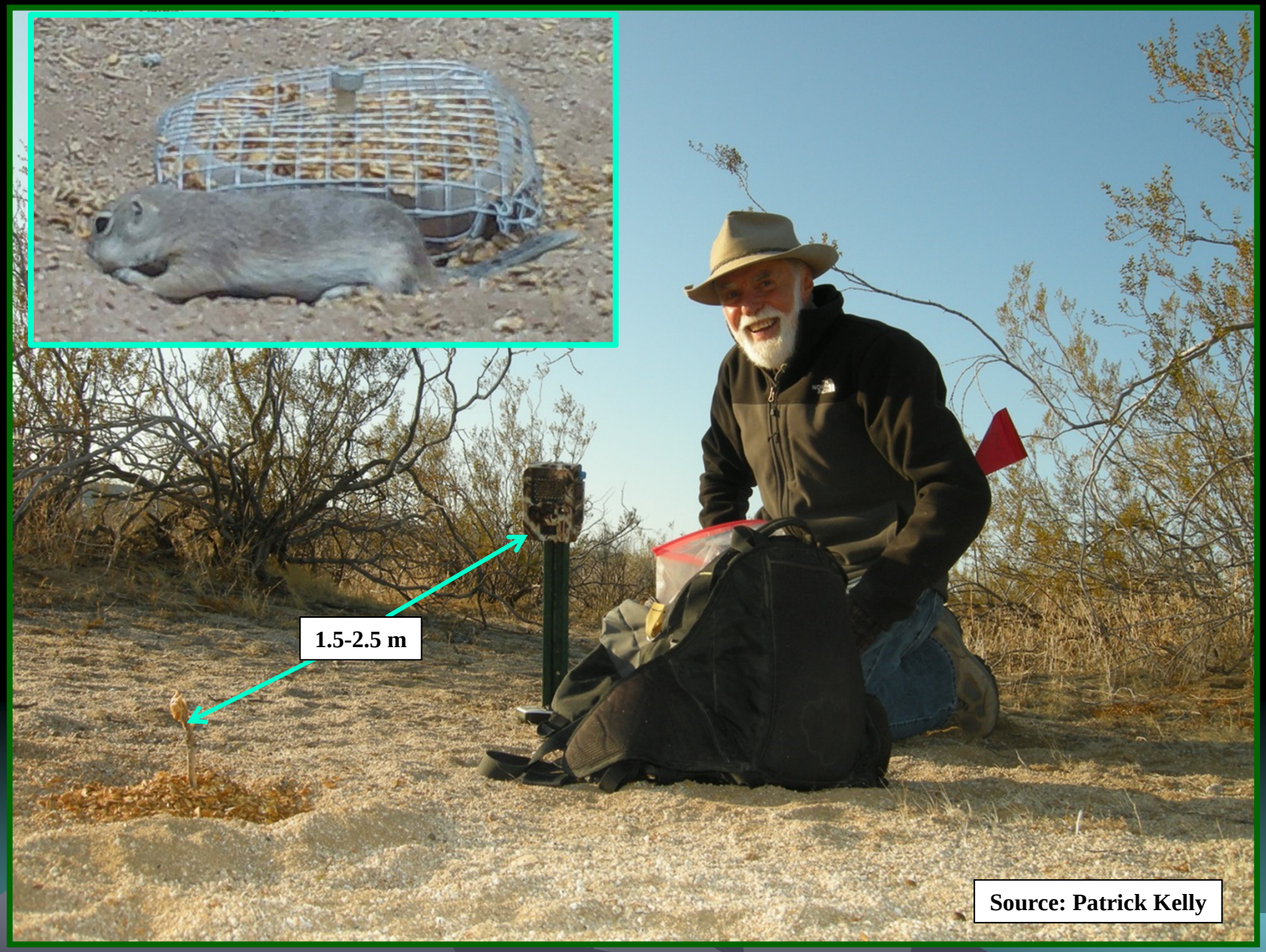
Purpose

- Implement requirements of Cuddeback-Kramer Preserve Management Plan (March 2016)


Randsburg
Red Mountain
Red Mountain
395
Site 3 (Cuddeback)
Naval Station
15 cameras on 322 acres
Fremont Peak
395
Boron Air Force Station
Saddleback Mountain
395
Boron
Kramer Junction
24 cameras on 602 acres
25 cameras on 645 acres
395
Site 1 (Kramer West)
Site 2 (Kramer East)
Hinkley
58

+/- 20 hrs set up, +/- 14 hrs check 64 cameras on 3 sites


1.5-2.5 m
Source: Patrick Kelly

Kramer/Cuddeback Methods

2016 Plan	2017 Implemented
1 camera/25 acres	1 camera/25 acres
5 consecutive days	49 consecutive days
Daily checks	9, 9, and 10 days
5 x 64 = 320 CD*	2,358 actual CD

460,960/2,358 CD = 195 images/day

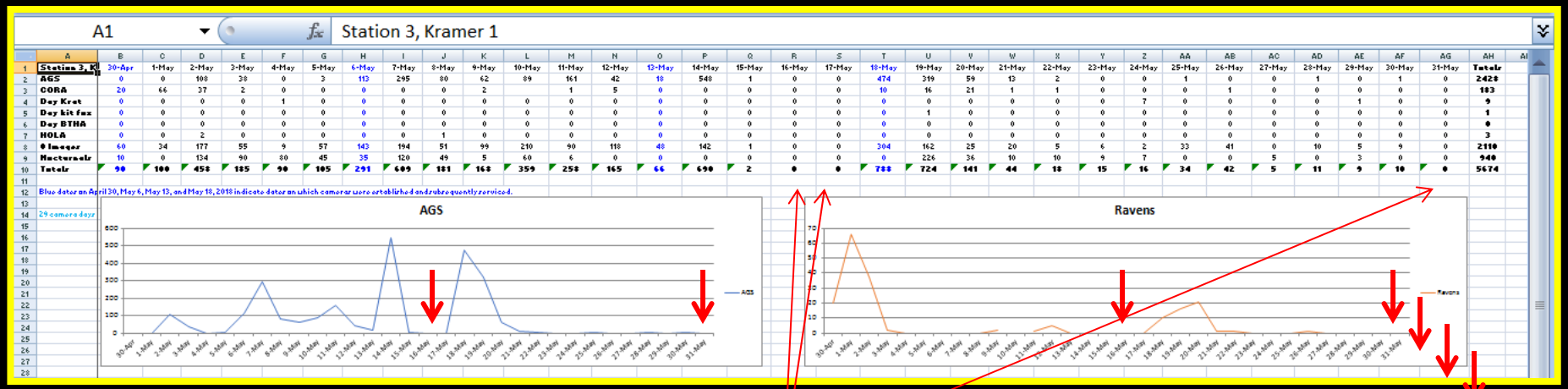
So, 320 CD = 62,400 images vs 460,960 images

*CD = Camera Days

Results

2017	2018
April 15-June 2	April 30-May 31
49 Days	32 Days
64 Cameras	34 Cameras*
460,960 Images	272,510 Images
2,358 Camera Days	809 Camera Days
195 images/CD	337 Images/CD

Camera Days Concept



A1 | Station 3, Kramer 1

Station 3, K	30-Apr	1-May	2-May	3-May	4-May	5-May	6-May	7-May	8-May	9-May	10-May	11-May	12-May	13-May	14-May	15-May	16-May	17-May	18-May	19-May	20-May	21-May	22-May	23-May	24-May	25-May	26-May	27-May	28-May	29-May	30-May	31-May	Totals
AGS	0	0	108	38	0	3	113	295	80	62	89	161	42	18	548	1	0	0	474	319	59	13	2	0	0	1	0	0	1	0	1	0	2428
CORA	20	66	37	2	0	0	0	0	0	2		1	5	0	0	0	0	0	10	16	21	1	1	0	0	0	1	0	0	0	0	0	183
Day Krat	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	1	0	0	9
Day kit fox	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Day BTHA	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	0	0	0	0	0	0	0	0
HOLA	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Images	60	34	177	55	9	57	143	194	51	99	210	90	118	48	142	1	0	0	304	162	25	20	5	6	2	33	41	0	10	5	9	0	2110
Nocturnals	10	0	134	90	80	45	35	120	49	5	60	6	0	0	0	0	0	0	0	226	36	10	10	9	7	0	0	5	0	3	0	0	940
Totals	90	100	458	185	90	105	291	609	181	168	359	258	165	66	690	2	0	0	788	724	141	44	18	15	16	34	42	5	11	9	10	0	5674

Blue dates on April 30, May 6, May 13, and May 18, 2018 indicate dates on which cameras were established and subsequently serviced.

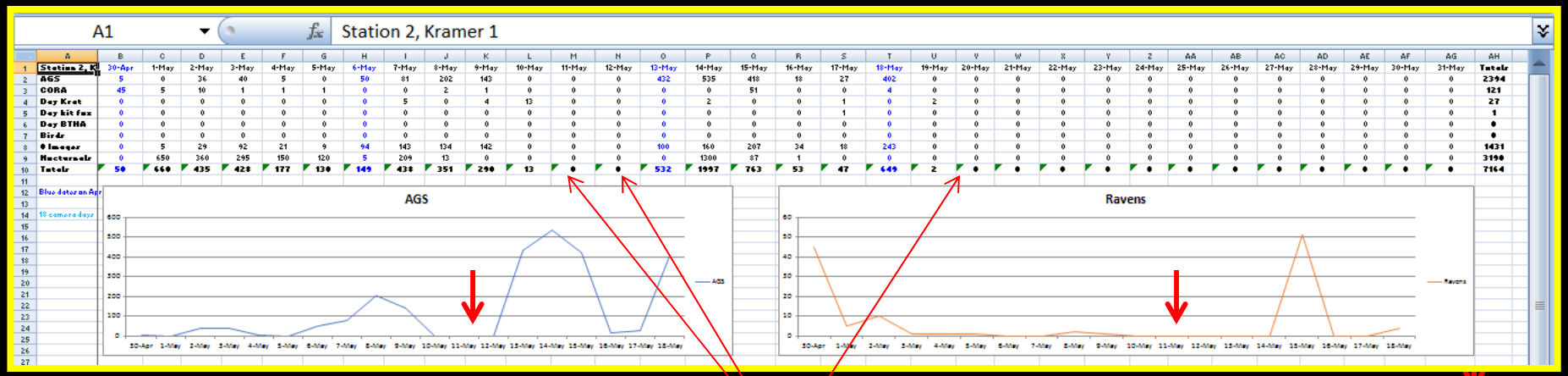
29 camera days

No images on May 16, 17, or 31

5,674 images on 29 of 32 days = 29 Camera Days

5,674 Images/29 Camera Days = 195 Images/Camera Day

Camera Days Concept



Station 2, K	30-Apr	1-May	2-May	3-May	4-May	5-May	6-May	7-May	8-May	9-May	10-May	11-May	12-May	13-May	14-May	15-May	16-May	17-May	18-May	19-May	20-May	21-May	22-May	23-May	24-May	25-May	26-May	27-May	28-May	29-May	30-May	31-May	Totals
AGS	5	0	36	40	5	0	50	81	202	143	0	0	0	432	535	418	18	27	402	0	0	0	0	0	0	0	0	0	0	0	0	0	2394
CORA	45	5	10	1	1	1	0	0	2	1	0	0	0	0	0	51	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	121
Day Kret	0	0	0	0	0	0	0	5	0	4	13	0	0	0	2	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	27
Day kit fox	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Day BTHA	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	0	0	0	0	0	0	0	0
Birds	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	0	0	0	0	0	0	0	0
Images	0	5	29	92	21	9	94	143	134	142	0	0	0	100	160	207	34	18	243	0	0	0	0	0	0	0	0	0	0	0	0	0	1431
Mammals	0	650	360	295	150	120	5	209	13	0	0	0	0	0	1300	87	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3190
Totals	50	660	435	428	177	130	149	438	351	290	13	0	0	532	1997	763	53	47	649	2	0	0	0	0	0	0	0	0	0	0	0	0	7164

Blue dates on Apr

19 camera days

No images on May 11 or 12 or after May 19

7,164 images on 18 of 32 days = 18 Camera Days

7,164 Images/18 Camera Days = 398 Images/Camera Day

Environmental Factors Affecting Bait Attraction?

2017 wet, MGS reproductive year

Need to measure rainfall and annual plant growth

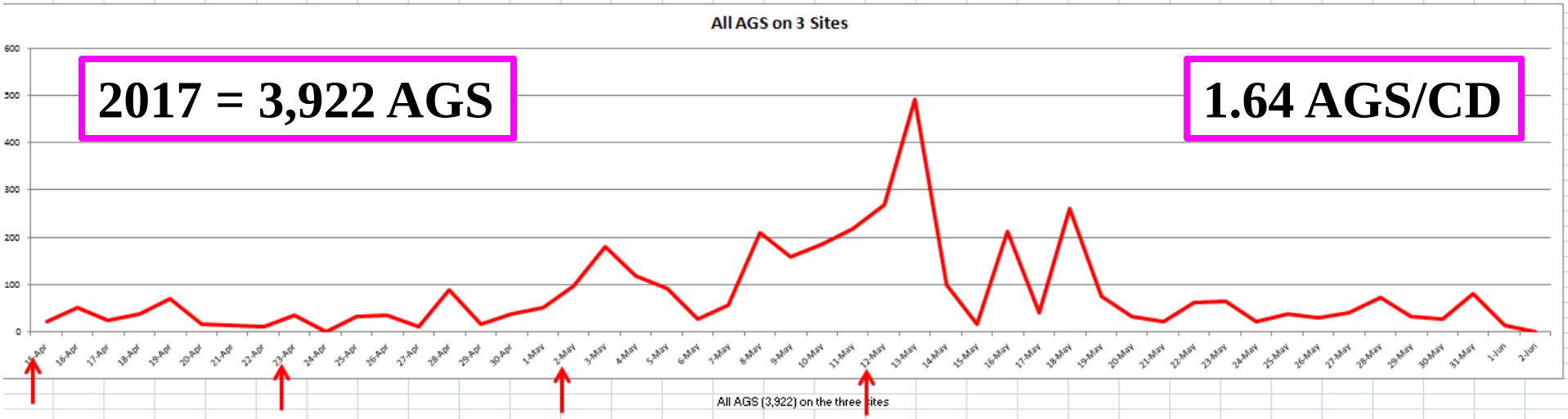
2018 dry, non-reproductive year

AGS Results

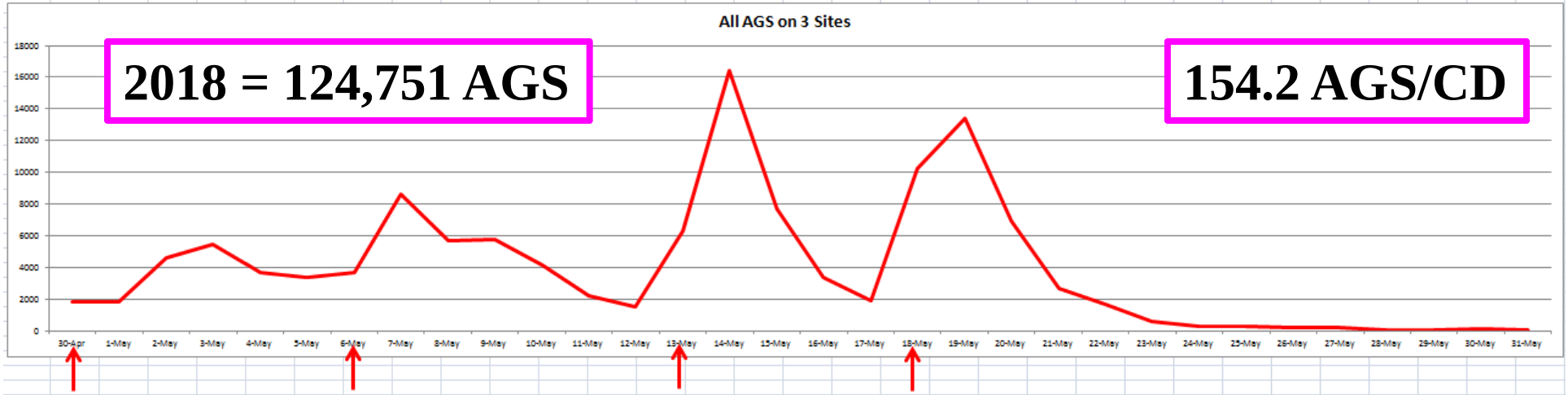
2017	2018
3,873 AGS	124,751 AGS
64 Cameras/49 days	34 Cameras/32 days
2,358 Camera Days	809 Camera Days
1.64 AGS/CD	154.20 AGS/CD

AGS Results

15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr	28-Apr	29-Apr	30-Apr	1-May	2-May	3-May	4-May	5-May	6-May	7-May	8-May	9-May	10-May	11-May	12-May	13-May	14-May	15-May
21	51	24	38	70	16	15	11	37	2	33	37	11	88	16	38	52	98	181	120	91	27	57	211	158	185	217	269	492	101	18



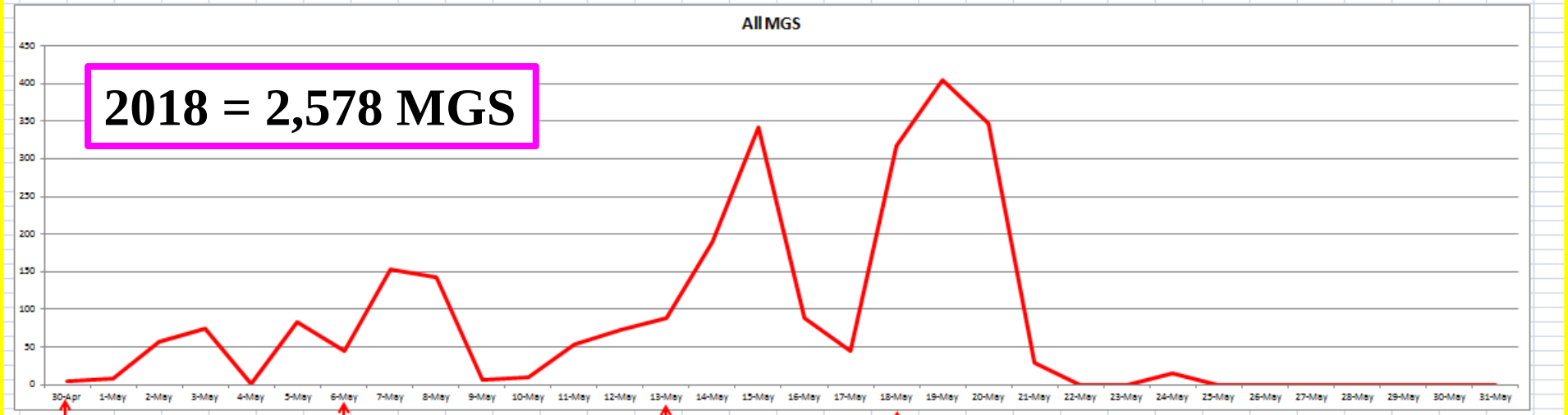
30-Apr	1-May	2-May	3-May	4-May	5-May	6-May	7-May	8-May	9-May	10-May	11-May	12-May	13-May	14-May	15-May	16-May	17-May	18-May	19-May	20-May	21-May	22-May	23-May	24-May	25-May	26-May	27-May	28-May	29-May	30-May	31-May
1819	1851	4596	5424	3646	3357	3657	8625	5723	5765	4107	2244	1552	6290	16446	7675	3401	1873	10242	13447	6886	2661	1650	616	261	265	184	216	81	62	92	37



MGS Results

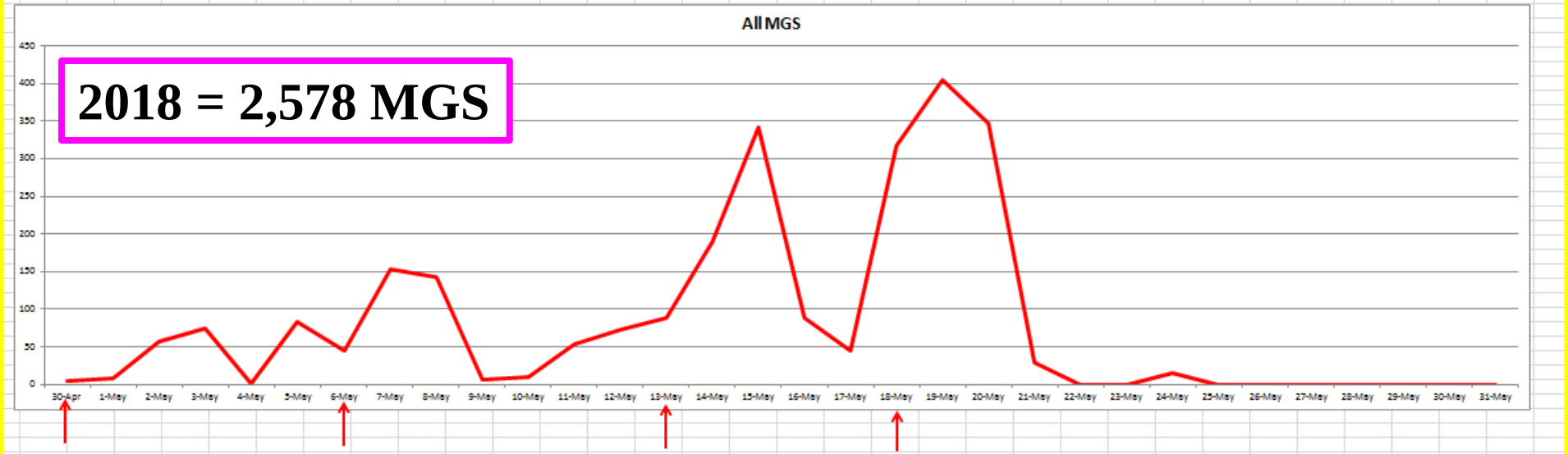
2017	2018
2 MGS	2,578 MGS
1 Camera Cuddeback	5 Cameras Cuddeback 2 Cameras Kramer East
64 Cameras/49 days	34 Cameras/32 days
2,358 Camera Days	809 Camera Days
0.0008 MGS/CD	3.19 MGS/CD

MGS Results



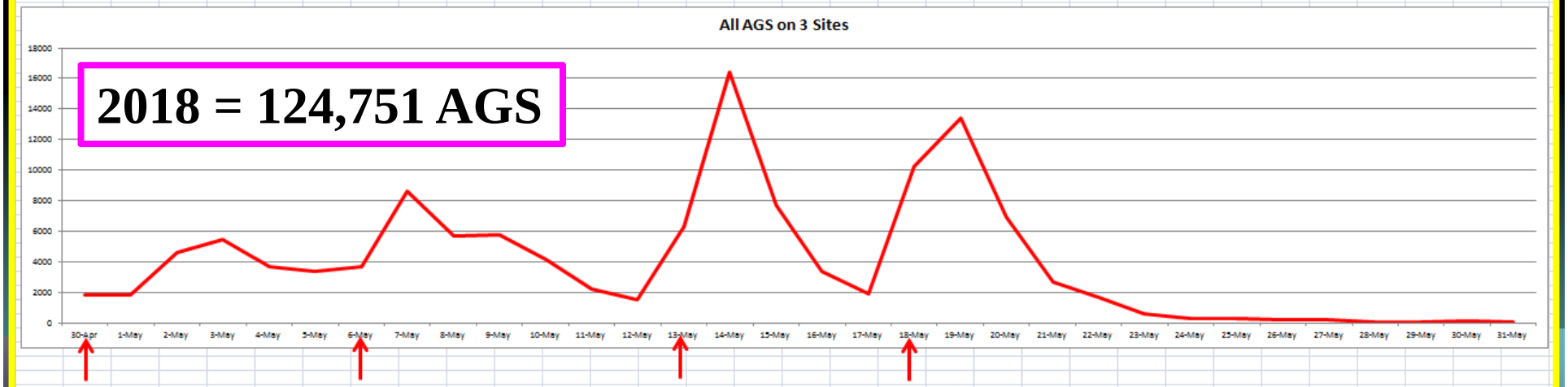
ite	30-Apr	1-May	2-May	3-May	4-May	5-May	6-May	7-May	8-May	9-May	10-May	11-May	12-May	13-May	14-May	15-May	16-May	17-May	18-May	19-May	20-May	21-May	22-May	23-May	24-May	25-May	26-May	27-May	28-May	29-May	30-May	31-May	
	5	8	57	75	1	83	45	153	142	6	10	53	72	89	189	341	89	45	318	404	347	30	0	0	16	0	0	0	0	0	0	0	2578

MGS & AGS 2018 Results



Site	30-Apr	1-May	2-May	3-May	4-May	5-May	6-May	7-May	8-May	9-May	10-May	11-May	12-May	13-May	14-May	15-May	16-May	17-May	18-May	19-May	20-May	21-May	22-May	23-May	24-May	25-May	26-May	27-May	28-May	29-May	30-May	31-May	
	5	8	57	75	1	83	45	153	142	6	10	53	72	89	189	341	89	45	318	404	347	30	0	0	16	0	0	0	0	0	0	0	2578

30-Apr	1-May	2-May	3-May	4-May	5-May	6-May	7-May	8-May	9-May	10-May	11-May	12-May	13-May	14-May	15-May	16-May	17-May	18-May	19-May	20-May	21-May	22-May	23-May	24-May	25-May	26-May	27-May	28-May	29-May	30-May	31-May
1819	1851	4596	5424	3646	3357	3657	8625	5723	5765	4107	2244	1552	6290	16446	7675	3401	1873	10242	13447	6886	2661	1650	616	261	265	184	216	81	62	92	37

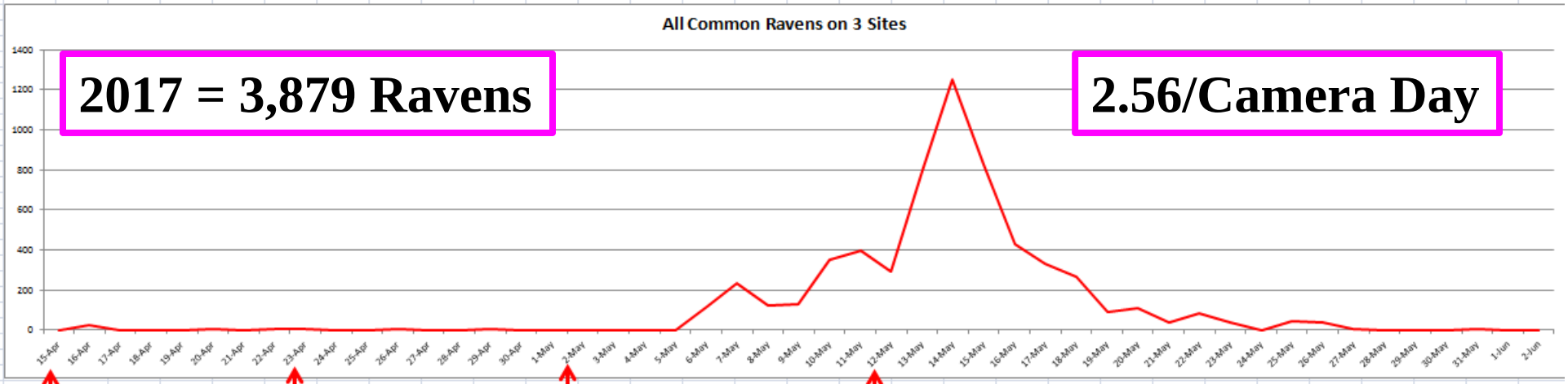


Raven Results

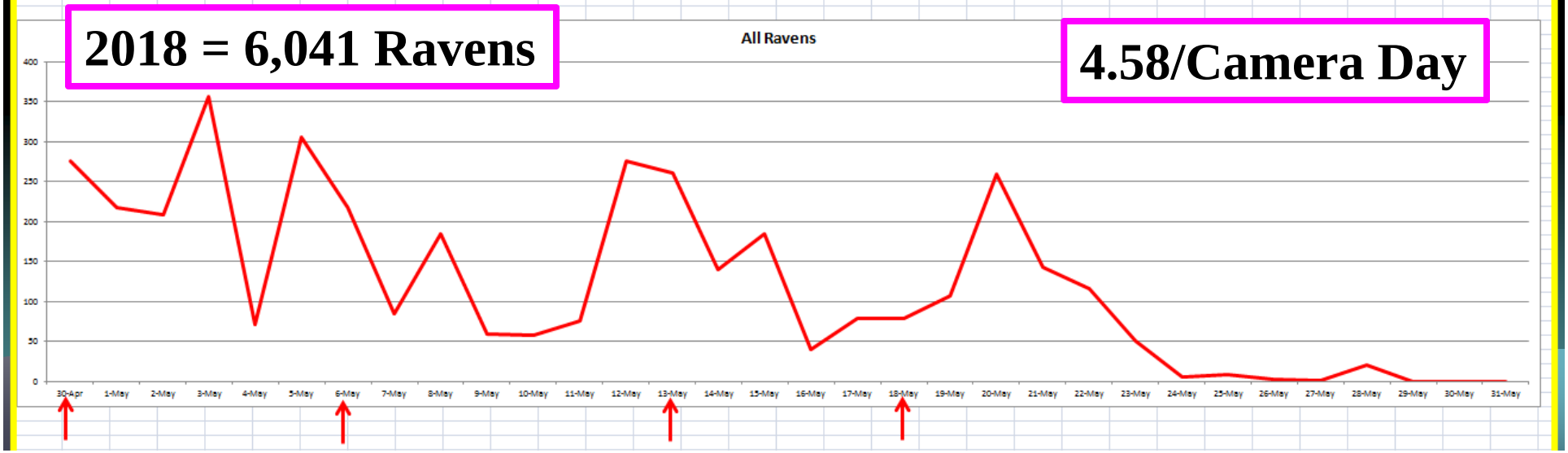
2017	2018
6,041 Ravens	3,928 Ravens
64 Cameras/49 days	34 Cameras/32 days
2,358 Camera Days	809 Camera Days
2.56 Ravens/CD	4.85 Ravens/CD

Raven Results

15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr	28-Apr	29-Apr	30-Apr	1-May	2-May	3-May	4-May	5-May	6-May	7-May	8-May	9-May	10-May	11-May	12-May	13-May	14-May
0	25	0	0	0	5	0	3	6	0	0	4	0	0	7	0	0	0	0	0	0	114	233	120	131	352	395	298	795	1252



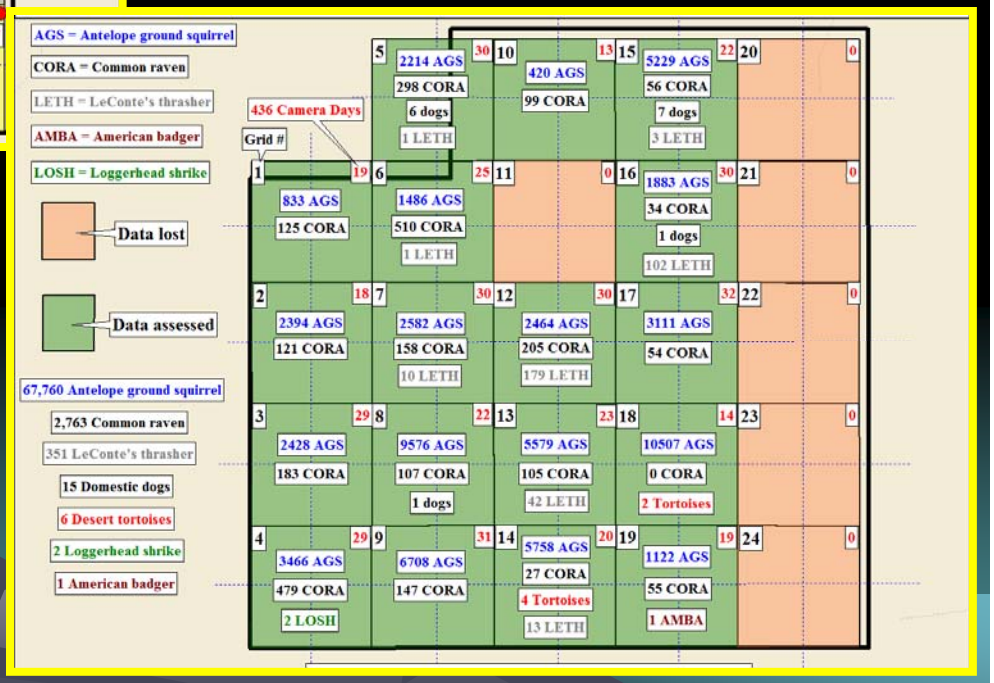
30-Apr	1-May	2-May	3-May	4-May	5-May	6-May	7-May	8-May	9-May	10-May	11-May	12-May	13-May	14-May	15-May	16-May	17-May	18-May	19-May	20-May	21-May	22-May	23-May	24-May	25-May	26-May	27-May	28-May	29-May	30-May	31-May
275	218	209	356	71	305	218	85	184	59	57	76	276	261	139	184	39	78	78	107	259	142	116	50	5	8	3	1	20	0	0	0



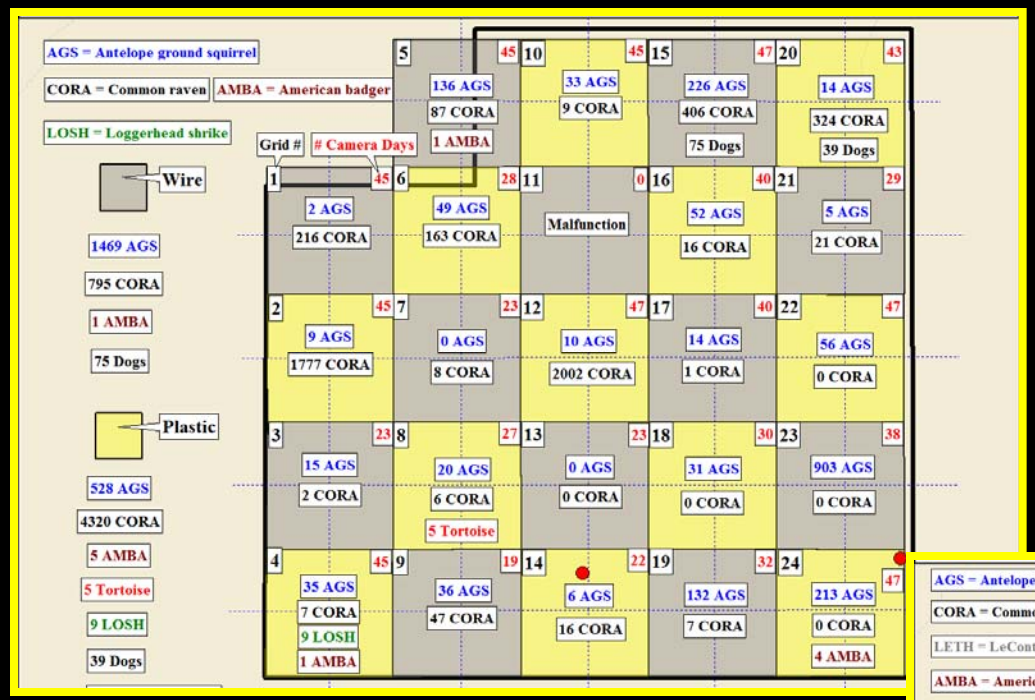
Results per 25-acre grids

Kramer West

2018



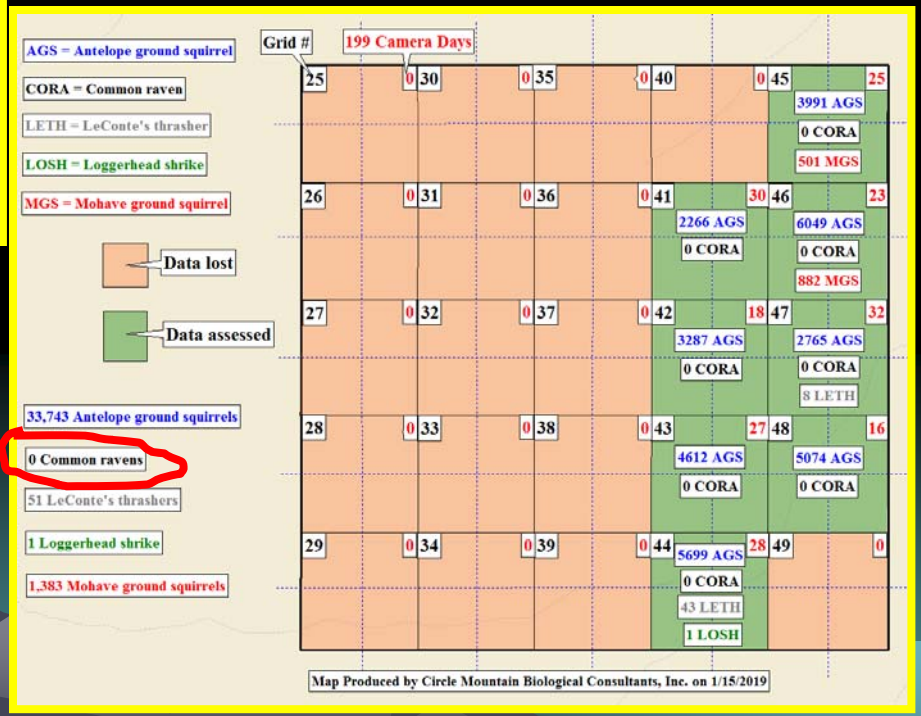
2017



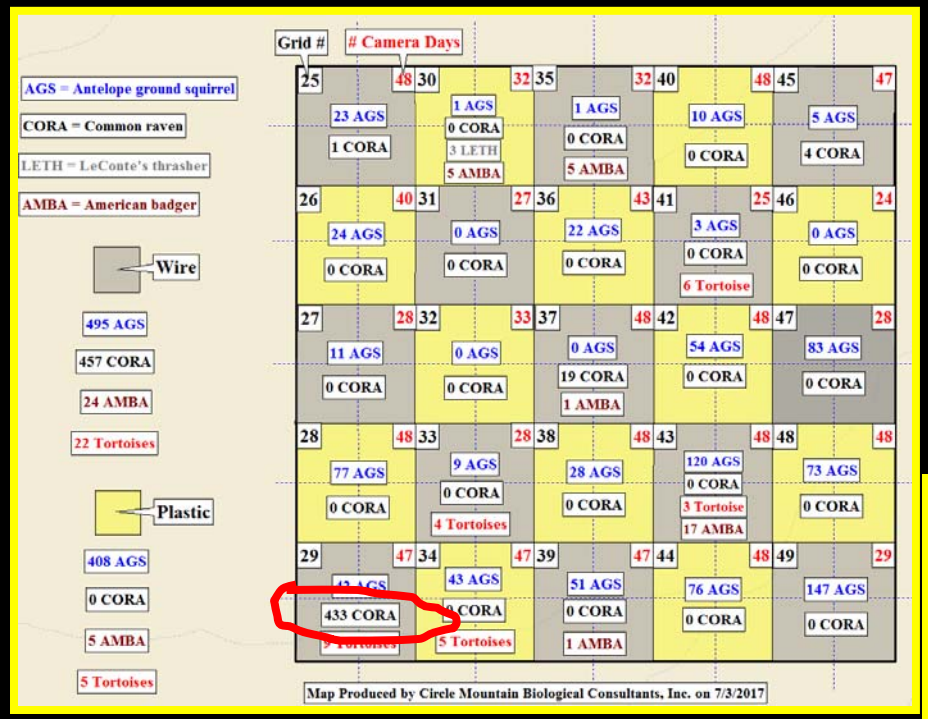
Results per 25-acre grids

Kramer East

2018

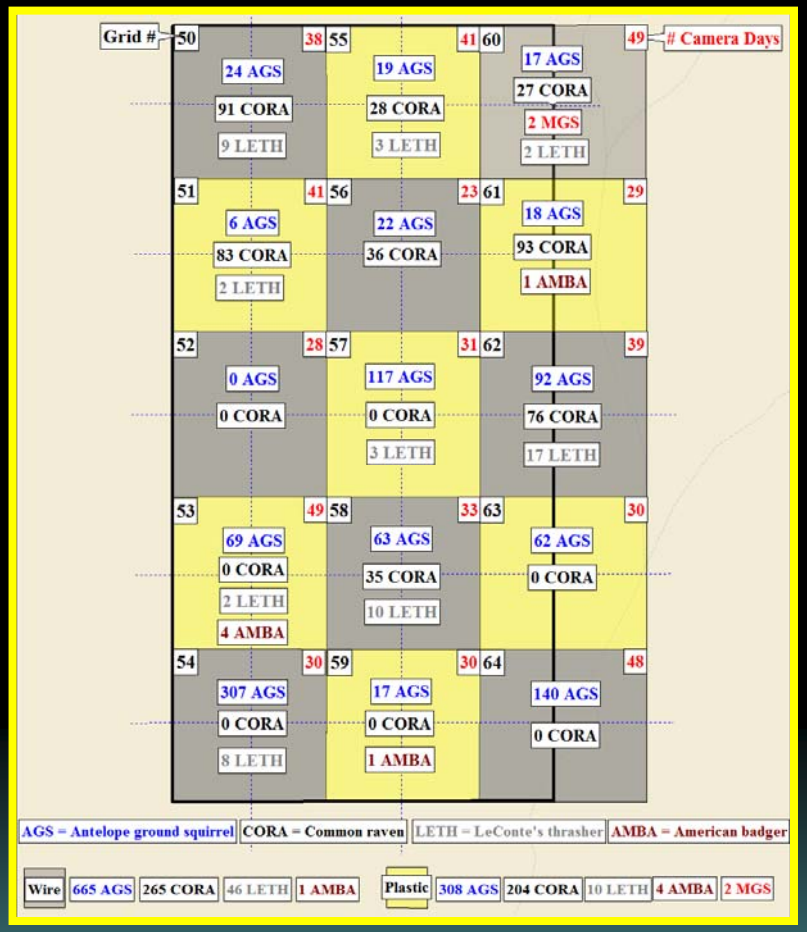


2017

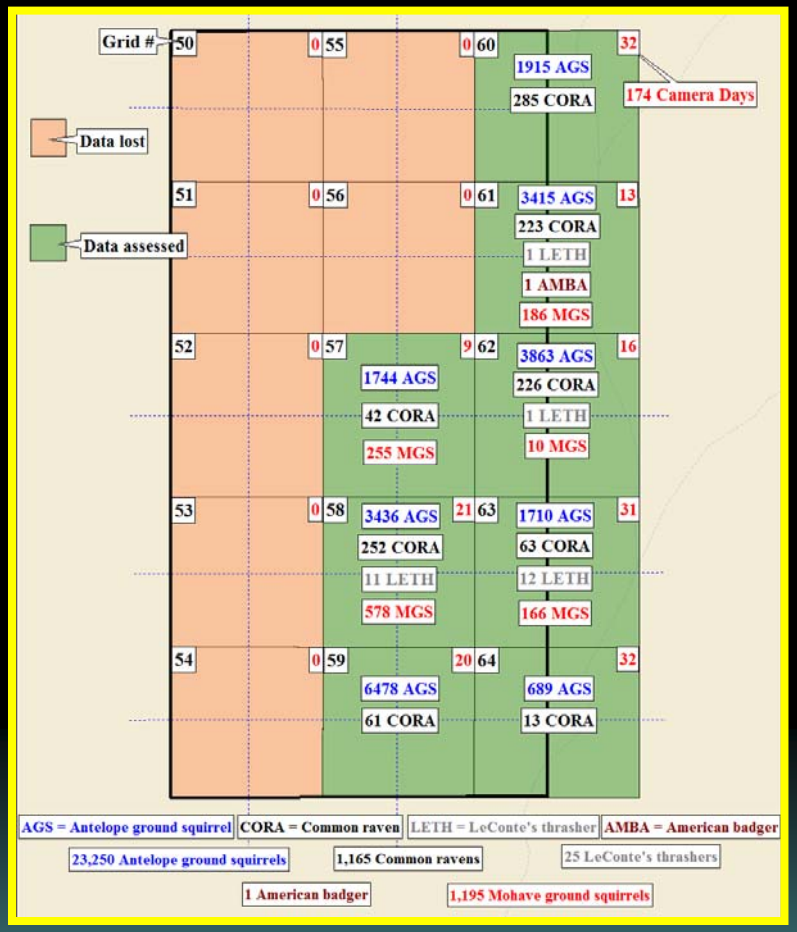


Results per 25-acre grids

Cuddeback



2017



2018

Environmental Factors Affecting Camera Function?

2017 wet, abundant annual growth

2018 dry, no annual growth

Camera Function

2017	2018
460,960 Images	272,510 Images
369,537 Empty day	62,497 Empty day
80% Empty	23% Empty
79,425 Night	76,516 Night
17% of total night	28% of total night

2019

- Same 64 camera stations
- Photos copied to TWO hard drives
- Feed blocks and sandwich boxes
- Live trap 1 grid Palmdale
- Live trap 3 5-day grids in Bowling Alley