

Boulder County Parks and Open Space 2017 Burrowing Owl Monitoring Summary



Prepared by:

**Sue Cass, Boulder County Nature Association (volunteer coordinator)
Michelle Durant, Volunteer Coordinator, Boulder County Parks and Open Space, Stephen
Jones, Boulder County Audubon Society (compiler: curlewsj@comcast.net)**

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Introduction

For the tenth consecutive year, we recruited volunteers to monitor prairie dog colonies on Boulder County Parks and Open Space properties for nesting burrowing owls. The purpose of this study is to locate burrowing owl nests, determine the rate of nesting success, and devise strategies for protecting and enhancing nesting areas.

At a volunteer training in April we assigned individual prairie dog colonies to individual volunteers or small teams of volunteers. Monitoring was conducted from mid-April to October, with each volunteer or team of volunteers visiting their adopted prairie dog colony four times and volunteers visiting areas with active nests weekly.

Methods

Ten-minute observations were conducted from approximately 128 fixed points on 36 properties, with at least one observation occurring within each of four time periods: 15 April-15 May, 16 May-15 June, 16 June-15 July, and 16 July-15 August. Suspected nests were observed weekly until all young had fledged or the nesting attempt was determined to have failed. Volunteers submitted a field form after each observation detailing what they had seen. They were also asked to submit observations of other raptors and other Boulder County birds of special concern (Hallock and Jones 2010).

During 2017, 31 volunteers plus 2 seasonal staff and 2 staff biologists devoted 625 total hours to the training, monitoring, and data compilation effort:

- 540 total volunteer and staff hours submitted

- 45 indoor and outdoor training hours

- 40 hours for training, coordination, and compilation support by Sue Cass and Steve Jones

Results and Discussion

Burrowing owls were observed on four open space properties in the southeast part of the county: Two nests south of Longmont; three nests east of Lafayette; one nest west of Superior; and one nest south of Louisville. The Longmont-area nests produced three young each and fledged a total of six young. One nest south of Louisville fledged four young. One nest west of Superior fledged six young. Three nests east of Lafayette appeared to fail before any young appeared above ground.

Sensitive Data Policy

In March 2015, Boulder County Parks and Open Space adopted a Sensitive GIS Data Policy which describes the criteria used for determining which data are sensitive, and provides guidance for the handling, release, and protection of information related to those cultural and natural resources. As stewards of natural resources, BCPOS has the responsibility to balance the protection of these resources

- in this case the nest sites of rare, declining, and protected species- with the desire of the community to utilize, appreciate, and preserve them. For this reason, annual summaries of burrowing owl monitoring do not include discrete locations or detailed maps of nest sites, but will provide general locality so that participants might understand the distribution of the species from year to year.

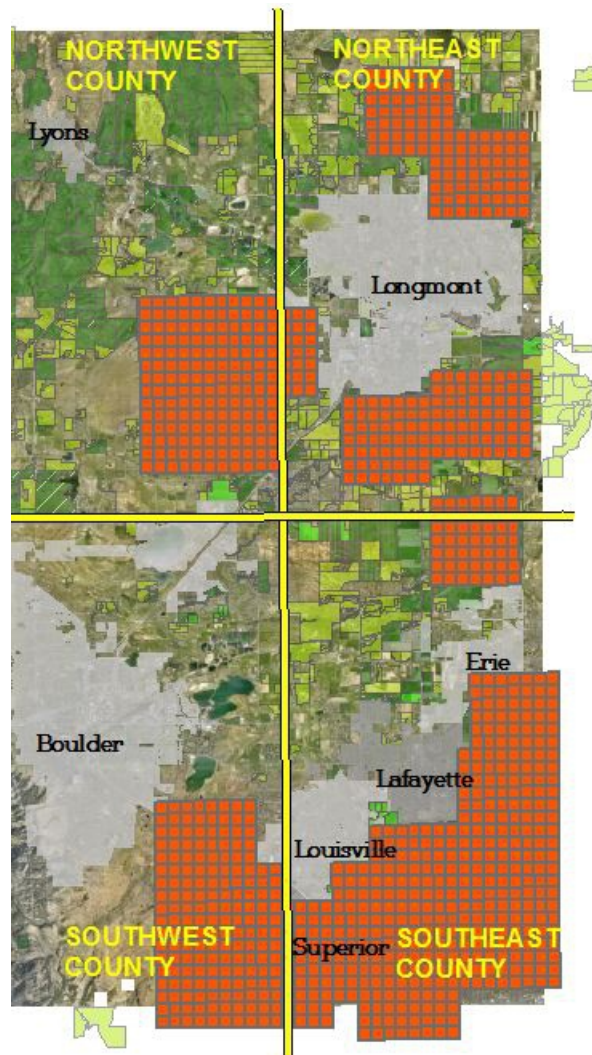


Figure 1: Occurrence of nesting burrowing owls on Boulder County Parks & Open Space: 1998-2017

Table 1. 2017 Burrowing Owl Nesting Chronology

Nest Location	Owls First Seen	Incubation Initiated	No. Young (Date)	No. Fledged (Date)
#1 Northeast County	13 May	Unknown	1 (8 June)	3 (8 August)
#2 Northeast County	15 April	Unknown	3 (3 August)	3 (3 August)
#3 South Louisville	9 May	Early May	4 (29 June)	4 (29 June)
#4 West Superior	12 May	31 May-8 June	6 (18 July)	6 (18 July)
#5 East Lafayette	28 May	Unknown	0	0
#6 East Lafayette	25 April	Unknown	0	0
#7 East Lafayette	17 April	Unknown	0	0
Total	11 April	18-31 May	4 (29 June)	4 (13 July)

Table 2. Burrowing owl nesting observations on Boulder County Parks and Open Space properties, 2010-2017. Nests/young observed.

Year	Southwest County Grasslands	Northeast County	Northwest County	Southeast County	Southeast County
2010				2/8	
2011				2/9	1/6
2012		1/3	2/3*	1/4	2/0
2013		2/4*			
2014		1/5			
2015		1/4			
2016		1/4			
2017	1/6	2/6		4/4	

* Single or paired owls observed, but no nest event was recorded or site abandoned.

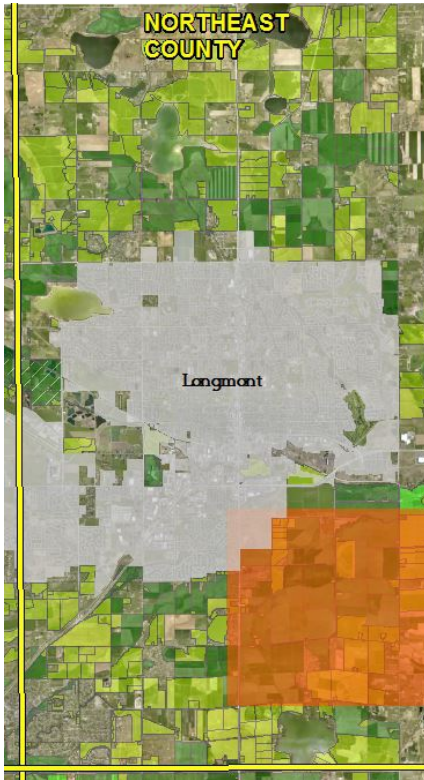
Table 3. Burrowing owl nesting success on parks and open space properties in Boulder County, 2008- 17. Nesting attempts/total young observed.

Year	Boulder County Parks & Open Space	Boulder Open Space & Mountain Parks ¹	Boulder Parks & Recreation ²	Louisville Open Space ³	Total
2008	2/10	7/22	0/0		9/32
2009	7/10	6/7	0/0		13/17
2010	4/12	5/10	0/0		9/22
2011	3/15	6/18	0/0		9/33
2012	6/9	3/11	0/0		9/20
2013	4/4	3/13	0/0		7/17
2014	1/5	2/13	0/0		3/18
2015	1/4	2/10	0/0	1/4	4/18
2016	1/4	4/12	0/0	1/NA	5/16
2017	7/16	5/11	1/4		13/31
2008-17	36/85	43/127	1/4	1/4	63/195

¹ Will Keeley and Christian Nunes, pers. comm.

² Jones 2016.

³ Chris Petrizzo, pers. comm.



Northeast County – Nest sites #1 and 2

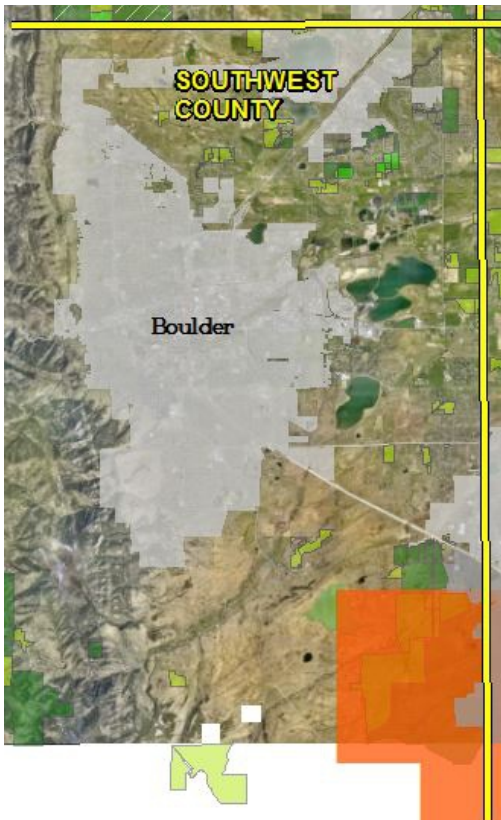
This site is managed as part of an active agriculture lease with extensive irrigated row crops immediately adjacent to a small prairie dog colony. The colony is isolated, less than 9 acres in size, and is been managed since 2013 to provide both nesting habitat for returning burrowing owls and limit crop damage by prairie dogs. Due to its limited size, dispersal of young does not happen as abruptly as nest sites in larger, more extensive colonies. This site was monitored by a pair of volunteers, and was also monitored by a game camera to record additional information. On April 14th, the camera captured a pair of owls already on site.

A total of five mature Burrowing Owls were observed on the property during April and early May. One pair spent at least two weeks investigating a potential nest burrow but abandoned the location following heavy rain in late May. Two nests were eventually established in opposite ends of the small prairie dog colony. The western nest fledged three young on 8 August, none of which were seen until 3 August. At the eastern nest a single, fluffy young was seen on 8 June,

and three full-grown young on 3 August.

We conclude that the two nests fledged a total of six young, though there may have been more than one clutch at one or both of the nests, based on our observers visiting this site at least weekly, 15 April-30 September, and seeing only a single young prior to 3 August.





Southwest County – Nest site #4

This south county grassland site is within a prairie dog colony that is approximately 25 acres in size and adjacent to an additional 165 acres of active colony within 0.5 miles of the nest site. The majority of both colonies fall within areas categorized as Habitat Conservation Areas in the 2012 Prairie Dog Management Plan. The nest site is on leased county agricultural land primarily used for rotational grazing.

Two adult Burrowing Owls were observed on the southern grasslands on 12, 22, and 31 May. On 8 June only a single adult owl was visible, suggesting that incubation might be occurring. On 26 June an adult owl was seen carrying food into a presumed nesting burrow. . On 18 and 25 July, six young owls were observed on the burrow mound or peering out of the nest burrow. One adult was seen feeding four dispersed young on 1 August, and three dispersed young were still visible on 21 August. No owls were seen during visits on 29 August and 5 September.

Southeast County – Nest site #3

This site is located within the western half of a complex of lands purchased from 1980 to the early 2000's to preserve agriculture, natural grassland landscapes, and historic sites in an area of the county experiencing rapid development. Since its purchase, this site has hosted the highest recorded number of nest attempts by burrowing owls on BCPOS property, with 17 documented attempts from 1998 to 2017. This year's nest site was in an area with no recreation, limited grazing, and is 160 acres of mapped prairie dog colony categorized as both Habitat Conservation Area and Multiple Objective Area (grazing).

County staff observed two Burrowing Owls on 1 May during a survey of former nest sites. This site appeared to be further along in nesting chronology than others. A single adult Burrowing Owl was seen on this property on 9, 17, and 25 May, and a presumed female peered out of a burrow and was fed crickets and other items by the presumed male on 2, 8, 16, and 23 June. On 27 June both adults were observed flying to and from the suspected nest burrow, and four young were seen standing in and around the burrow on 29 June. The four fledglings were hunting and feeding independently on 14 July, two were seen on 28 July, and one was seen several hundred meters from the nest burrow on 25 August.

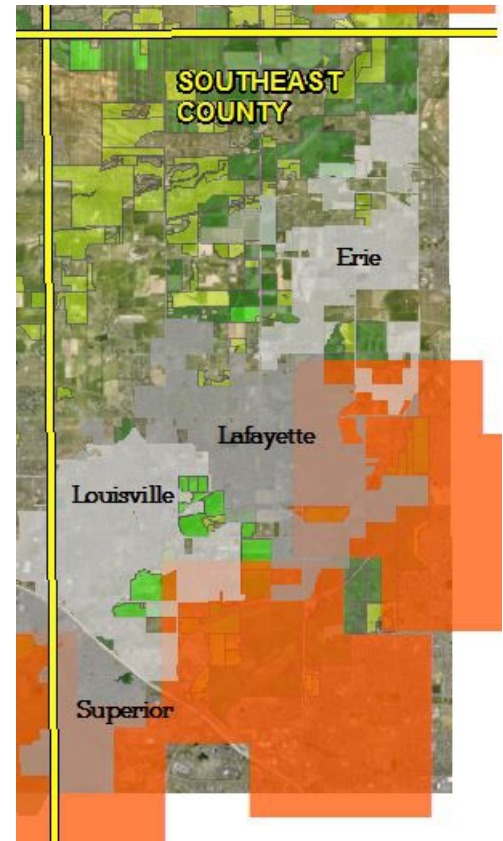
Southeast County – Nest sites #5, 6 and 7

As ongoing effort to create urban buffers and extend the southeast grasslands, the County and City of Lafayette acquired additional land along Coal Creek from 1995 to 2009. Nesting Burrowing owls were documented in 2005, 2006, 2009, and 2017. New development within 0.5 miles of historical and recent nest sites reduced available habitat by approximately 30%, and included newly developed roads and trails, and increased oil and gas activity. Mapped prairie dog colonies occupy 140 of the 435 managed acres, which are categorized as Multiple Objective Areas.

A pair of Burrowing owls was seen on this property at the start of the monitoring season, on 17 and 24 April. A second pair was observed on 25 April. Pairs were observed flying in and out of two potential, roadside nest burrows on 11 May. An additional adult pair was observed flying into a third potential nest burrow 175 m southwest the two monitored sites on 28 May.

Several adult owls were observed hunting and perching around all three potential nest burrows during eight observations between 16 May and 13 July, but no young owls were seen. No adult owls were seen on the property during five observations between 18 July and 15 August.

On 13 July, Michelle Durant visited the property to investigate the three suspected nesting burrows. She found evidence of predation (remains of at least two nestlings) at one roadside nest, a closed burrow and no sign of nesting activity at the second roadside nest, and signs of one adult being predated at the southern, more remote nest site. She observed a pair of adult burrowing owls still in the area of the roadside nests, and one adult perching near the southern suspected nest burrow. A predated juvenile great-horned owl was found at the southern nest site during a follow-up visit.



Additional Observations of Boulder County Birds of Special Concern and of Special Interest (Hallock and Jones 2010)

Wood Duck

4 May, AHI-Double Dove. Wood Duck in pond. (Bolton).

Osprey

1 May, Pair incubating on nesting platform west of reservoir (Andes-Georges).

4 May, Nest active (Bolton).

9 June, Beech. One flying over (Latch).

14 June, Both adults on nest feeding young (Bryan).

6 July, Osprey nest with young at Long's Peak water office (Laubach).

14 July, Two nestlings getting ready to fledge (Bryan).

9 August, Both adults and one young present on nest (Andes-Georges).

14 August, Two young on nest crying out for food (Bryan).

Bald Eagle

20 April, Nest with two young in cottonwood south of irrigation ditch (Witkin).

15 July, One adult perched (Witkin).

9 August, One adult and one juvenile (Andes-Georges).

Northern Harrier

18 April, Male observed (Bryan).

26 May, Male hunting (Crawford).

20 June, One flying over 243 (Crawford).

3, 8 August, One hunting over prairie dog colony (Smith).

13 August, One subadult flying through (Clark and Lupfer).

Cooper's Hawk

6 May, One individual (Kleinman).

6 May, Rabbit Mountain Indian Mesa Trail. One flyover (Such).

12 May, Carlton-Lastoka. One flyover (Clark and Lupfer).

10 August, Darby. One perched on fencepost (Laubach).

Ferruginous Hawk

17 April, Mountain View Egg Farm. Perched in large cottonwood near parking lot (Redak).

Red-tailed Hawk (nests only)

23 April, Nesting in cottonwood east of road. Another Red-Tailed Hawk perched on former Great Horned Owl nest along creek (Cass).

12 May, Nest south of point (Clark and Lupfer). One chick standing on edge of the nest, on 3 July.

Swainson's Hawk

20 April, Pair perched in cottonwood (Witkin).

23 April, Flew over extreme western portion of property (Cass).

12 May, Active nest in cottonwood along creek (Clark and Lupfer). 18 June, still incubating.

27 May, Broomfield North. One flying over and perching (Laursen).

18 June, Broomfield North. One flies from ground into cottonwood where it's harassed by songbirds (Laursen).

3 July, Swainson's nest has two fluffy young (Clark and Lupfer).

6 July, Darby. Swainson's Hawk perched on post on way into site (Laubach).
15 July, One adult perched (Witkin).
18, 25 July, Two brownish-feathered young still on nest.
1 August, Both young have fledged.
9 August, Dark juvenile seen (Andes-Georges).

Golden Eagle

30 July, Beech. Circling and apparently hunting over the prairie dog colony (Latch).
8 August, Swanson. Immature circling over property (Smith).
13 August, Rabbit Mountain. One adult circling south of point (Cass).

Great Horned Owl

3 May, Nest with two young in cottonwood (Bolton).

Prairie Falcon

15 April, COHIG. One flushed and flew west toward mountains (Lawry).
1 May, AHI-Double Dove. One flying over (Wing).
9 August, Lagerman. One hunting (Andes-Georges).

Brown Thrasher

11 June, Rabbit Mountain. Two observed (Joel Such).

Savannah Sparrow

14 July, Liley. A dozen or more perched along the fence (Cass and Cass).

Lark Bunting

15 August, Stephenson-Nelson. Small flock with fledglings (Redak).

White-tailed Deer

12 May, Carlson-Lastoka. Doe observed.

Other Observations of Interest

20 June, Wolf Run/Centennial. Small group of elk with young (Crawford).

Western Rattlesnake

1 August, Carlson/Lastoka. One crossing the road (Clark and Lupfer).

Disturbances

Keyes North: Agricultural activities have greatly reduced the numbers of prairie dogs on this property (Cass, 23 April).

Liley. Large amounts of trash blown onto property with large sheets of plastic snagged on vegetation close to prairie dog burrows (Cass, 24 April).

AHI/Lagerman. Farm core (center) has been plowed from fence line to fence line. Prairie dogs exterminated around point 165. Almost no burrowing owl nesting habitat remains on AHI property (Andes-Georges).

Arsenault (Mayhoffer North), Singletree, 24 April and 4 May. No prairie dogs visible and no evidence of recent activity in colony visible from points 82 and 93 (Wegman-French).

Colp (Nelson Road and US 36). Habitat seems generally degraded, with lots of long grass and few prairie dogs (Klaver, 14 May, 2 July).

COHIG, 6 June. Woman released two black labs from a truck that drove across the meadow to the property, and they were running across the only remaining active prairie dog colony on the property (Lawry).

Elk Run/Centennial, 20 June. Shotgun shell casing found near 243. Rifle fire heard from nearby shooting range (Crawford).

Mayhoffer/Carlson-Lastoka. Range rider reports having seen burrowing owls but inadvertently rides right through their nesting area. He responds positively to information given by volunteers and promises to keep an eye out for the owls (Clark and Lupfer, 18 June).

COHIG point 23, 3 July. Knapweed infestation in active prairie dog colony (Lawry).

Keyes North, 13 August. No prairie dogs left on this property except a very few crowded in between a fence and cropland (Cass).

Observers Reporting

Volunteers: Linda Andes-Georges, Bryce Bolton, Kerrie Bryan, Alan Cass, Sue Cass (volunteer coordinator), Karen Clark, Jean Crawford, Michelle Durant (volunteer coordinator), Renée Haip, Paula Hansley, Brinda Henley, Tim Henson, Stephen Jones (compiler), Elena Klaver, Peter Kleinman, Lark Latch, Kristin Laubach, Sandra Laursen, Viki Lawrence, Maureen Lawry, Joe Lupfer, Carol McCasland, Beccy Pem, Joe Pem, Connie Redak, Jamie Simo (seasonal staff), Jordan Smith (seasonal staff) Joel Such, Lisa Wegman-French, Mort Wegman-French, Bob Wing, Ru Wing, Howard Witkin.

Literature Cited

Hallock, Dave, and Stephen Jones. 2010. Boulder County avian species of special concern. Boulder County Nature Association, PO Box 493, Boulder, CO 80306; www.bcna.org.

Jones, Stephen. 2016. Boulder Reservoir 2016. Birds of Special Concern Monitoring Report. Unpublished report for Boulder Parks and Recreation Department, 3198 Broadway, Boulder, CO 80304.

Appendix I. 2017 Nesting Observations

Northeast County

15 April. Adult male halfway out of burrow just 20 feet south of entrance road. Only three prairie dogs visible in this colony (Pems).

23 April. Adult male halfway out of burrow south of entrance road (Pems).

1 May. One observed in same location perched atop burrow (Pems).

13 May. Now one pair of burrowing owls on the north side of the road and the same individual, solo, on the south side (Pems).

21 May. Two burrowing owls seen in separate areas north of road, no owls seen south of road (Pems).

31 May. Two seen in same spot as last time (Pems).

8 June. Both adults from northern nest out and hunting. Single fluffy young peering out of the nest (Pems).

17 June. Both adults perched together and presumed male off hunting and bringing prey back to female at burrow. No young observed (Pems).

26 June. Both adults perched together and interacting near presumed nest site (01e). A third adult flew into area of possible other nest site several times carrying prey (01d--Pems).

27 June. One adult owl perching and flying near gas well pipes, hunting insects and perching on the signs. Second adult owl was flying between the two burrows (?) on Swanson to the east (Smith).

8 July. Adult pairs seen at each of the suspected nesting sites. Fifth adult seen perched near 75 (Pems).

15 July. Pair seen at traditional nest site, just one adult owl at second nest site (Pems).

25 July. Two pairs and one lone adult seen (Pems).
3 August. Two adults and three young at east nest mostly catching grasshoppers (Smith).
4 August. Two adults and one young at east nest site (Pems).
8 August. Two adults and two young at east nest; two adults and three young at west nest (Smith).
14 August. One adult and two young at east nest (Pems).
23 August. Three fledglings flying around and hunting on their own (Pems).
30 August. One apparent adult and three fledglings scattered around the prairie dog colony (Pems).
5 September. One burrowing owl seen in the distance; vanished when two coyotes approached the west nest site and the prairie dogs started barking (Pems).
15 September. Three burrowing owls scattered throughout prairie dog colony, flying and foraging (Pems).
30 September. No owls seen (Pem).

Summary: Two nests fledged six young. One additional adult present.

Southeast County - Nest sites #5, #6, #7

17 April. Pair between two dirt roads south of large power pole (Redak).
24 April. One perched on tall weeds and prairie dog mounds and apparently hunting insects (Redak).
25 April. From point, one pair visible beside burrow, two other owls nearby near road--all about 250 m to the southeast edge of open space (Hansley).
1 May. One observed perching after two were seen flying away, southwest of original site (Redak).
11 May. Pair observed flying in and out of original nest burrow, then male flies to another burrow 100 m away, where it appears there is a smaller, darker owl (Redak).
16 May. Just the single pair today in and around nesting burrow (Redak).
24 May. One adult in burrow or perched on mound above burrow. Second adult present (Redak).
28 May. Pair going in and out of suspected nest burrow on adjacent property 175 m southwest of point. Male observed hovering twice (Hansley).
9 June. Male owls seen from point, out and about (Redak).
15 June. Single owl observed hunting, but not seen bringing prey to suspected nest burrow (Redak).
23 June. Two owls hunting and perching near point, but straying (Redak).
27 June. Single adult owl seen near location #6, none seen near site #7 or #5 (Redak).
9 July. Single adult owls seen from point, no owls seen at the others (Redak).
13 July. Nests near north survey points both appear to have been predated. Remains of young owls and egg shells found at #6. Remains of juvenile great horned owl at southern nest site #7 (Redak and Durant).
18 July. No owls observed. Three Red tailed Hawks hunting over prairie dog colony (Redak).
28 July. No owls observed (Redak).
10 August. No owls observed (Smith).
15 August. No owls observed (Redak).

Initial Site

30 May. Both adults present and flying around outside of nest burrow (Redak).
23 June. No owls observed (Redak).
27 June. No owls observed (Redak).

Nest Site #7

22 May. Pair observed (Durant).
24 May. Both adults perched outside suspected nest burrow (Redak).
30 May. No owls observed (Redak).
9 June. No owls observed (Redak).
27 June. Male seen flying from yucca stalk into the long grass where presumed nest may be located (Smith).

Nest Site #5

30 May. No owls seen here today (Redak).

27 June. No owls observed (Redak).

Nest Site #6

30 May. No owls observed (Redak).

27 June. Two owls flying from perch to perch and flying into the long grass where nest burrow may be located (Smith).

Southern Survey Point

27 June. One adult owl seen in the distance (Redak).

Summary: Three nests failed. Five adults observed.

Southwest County – Nest site #4

12 May. Two observed south of creek west of the north-south fence. Alternately perching on prairie dog mound, suggesting territoriality (Clark and Lupfer).

22 May. Both owls present and one going in and out of new burrow (Clark and Lupfer).

31 May. Both owls present in same location (Clark and Lupfer).

8 June. Single owl perched in same location (Clark and Lupfer).

18 June. Both owls present, one mostly perched atop mounds, the other disappearing intermittently, possibly into nesting burrow (Clark and Lupfer).

26 June. One adult seen carrying food to presumed nesting burrow, north of fence (Smith).

3 July. Both adults present, flying to and from nest burrow (Clark and Lupfer).

11 July. Both adults observed near suspected nest burrow (Clark and Lupfer).

18 July. Both adults and six young observed, five at nest burrow, one distant (Clark and Lupfer).

25 July. Six fledglings on and around nest burrow. Two chicks on Swainson's Hawk nest (Clark and Lupfer).

1 August. One adult feeding four dispersed (away from natal burrow) young (Clark and Lupfer).

8 August. One adult and one fledgling seen (Smith).

13 August. Two adults and three dispersed young (Clark and Lupfer).

21 August. Two adults and three dispersed young seen well away from the nest burrow (Clark and Lupfer).

29 August. No owls seen (Clark and Lupfer).

Summary: One nest fledged six young.

Southeast County – Nest site #3

9 May. Male burrowing owl perched on edge of burrow (Lawrence).

17 May. Owl perched in same location (Lawrence).

25 May. Single owl hunkered on edge of same burrow (Lawrence).

2 June. Female appeared out of burrow, male flew off and returned with cricket, then went off hunting and returned a couple of more times (Lawrence).

8 June. Several prey deliveries observed, with male bringing prey (mostly crickets) to female at the burrow opening and her descending with prey into the opening (Lawrence).

16 June. At least four prey deliveries observed, with male bringing prey (mostly crickets) to female at the burrow opening and her descending with prey items into the opening (Lawrence).

23 June. Pair observed interacting on and around presumed nesting burrow. One brought in a baby prairie dog or rabbit to share (Lawrence).

27 June. Both adult owls present flying to and from presumed nesting burrow (Smith). Trespasser was present but was too close (100 feet or so) to the presumed nest.

29 June. Four young visible in and around burrow. Both adults out hunting and bringing in prey (Lawrence).

6 July. One adult and four young visible. Five prey deliveries, and young were flying from burrow to burrow (Lawrence).
 14 July. Four fledglings hunting and feeding on their own (Lawrence).
 20 July. Just one fledgling observed during 70 minutes of observation. No adult owls observed 20 July. (Lawrence).
 25 July. [Warembourg] No owls observed. Red-tailed hawk and fledgling soaring over prairie dog colony (Lawrence).
 28 July. Two young observed near point. No adults seen (Lawrence).
 25 August. One fledgling perched on curly dock and flying around, "quite a distance" from nest burrow (Lawrence).
 30 August. No owls seen (Lawrence).

Summary: One nest fledged four young.

The Backstory:

Sometime in late January, your coordinators start planning the season with a simple email that says “it’s time”. This initiates the many steps we take to get you into the field prepared, on time, and with a renewed sense of purpose. Michelle meets with multiple staff members from wildlife, agriculture, trails, and planning to determine which properties will be available for surveying or what conditions might remove a property from the list. Meanwhile, Sue and Steve are rallying the troops and getting the word out for more help where we need it. Training dates are set, new applicants are interrogated, and permits are created. Occasionally, a full week or two is set aside for creating new maps. In the background, other departments are inquiring weekly if any owls have returned, where they are and how to avoid them. Maps are created and distributed to staff needing this information. Field reports start streaming in. 2017 was a pretty good year, with winter conditions that improved our odds of seeing some additional nesting.

Of the seven pairs located on open space, two pairs had little to contend with since their nests were off the beaten path. The two nests in the northeast section are vulnerable, with nearly 6 trespassing events and active agriculture in all directions. Our southeast pairs were a welcome addition, with the last nest event at that site being recorded in 2009. Staff stalled planned oil and gas maintenance in the area to give the owls a chance to nest without disturbance. To the disappointment of coordinators and volunteers, other factors influenced the eventual demise of all three nest attempts. In communications with our county attorney helping us protect those sites, I had an opportunity to express my thanks for his help

delaying the disturbance, and for conveying the sentiment of the owls regarding the maintenance request:

Thanks for all your hard work, and see you in 2018!

Sue, Steve, Michelle, and the owls

