Volume Two - Number One
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The Black Range Naturalist

Previous issues of this newsletter are available at this link.

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THIS ISSUE'S CONTRIBUTORS

LARRY COSPER: Larry Cosper is a life long student of the natural world. Professional wild land fire fighter/manager 1974-2015.

NED & GIGI BATCHELDER: Ned and Gigi Batchelder are a husband and wife team federally permitted and state licensed hummingbird banders, who have relocated to Las Cruces, New Mexico to continue their studies which have included nine western states since 2001. They are self funded and volunteer independent hummingbird researchers for USGS.

STEPHEN SIEGFRIED: Among other things, Steve Siegfried is the retired outdoor editor for the Silver City Daily Press. Many of his articles on natural history have been published in magazines and journals. He lives in Hillsboro, New Mexico.

NICHOLE TRUSHELL: Nichole has had a life-long interest in plants, which led to a degree from the University of AZ in Agriculture, and a graduate degree in Botany from AZ State University. Her professional career has included working as a field biologist in the southwest and as Founding Director of the Highlands Center for Natural History in Prescott Arizona where she honed her love of teaching all ages — outdoors.

RANDALL GRAY: Randy Gray retired as the National Wildlife Biologist for the USDA Natural Resources Conservation Service in Washington, DC. He then worked with the non profit Intermountain West Joint Venture where he helped to develop the Sage Grouse Initiative. Randy's life long interest in reptiles led him on a path in wildlife conservation and a reason he retired to the reptile diverse SW.

BOB BARNES: Is the editor of this publication and maintains three websites; www.blackrange3.org, www.airandground.org (coming soon), and www.birdtrips.org. He is a videographer and photographer who specializes in natural history topics.

J. R. ABSHER: In a professional career spanning more than 40 years, J.R. Absher has published thousands of print and online articles covering diverse outdoor-related subjects, including wildlife, hunting, public lands, conservation, legislative issues, firearms and archery. He shares a long history with Southwest New Mexico people and places, and in a former life packed mules as a U.S. Forest Service wilderness patrolman in the Gila Wilderness. He currently resides on the A-Spear Ranch in Sierra County.

INGA MCCORD: Inga McCord has successully melded her knowledge of the natural world with her artistic skills for many years - producing intriguing works of art.

And, as always, a special thanks to Rebecca Hallgarth for her light touch in copy editing, assuring that our publication remains true to the contributors.

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VOLUME TWO - NUMBER ONE

In this issue we: Explore the history of fire in the Black Range with Larry Cosper, the former District Ranger for the Black Range Ranger District; consider hummingbird banding with Ned and Gigi Batchelder, who have conducted their hummingbird banding research throughout the American west; revisit Stephen Siegfried's review of Aldo Leopold's life; review the Horned Lizard species of the Black Range with Randall Gray; watch Black-chinned Hummingbird nesting behavior with Bob Barnes and consider the bird species frequency data that he and Rebecca Hallgarth have gathered; consider plants and cold weather with Nichole Trushell; and explore the intersection of natural history and art with Inga McCord. It is a nice set of articles, including a mix of styles and topics.

If you are reading this issue in its electronic form (only contributors receive hard copies) you will note that several pages are printed sideways to accommodate the material. pdf readers all have rotation capabilities. When you come to one of these pages, please rotate the page rather than your head. And, as always, underlined material is a link to the broader world - the wonders of electronic media.

The cover photo was taken by Bob Barnes on the old South Percha Road, just below NM-152, shortly after the Silver Fire. Where there was nothing at that time there is lots of green now (even in a dry year).

Lastly, at the risk of changing this into a rattlesnake publication, we publish this photo of a Western Diamondback Rattlesnake taken by Bob Barnes near the entrance to the Percha Box, east of Hillsboro - noteworthy only for the fact that he swears it did not rattle and that what he heard sounded like a cat hiss. We do not comment on his observational skills here - but we like the photo.

Fire History of the Black Range

by Larry Cosper

Grey ash floated like snowflakes in the afternoon gloom. Smoke and dust filled the air as the sun struggled to ease the darkness. For residents of the small mountain town of Kingston the days were filled with fear and trepidation, little information was available and the promise of rain was too far off to be of any comfort. They had endured days of blinding smoke and nights when the mountain glowed with the candles of a thousand flames. No one could remember a fire like this terrorizing the town and scarring the landscape of the their idyllic little town.

Some people reading this will no doubt flash back to their memories of the Silver Fire of 2013. However that is not the case. The account is from Sonja Franklin's memory of the 1951 McKnight Fire. The McKnight Fire burned an estimated 48,052 acres during the summer of 1951. At the time it was the largest fire ever recorded in New Mexico and burned much of the upper watershed of the Las Animas and North and Middle Percha Creeks.

When the subject of wildfire comes up, people often want to know the history of fires in the area and why they burn with such ferocity. Unfortunately the first question is not as easy to answer as some may assume, and the second is also quite complicated. To answer the first, records of fire in the Black Range do not go back as far as one would think. I began my Forest Service career in the summer of 1974 on the fire crew of the Black Range Ranger District. We fought fires from early May through the summer and into October. Fortunately most of them were small snag fires. Even though fire reports and maps were completed and filed for every fire, those records are either long gone or sitting in the dusty archives awaiting an ambitious and very patient researcher.

With the advent of computers and digital databases, storing and retrieving these records became practical. With help from the Gila NF Supervisor's Office we are able to give a clearer picture of fire occurrence greater than 10 acres in size since 1987. For this discussion I have restricted the area to roughly south of Reeds Peak to the south end of the Black Range. The table in the column to the right list fires by the year, given name, acres burned and the type of management. Fires listed as wildfire were managed to be extinguished as soon as safely possible, while wildfire use fires were managed by monitoring the fire and allowing natural processes to proceed where safe and when meeting predetermined objectives.

It is necessary to add some additional information when considering the data as presented: 1) there are probably several hundred fires not included because they did not exceed the 10 acre minimum; 2) there were larger fires before 1987 that exceeded 10 acres; however they have not been digitized or added to the database at this time. 3) The McKnight fire is included for its historical significance. The acreage was determined using historic documents and Landscape Satellite Imagery to map current vegetation patterns consistent with a fire of this intensity and age.

When we consider wet and dry summer conditions a pattern also emerges. Wildfires are controlled during dry years and are more likely to be managed during normal or wet years. There are also many other conditions that factor into managing fires including location, time of year, available fire resources and the level of risk acceptable to the deciding officials.

Year	Fire Name	Acres	Fire Management
1987	Aspen	2,348	Wildfire
1989	Meason	1,048	Wildfire
1991	Georgetown	505	Wildfire
1994	Animas WF	50	Wildfire
1994	Willow	24	Wildfire
1994	Pigeon	5,194	Wildfire
1995	Bonner	26,415	Wildfire Use
1997	Rocky	4,193	Wildfire Use
2001	Ridge	161	Wildfire Use
2003	Heffner	35	Wildfire
2003	Marshall	118	Wildfire
2003	Granite	3,277	Wildfire Use
2003	Carbon	10	Wildfire
2003	Slick	50	Wildfire
2003	Monument	30	Wildfire
2007	Loco	1,650	Wildfire Use
2007	Lake	314	Wildfire Use
2007	Granite	1,918	Wildfire Use
2007	Aspen	507	Wildfire Use
2008	Rocky	25	Wildfire
2008	Kneeling Nun	88	Wildfire
2009	Georgetown	72	Wildfire
2009	Ladrone	25	Wildfire
2009	Meason	6,992	Wildfire Use
2009	Cougar	290	Wildfire Use
2009	Thompson	29	Wildfire Use
2009	Park	307	Wildfire Use
2010	Aspen	3,355	Wildfire Use
2010	Monument	17	Wildfire
2011	Diamond Bar	200	Wildfire
2011	Curtis	29	Wildfire
2011	Girty	26	Wildfire
2011	Aldo	50	Wildfire
2012	Rocky	54	Wildfire
2012	Powder	26	Wildfire
2012	Continental	39	Wildfire
2012	Cave Creek	73	Wildfire
2012	Tierra Blanca	87	Wildfire
2013	Silver	138,705	Wildfire
2015	Northstar	24	Wildfire
2016	Stizel	73	Wildfire
2016	Timber	2,800	Wildfire Use

With so many fires and so much history in managing fires the questions often comes up, how and why do we have these devastating fires like the McKnight and Silver Fires? The answer comes best from a quick lesson on fire suppression history and fire ecology. Mankind's relationship to fire has been at best a complicated affair. We both need fire and at the same time fear it. During the settlement of North America, we brought with us the european model of land management… basically farming. Fire was seen as a destructive force to be

controlled. The Forest Service and other land management agencies implemented control strategies and policies very effectively for the first 50 or so years of their existence. Fire was managed by logging, grazing, fire suppression and every other available tool. Eventually land managers, scientists and local publics began to notice that the forests had changed from what they once were. Park-like conditions in ponderosa pine were rare, the aspen groves were disappearing, streams and springs were no longer as productive.

Forward thinking researchers discovered by looking at tree ring data that fires were much more frequent and less intense in the past.

Ponderosa pine stands in the southwest burned on intervals of 2 to 47 years. Mixed conifer stands burned less frequently but more intensely when they did burn, often in what is referred to as stand replacement fires. The practice of keeping fires out of the forest resulted in fuels accumulations beyond historic levels, and delaying fire by suppressing it only increased the intensity of the fire to eventually come. The McKnight and Silver Fires are surprisingly similar in the conditions under which they burned: several consecutive years of drought, decadent mixed conifer stands, beetle killed trees, dry, hot and windy weather conditions and history. It was only a matter of when, not if, they would both burn.

Land managers are continuously learning how fire fits into the ecology of the land. Managing fire on the landscape is always a dance with the devil…sometimes you lead and sometimes you follow.

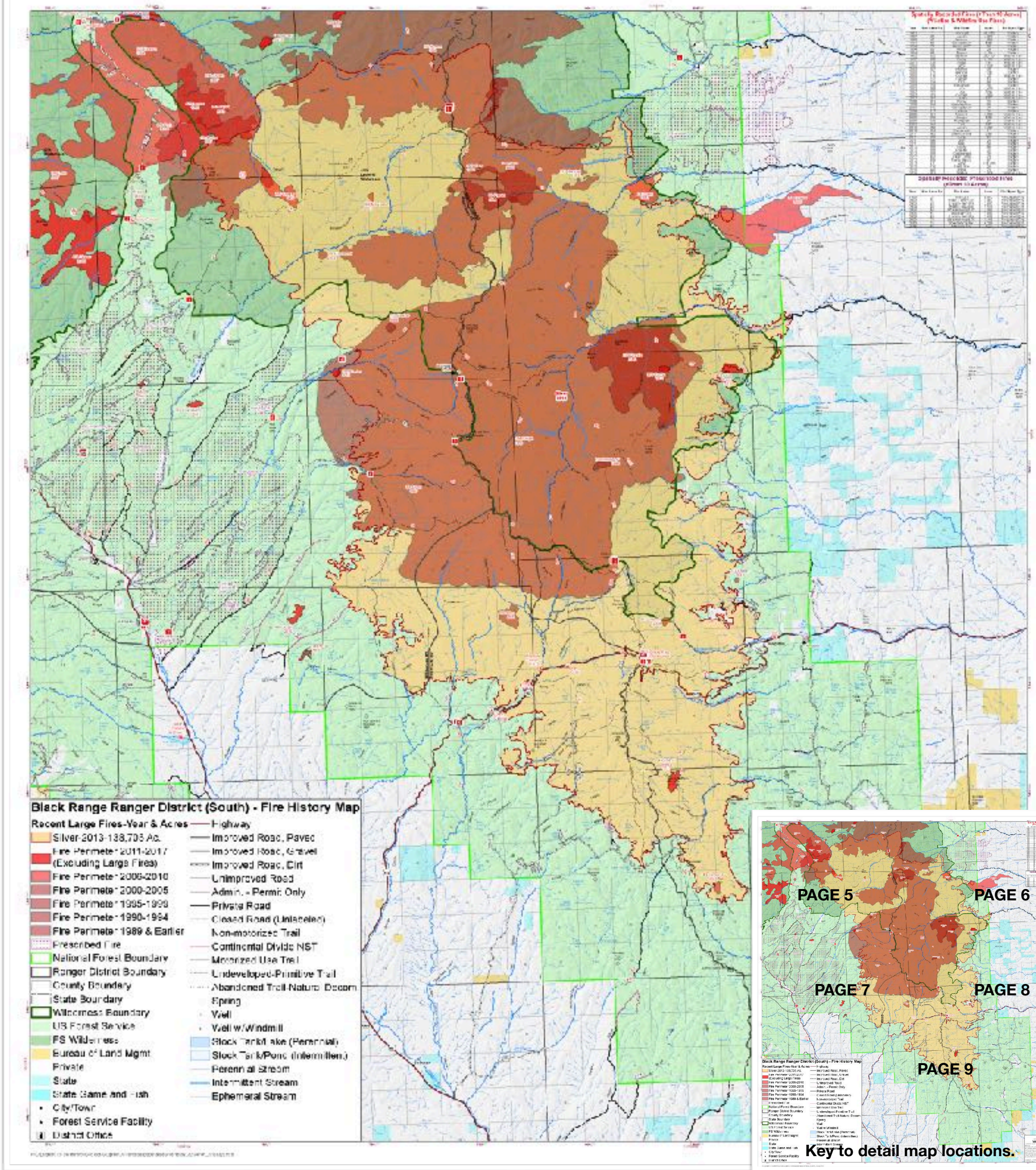
The following map (oage 4) provides a visual of the extent and location of the fires listed in the table.

Thanks to Ellene Browne and Brian Park , Gila NF for their help with the fire data.

Bottom Photo: Band-tailed Pigeon, Hillsboro, New Mexico, by Bob Barnes, October 2018.

The Band-tailed Pigeon (*Patagioenas fasciata*) population has been in sharp decline since, at least, the 1960's. In Hillsboro, small groups of this species were seen yearly (but not regularly) prior to the Silver Fire. They were not seen in our yard in Hillsboro since the fire - until this year when the individual shown below made an appearance on the 15th of October. One possible explanation is that the berry crop (like that of New Mexican Elder, *Sambucus caerulea var. neomexicana*) was effectively destroyed by the fire. A significant increase in Elder plants has been observed in recent hikes along the crest of the Black Range, this may explain why this species was seen this year.

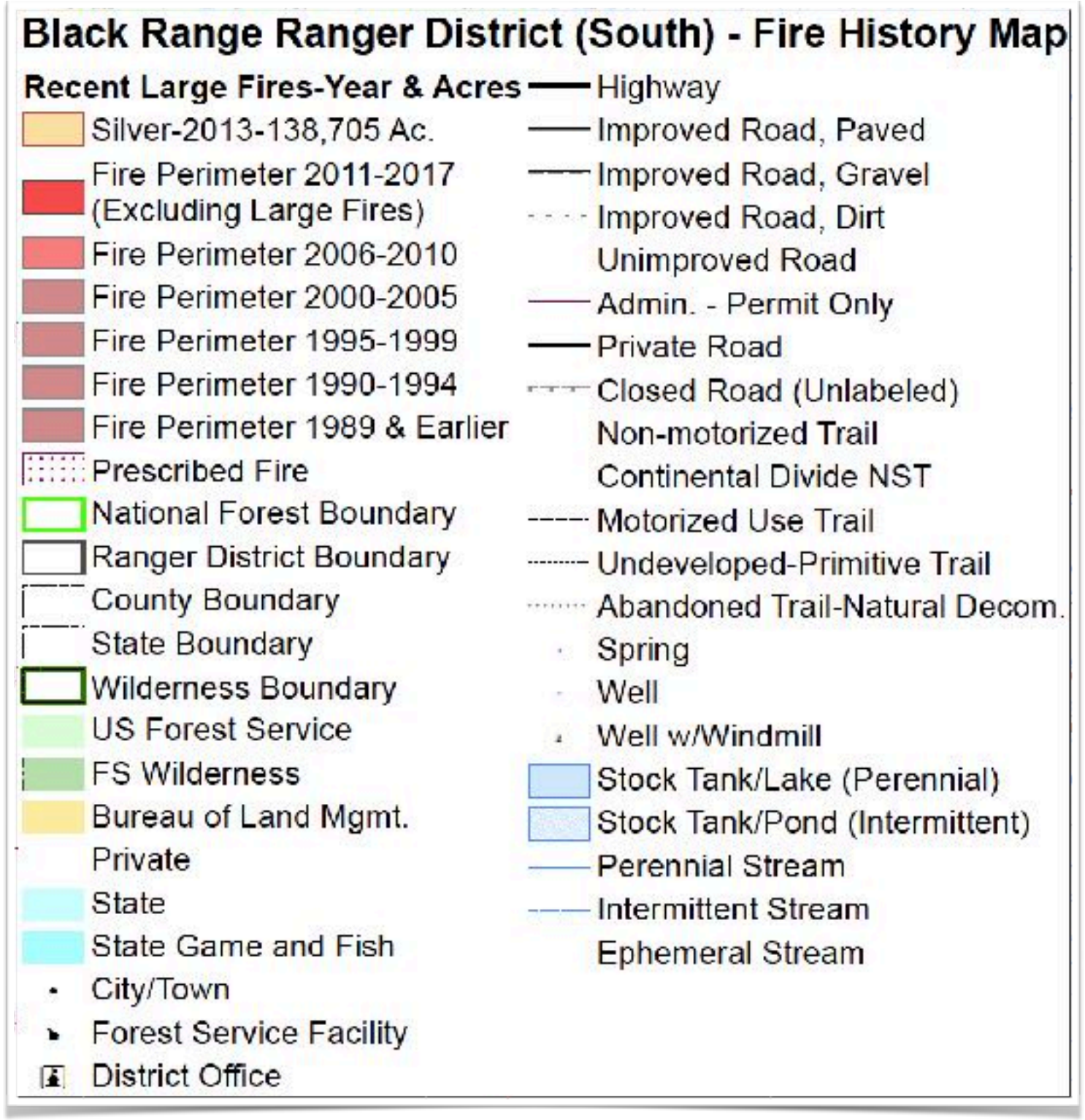
- Bob Barnes



Key to detail map locations.

The following pages contain detail images of this map. **An electronic version of the map is available at this link.**

"The Silver Fire - As We Lived It" is a digital book which is a compilation of the The Black Range blog posts relating to the Silver Fire. It provides a real-time, heartfelt account of how the people of Kingston and Hillsboro reacted to that fire - a fire which burned 138,705 acres.



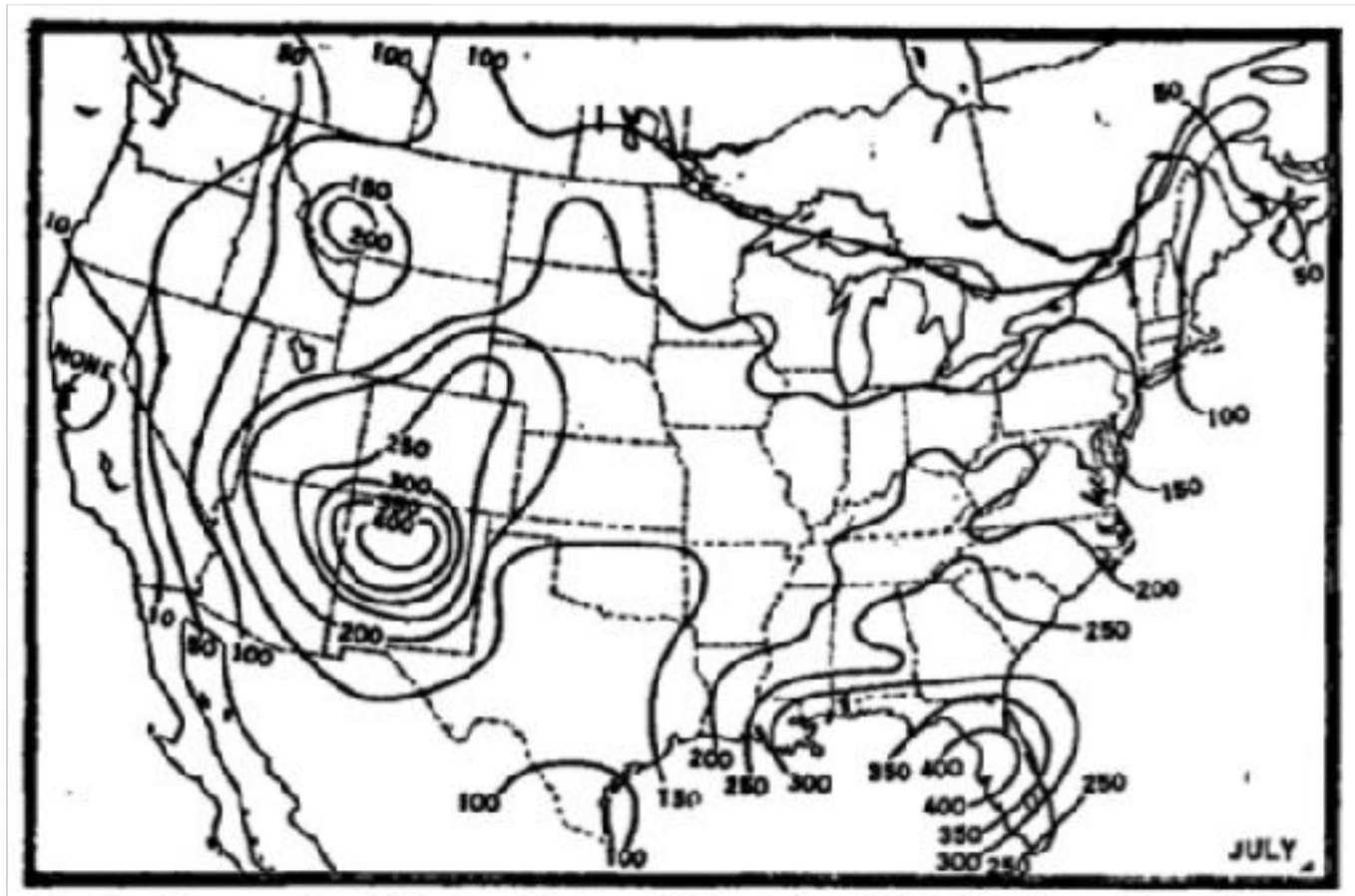
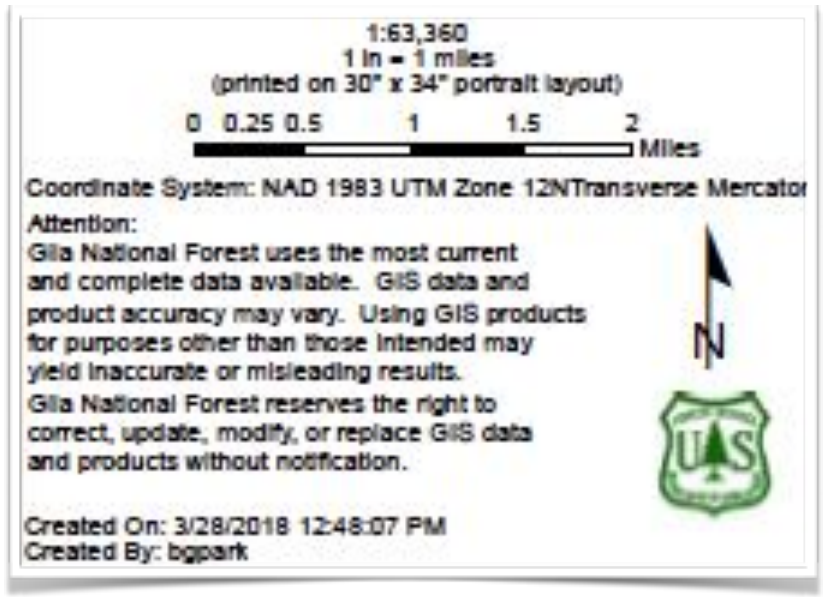
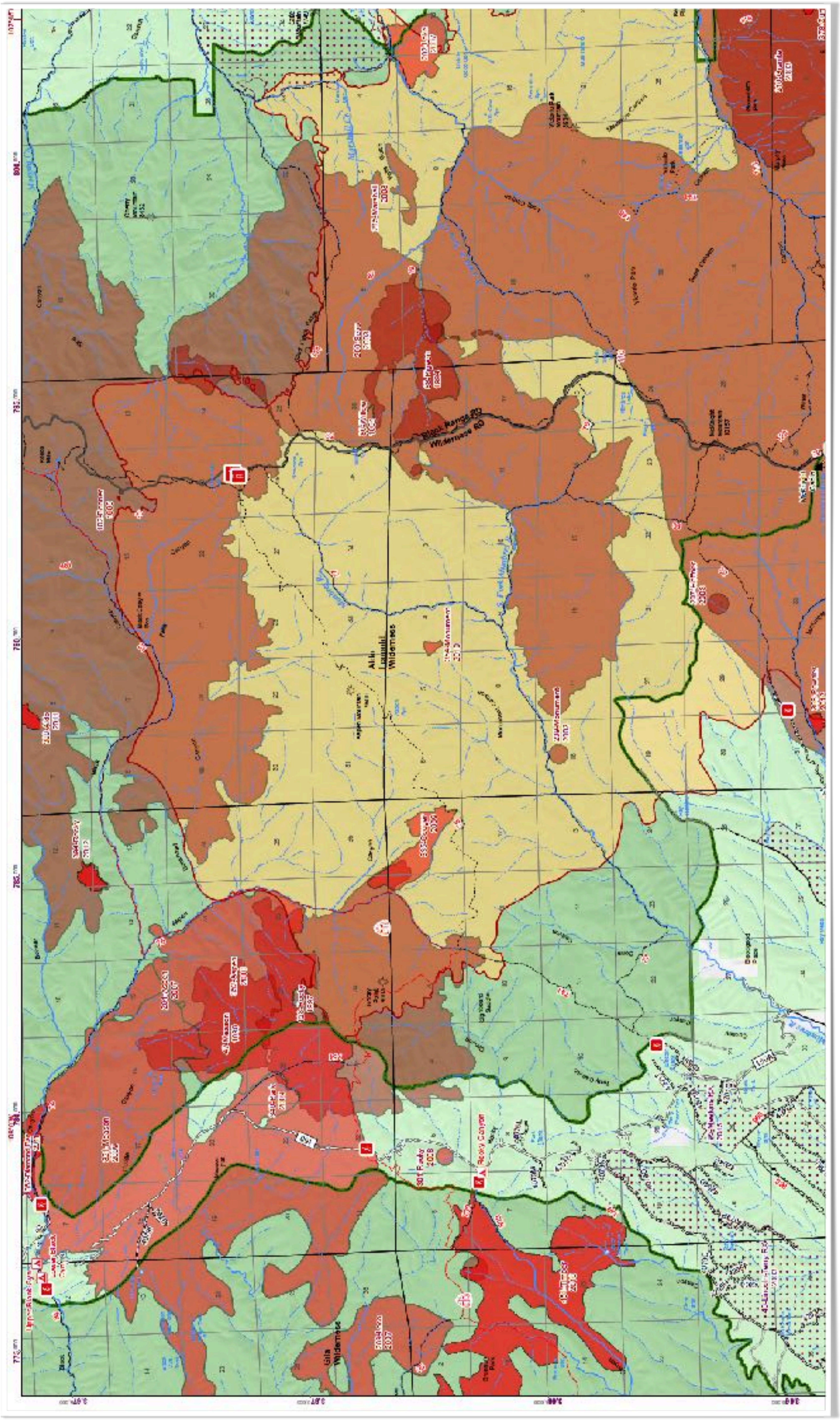
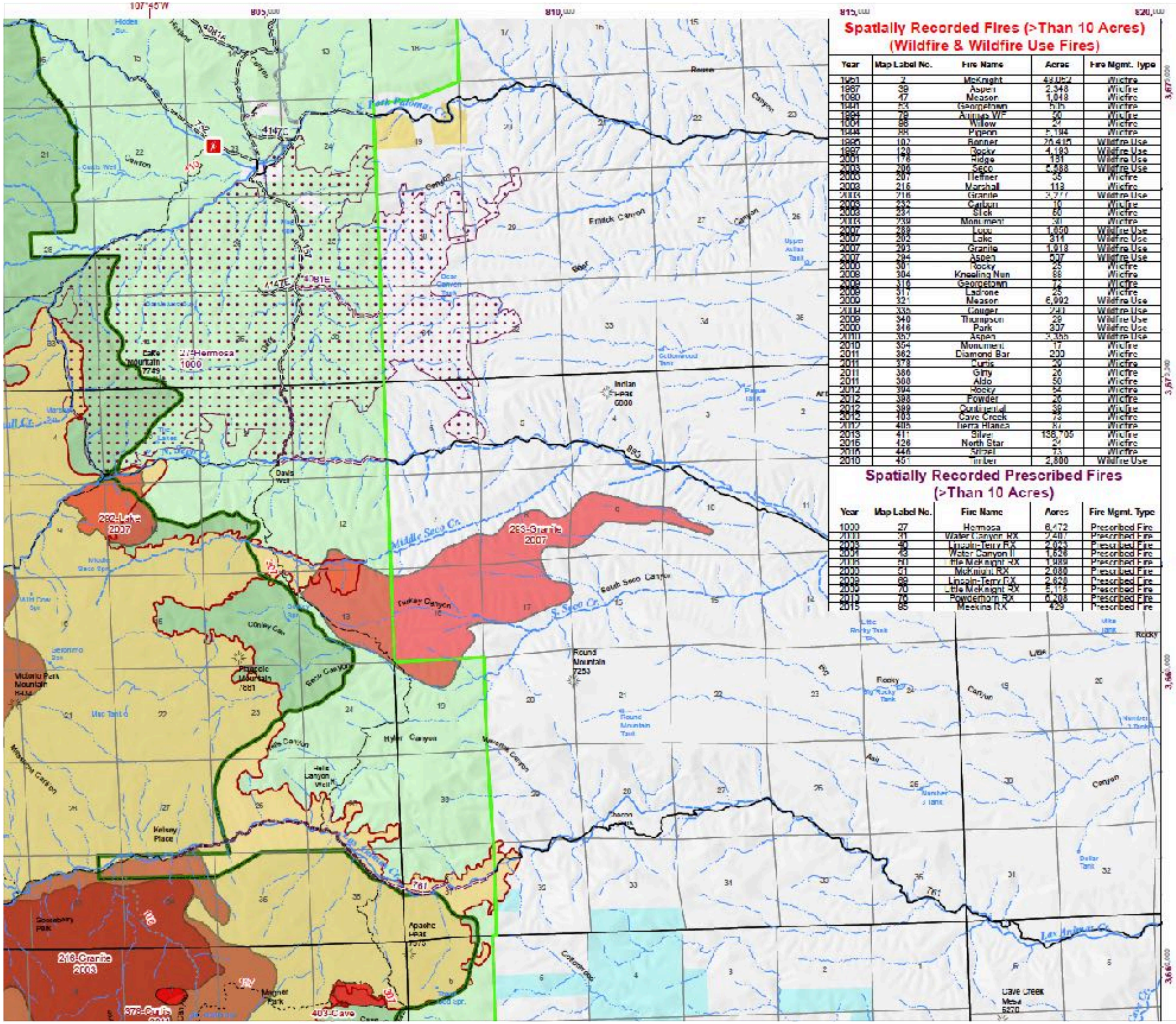


FIG. 7.—Isoceraunics, July, based upon total number of thunderstorm days, 20 years, 1904–1923

During July and August the thunderstorm activity in New Mexico rivals that of the Florida center of activity. It has been this way for a long time. The chart above is from a report entitled "The Distribution of Thunderstorms in the United States" by William H. Alexander, Monthly Weather Review, July 1924. When such thunderstorms result in "dry strikes" (lightening without rain) then fires can be significant, especially early in the fire season.




Aldo Leopold Wilderness
Gila Wilderness
Black Range 80
Wilderness 80

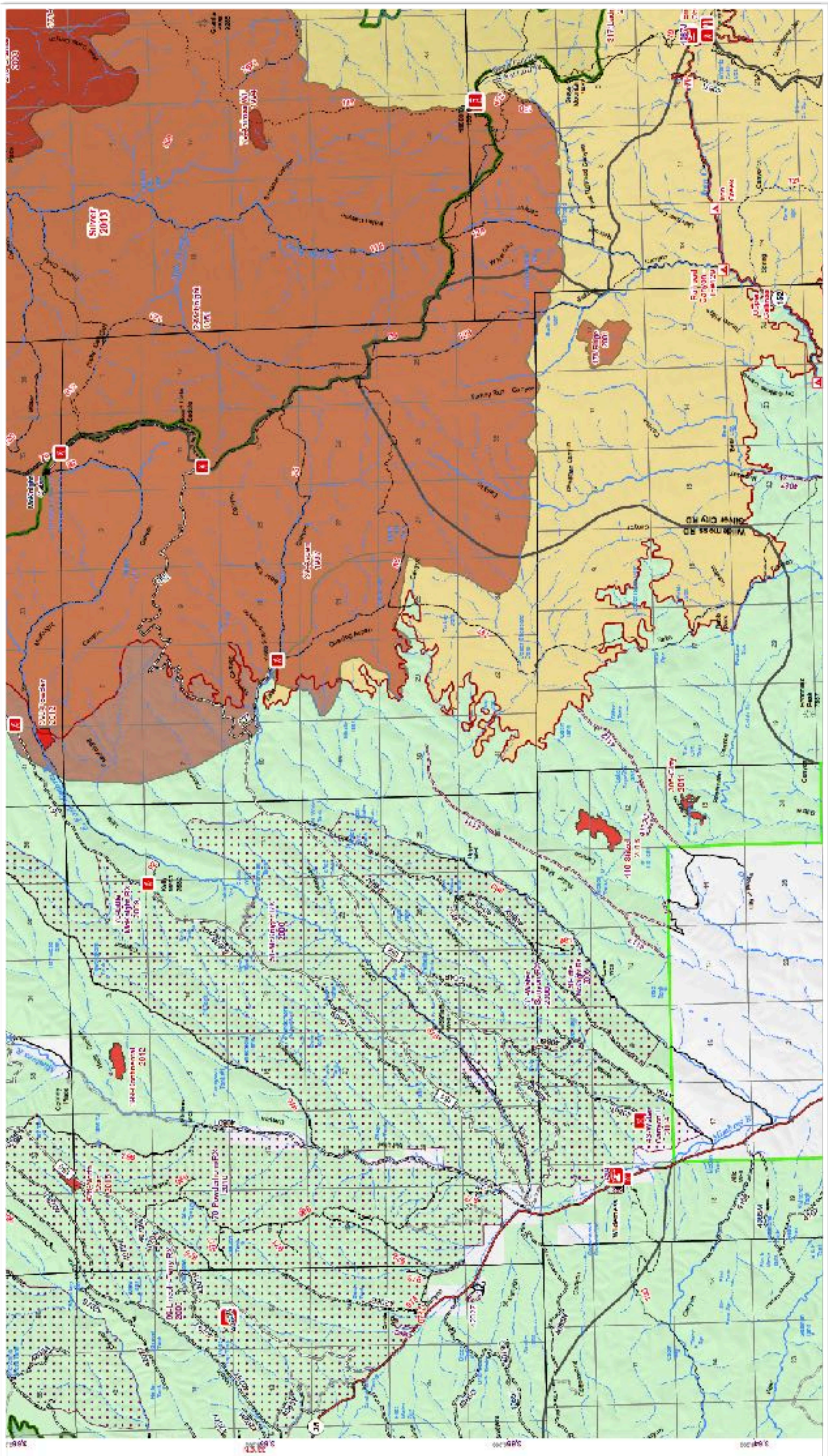


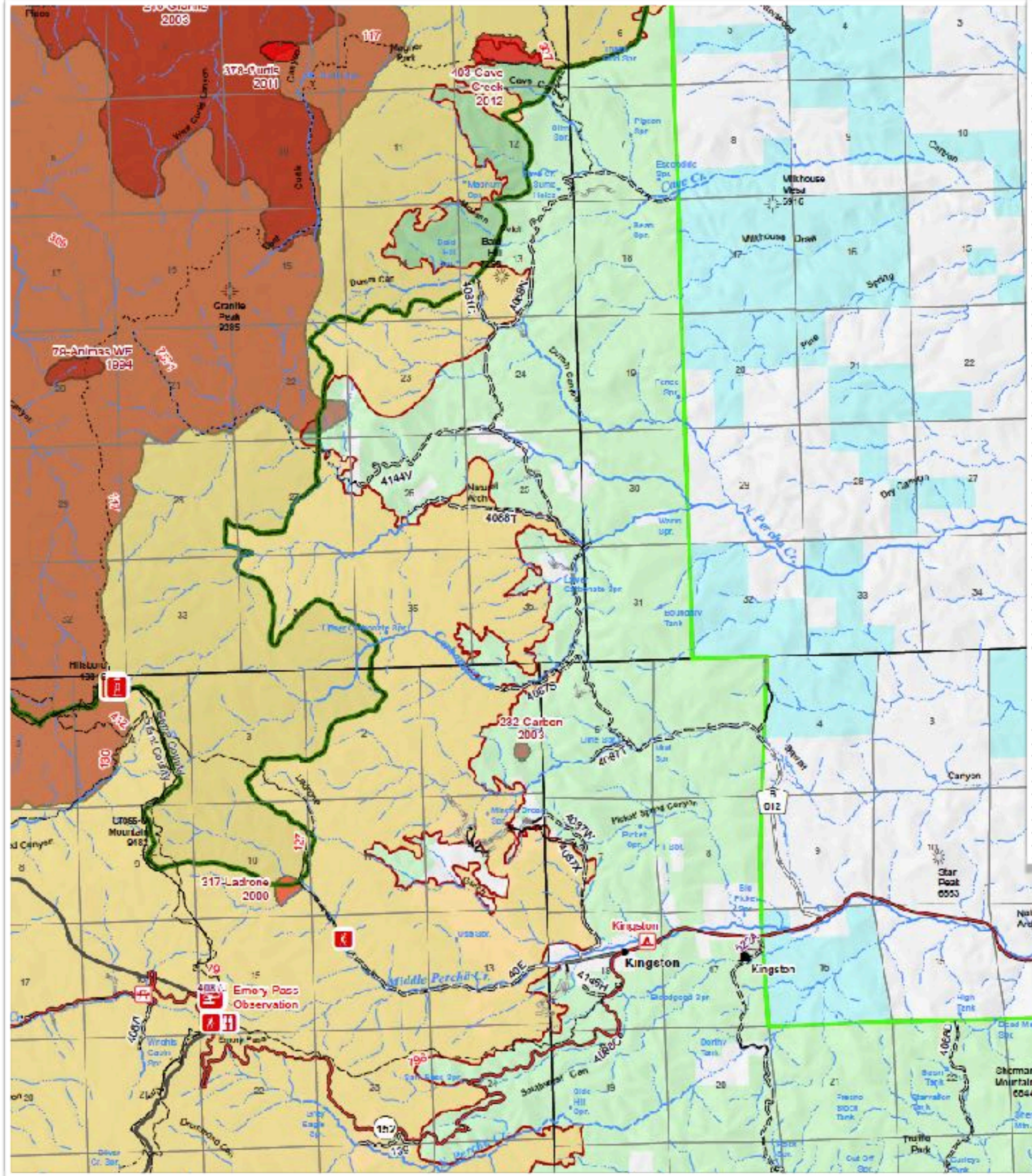
Spatially Recorded Fires (>Than 10 Acres)
(Wildfire & Wildfire Use Fires)

Year	Map Label No.	Fire Name	Acres	Fire Mgmt. Type
1951	2	McKnight	43,052	Wildfire
1987	39	Aspen	2,348	Wildfire
1989	47	Meason	1,048	Wildfire
1991	53	Georgetown	515	Wildfire
1994	79	Animas WF	50	Wildfire
1994	86	Willow	24	Wildfire
1994	88	Pigeon	5,194	Wildfire
1996	102	Bonner	20,415	Wildfire Use
1997	120	Rocky	4,193	Wildfire Use
2001	176	Ridge	131	Wildfire Use
2003	206	Seco	5,388	Wildfire Use
2003	207	Heffner	35	Wildfire
2003	215	Marshall	113	Wildfire
2003	216	Granite	3,277	Wildfire Use
2003	232	Carbon	10	Wildfire
2003	234	Slick	60	Wildfire
2003	239	Monument	30	Wildfire
2007	289	Luna	1,050	Wildfire Use
2007	292	Lake	311	Wildfire Use
2007	293	Granite	1,918	Wildfire Use
2007	294	Aspen	507	Wildfire Use
2008	301	Rocky	25	Wildfire
2008	304	Kneeling Nun	88	Wildfire
2009	316	Georgetown	72	Wildfire
2009	317	Ladrone	25	Wildfire
2009	321	Meason	6,902	Wildfire Use
2009	335	Cougar	240	Wildfire Use
2009	340	Thompson	29	Wildfire Use
2009	346	Park	307	Wildfire Use
2010	352	Aspen	3,355	Wildfire Use
2010	354	Monument	17	Wildfire
2011	362	Diamond Bar	200	Wildfire
2011	378	Curtis	29	Wildfire
2011	386	Gilroy	26	Wildfire
2011	388	Aldo	50	Wildfire
2012	394	Rocky	54	Wildfire
2012	398	Powder	26	Wildfire
2012	399	Continental	39	Wildfire
2012	403	Cave Creek	73	Wildfire
2012	405	Tierra Blanca	87	Wildfire
2013	411	Silver	138,705	Wildfire
2016	426	North Star	24	Wildfire
2016	446	Sheel	73	Wildfire
2010	451	Timber	2,800	Wildfire Use

Spatially Recorded Prescribed Fires
(>Than 10 Acres)

Year	Map Label No.	Fire Name	Acres	Fire Mgmt. Type
1000	27	Hermosa	6,472	Prescribed Fire
2000	31	Water Canyon RX	2,407	Prescribed Fire
2003	40	Lincoln-Terry RX	2,023	Prescribed Fire
2004	43	Water Canyon II	1,626	Prescribed Fire
2006	50	Little McKnight RX	1,989	Prescribed Fire
2006	51	McKnight RX	2,080	Prescribed Fire
2009	69	Lincoln-Terry RX	2,620	Prescribed Fire
2009	70	Little McKnight RX	5,115	Prescribed Fire
2010	76	Powderhorn RX	6,208	Prescribed Fire
2015	85	Meekins RX	429	Prescribed Fire


Silver
2013
Silver City RD
Wilderness RD



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2010	352	Aspen	3,355	Wildfire Use
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2011	362	Diamond Bar	200	Wildfire
2011	378	Curtis	29	Wildfire
2011	386	Girty	26	Wildfire
2011	388	Aldo	50	Wildfire
2012	394	Rooky	64	Wildfire
2012	398	Powder	26	Wildfire
2012	399	Continental	39	Wildfire
2012	403	Cave Creek	73	Wildfire
2012	405	Tierra Blanca	87	Wildfire
2013	411	Silver	138,705	Wildfire
2013	426	North Star	24	Wildfire
2013	446	Stitzel	73	Wildfire
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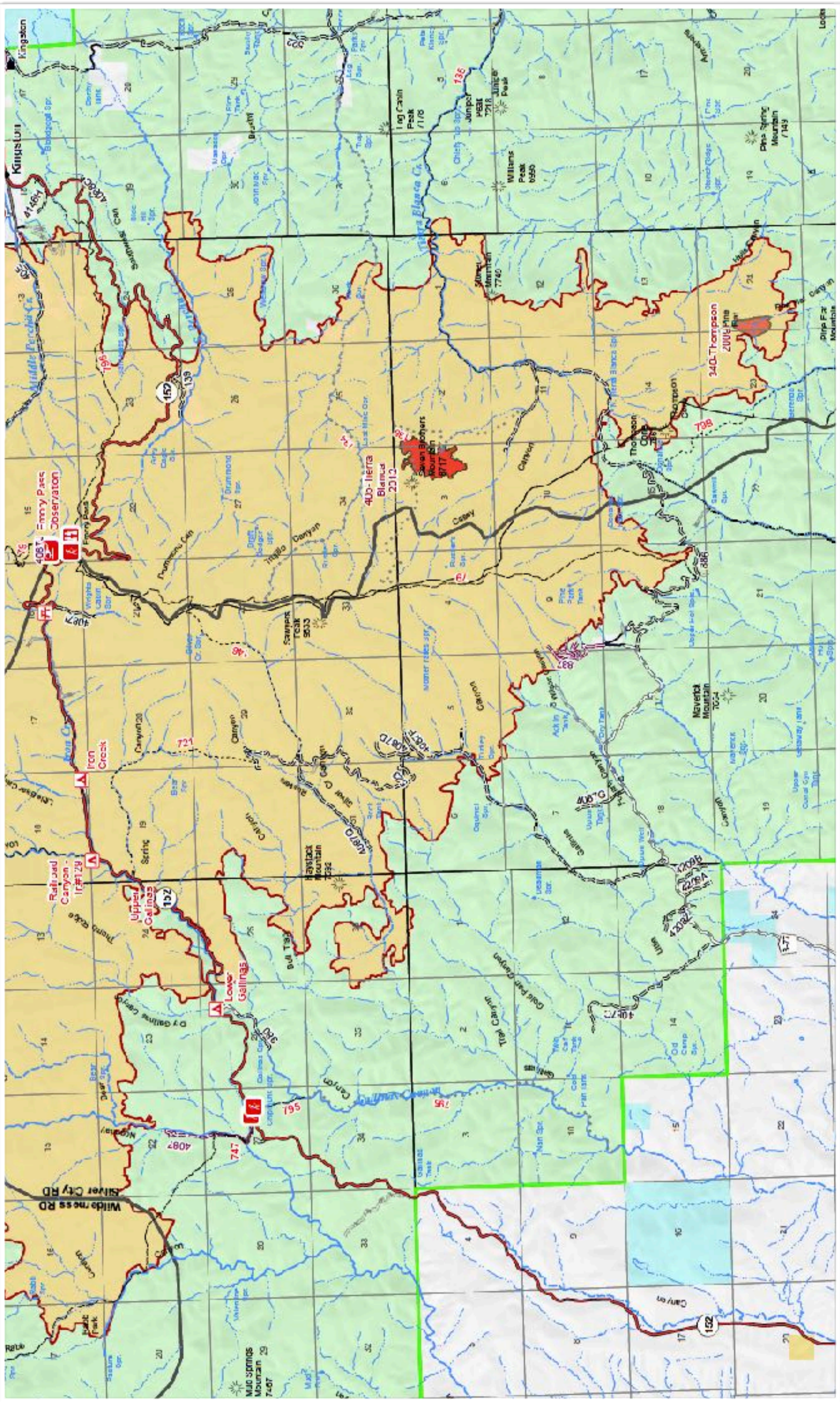
2004	43	Water Canyon II	1,526	Prescribec Fire
2006	50	Little McKnight RX	1,989	Prescribec Fire
2006	51	McKnight RX	2,680	Prescribec Fire
2009	69	Lincoln-Terry RX	2,628	Prescribec Fire
2009	70	Little McKnight RX	5,115	Prescribec Fire
2010	76	Powderhorn RX	6,208	Prescribec Fire
2015	95	Meekins RX	429	Prescribec Fire



Kingston
Emory Pass Observation
Iron Creek
Railroad Canyon - Tr#129
Upper Gallinas
Lower Gallinas
405-Tierra Blanca 2012
340-Thompson 2009
Seven Brothers Mountain 8717
Sawyers Peak 9533
Haystack Mountain
Maverick Mountain
Williams Peak
Juniper Peak
Pine Spring Mountain
Mule Springs Mountain
Thompson Cone
Silver City RD
Wilderness RD
Middle Percha Cr.
Tierra Blanca Cr.
Gallinas Canyon
Dry Gallinas Canyon
Trujillo Canyon
Casey
152

The A-Spear Hummingbirds

by Ned & Gigi Batchelder

A-Spear Ranch is a seasonal sanctuary for hundreds of hummingbirds each year. From mid March to mid July, 279 individual hummingbirds of five species were banded on the Ranch in the eastern foothills of the Black Range. Many more hummers were present, and observed during the 10 banding sessions, as the banding process only represents a sliver, or indication of the many local breeders/nesters, migrants, and vagrants attracted to the Ranch's maintained sugar water feeders and richly diverse habitat.

An abundance of the Black-chinned species, (Archilochus alexandri) , were confirmed breeders/ nesters at A-Spear. The immense breeding range for this species spreads over the entire western U.S. from Arizona to BC, Canada. In the spring, some of the Black-chinned species banded at the Ranch would be continuing on further north to destinations which they utilized from their past or particular breeding territory. The first gravid female Black-chinned (or found with egg) at the Ranch was confirmed during mid April. (From our banding records, individual hummers previously banded by us often return to their ancestral grounds to breed/nest.) So perhaps, this particular female was hatched on the ranch or had nesting history there. At least 50 individual females were noted with a visual egg membrane, providing local nesting evidence. Observations of plant down or spider webbing noted on the hummingbird's wings, tail or bill between April and early July also indicates nesting behavior. (Spider silk is used as the binding agent to hold the hummer's nest together.) June 7 was the date of the first immature hummingbird banded and documented on the Ranch. There were a total of 13 individual Black-chinned hummers recaptured (or previously banded by us) both male and female, which indicated a healthy resident or local breeding population. It is believed that Black-chinned hummingbirds produce at least 2 nesting broods per season. A sum of 219 Black-chinned were banded at A-Spear in 2018.

Black-chinned Hummingbird photo by Eugene Beckes

Broad-tailed, (Selasphorus platycercus) normally found breeding above 5000 ft elevation in the western US, were observed in small numbers during the breeding/nesting season on the Ranch, but we were not fortunate enough to confirm a gravid female Broad-tailed in hand. As banders, (with the bird in hand), we confirm gravid female hummingbirds with a visual observation of the egg shell membrane which can be easily seen through the swelling abdominal skin, and coinciding with an elevated weight. A total of 9 Broad-tailed hummers of male and female were banded at A-Spear.

The petite Calliope, (Selasphorus calliope), dotted the wave of the southern migration movement through the Black Range along with the fiery Rufous, (Selasphorus rufus) who were numerous during June, July, and August. These two northwestern breeders are always a joy to hummingbird enthusiasts at the feeders, arriving in late July. In the spring, the northern route for these two species moves more along the western coast where abundant spring flowers and insect hatches are found at that time of year. This eliptically shaped migrational route continues following nesting in its pattern southward, much along the Rocky Mountain corridor. The various elevation habitats provide crucially staged blooming wildflowers and insect hatches perfect for the exploring younger southern migrating hummer species in the west. On the Ranch, 21 Calliope and 29 Rufous were banded.

Bird banding is a numbers game, but sometimes we banders get lucky to reencounter a previously banded bird from

another region, (or not banded by us), and are subsequently able to share information gained including longevity and/or migrational routes, including an average of miles traveled per day between encounter points. No luck yet with a foreign recapture on the Ranch. We hope also that one of our banded birds will be recaptured by other banders in the future elsewhere.

Unusual hummingbird events at A-Spear Ranch in 2018:

Early in the season during mid March, J.R., the Ranch manager, reported to us an adult male Rufous (Selasphourus rufus).

After banding and releasing him, it seemed this bird was out of range for this time of year since the normal northern migrational route during spring for this species is along the west coast. Perhaps this Rufous spent the winter months in the Gulf Coastal states area and was heading westward. During the last twenty years during the winter months, hummingbird banders have confirmed, by banding, many Rufous and other western hummer species spending colder seasons in the Gulf Coast areas. This suggests that not all western hummingbirds spend the winter months in central Mexico. Maybe now this banded bird will tell us more, if we're lucky. A Rufous-like hummingbird seen during winter months also alerts us to a possible wandering Allen's species from the west coast.

Broad-tailed Hummingbirds are known to breed above 5,000 feet in the western mountains of the United States. Photo by Shawn Stewart

Calliope Hummingbird photo by Eugene Beckes

On April 1st (and no fooling), a beautiful adult female Broad-billed (Cynanthus latirostris), which we banded the next day, was observed on a feeder by J.R. as he looked out the kitchen window. These vagrant beauties displaying a blue tail and the unusual reddish bill, delight hummingbird enthusiasts when they frequent yards most often in the southwestern U.S. Oftentimes these events occur for a few days to several months in the winter and early spring time. In fact this species has been confirmed in 19 of the 33 counties of New Mexico.

This year began the first banding for any hummingbird in Sierra county. It was thrilling to put the A-Spear Ranch on the map for banded hummmingbirds in New Mexico. There are thirteen other counties in New Mexico that have never had any hummingbirds banded.

Seventeen (17) hummingbird species have been confirmed in the state of New Mexico, and 8 of those are considered rare. Of those 17, fourteen hummer species have been actually banded by hummingbird banders since 1960.

The A-Spear Ranch is one of several carefully selected banding locations for our study in the south central area of New Mexico. Totals hummingbirds banded during our 2018 study surpasses 3,300 individuals of 7 species including the unusual Lucifer and Ruby-throated.

All data is submitted annually, as required, to the North American Bird Banding Laboratory (USGS) in Laurel, Maryland, and to the New Mexico Department of Game and Fish.

To those of you who like statistics:

- **There are about 320 hummingbird species in the world, and close to 75% of those reside near the equator.**
- **Hummingbirds are found only in the Americas.**
- **About 60 species live in Mexico.**
- **According to the North American Banding Laboratory, there have been 17,138 hummingbirds banded in the state of New Mexico during the years from 1960 – 2017.**
- **Specifically, in 2017, a total of 380 hummingbirds were banded/recorded in the state of New Mexico.**
- **During the last several years an average of around 35,000 hummingbirds have been banded annually in the US and Canada.**
- **Hummingbird banding began in 1955.**
- **Other bird banding in the US was organized during the early 1900's. The Banding Laboratory also reports about 1.2 million bird species (all birds) are banded each year in the US and Canada.**
- **In the world, there are close to 10,000 species of birds. North America has over 900. The state of New Mexico has verified about 543. But the hummingbirds seem to be very special to many of us.**

Photo of Broad-billed Hummingbird by Richard Castetter

Photo of Rufous Hummingbird by Eugene Beckes.

Aldo Leopold

by Stephen Siegfried

The wilderness has a way of giving you what you've come for, although you may not know the particulars. This day they are the rosy arc of a trout coming out of the water to snatch an airborne fly, and a bird that looks too heavy to fly launching itself in noisy flight across the river.

Sometimes, after she has already given you what you need, she has something extra, as if there is a chance you won't come back without one last snapshot to carry in the album of your mind's eye until next time.

Three days in the Gila Wilderness has passed quickly, and when the sun dropped below the canyon rim, it was the sign for me to get on the trail if I was to make it back to the trailhead before dark. The night before, after a supper of fried trout, beans, bacon and skillet bread, I sipped coffee, stared into the fire, and resolved not to wait so long between trips.

It was a little less than three miles to the trailhead, but once I climbed out of the canyon, there would be at least an hour of daylight left. The trail followed the contour of a ridge before crossing the flat of a wooded mesa. I was on the flat stretch and walking at a good clip when I rounded a turn in the trail and found myself in the midst of an elk herd.

The trail intercepted the narrows of a hourglass-shaped meadow, and the elk were on either side of the trail, with me in between. I don't know who was more surprised. For a frozen moment that was a fraction of a second, I stood still, then tried to look in all directions at once as elk crashed into the woods all around me. I was close enough to hear their hooves sucking the mud from the marsh as they ran.

When a trip into the wilderness turns out to be blessed, I'm never quite sure whether to thank God or Aldo Leopold. The Congress in 1964 recognized wilderness "as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain."

A quarter of a century is a milestone, but the idea of wilderness preservation didn't begin in Congress. (Ed. - Now more than half a century.) It began more than a half century earlier, when an idealistic, enthusiastic young forester named Aldo Leopold came to the Southwest for the first time and saw a landscape so wild and beautiful that he set out to see if there wasn't a way to preserve a part of it just the way it was.

Born on Jan. 11, 1887, near the banks of the Mississippi River in Burlington, Iowa, young Leopold began his study of nature under the tutelage of his father. He spent his days afield, along the riverbank and bottomland of the great river, keeping a journal of what he saw. When President Theodore Roosevelt was campaigning for the need to conserve public lands, Leopold was a student at the nation's first graduate school in forestry at Yale University. Upon his graduation, in June 1909, he took a job with the fledgling U.S. Forest Service and was assigned to the New Mexico and Arizona territories.

The upper Gila had a scattering of ranches and a history of resisting civilization. In past millennia, peoples had come into (and gone from) southwestern New Mexico's Mogollon Mountains, leaving traces for archaeologists to speculate over. Early ruins of pit houses that date from A.D. 100-400 were built by the Mogollon culture. Centuries later, about A. D. 1000, cliff dwellers built their homes in natural caves, staying until the early 1300s when, suddenly and mysteriously, they disappeared. If there lies an explanation of their fate, in cliff dwellings, pictographs, artifacts and other remnants of a lost civilization, no one has been able to say with certainty. Before 1541, when Coronado passed through the region, looking for the lost cities of Cibola, the Gila was Apache country. Roving bands of hunters and food gatherers, initially peaceful, began raiding outlying ranches and settlements by the 1600s, escaping to their mountain strongholds with stolen stock, plunder and an occasional captive. James O. Patie and his father, Sylvester, trapped beaver in the upper Gila in the 1820s, but were raided

by Apaches, lost their horses, and luckily escaped with their lives. The Apache protectorate in the Gila ended with the surrender of Geronimo in 1886.

James O. Patie and his father, Sylvester, trapped beaver in the upper Gila in the 1820s, but were raided by Apaches, lost their horses, and luckily escaped with their lives. The Apache protectorate in the Gila ended with the surrender of Geronimo in 1886.

Settlement and prospecting then increased substantially, but still the Gila seemed at odds with anything civilized. Gold strikes were made, then played out or lost. Roads and bridges were built, often to wash out with the spring melt.

Ranches had to contend with grizzlies, wolves and mountain lions, along with the elements. Given enough time, of course, man and machine would have prevailed; the Gila would have been civilized and made to pay in water, timber and minerals.

Conservationists had long been pleading for the preservation of public lands. There were national parks and forests, but Aldo Leopold had something else in mind, and the Gila, he believed, was the place for it to happen. After sharing his thoughts with friends and colleagues, he went public with his idea of preserving land as wilderness, first soliciting public support in speeches at sportsmen's clubs, then attracting national interest with an article in the *Journal of Forestry* entitled "The Wilderness and Its Place in the Forest Recreation Plan."

Below Hillsboro Peak by Bob Barnes

The 1921 article offered an eloquent argument for the need to set aside "a continuous stretch of country preserved in its natural state. . . . The only new thing about the premise in this case is the proposition that inasmuch as we have plenty of room and plenty of time, it is our duty to vary our recreational development policy, in some places, to meet the needs and desires of the minority also. The majority undoubtedly want all the automobile roads, summer hotels, graded trails, and other modern conveniences that we can give them. It is already decided, and wisely, that they shall have these things as rapidly as brains and money can provide them. But a very substantial minority, I think, want just the opposite."

For the place to put the proposal into effect, Leopold suggested the country around the headwaters of the Gila River, calling it "about as interesting, from a large number of angles, as any place on the continent." In 1922 he submitted a plan and recommendation that part of the Gila National Forest be set aside as wilderness. Two years later, on June 3, 1924, approval was given for 750,000 acres there to be designated as the nation's first wilderness area. That has since been administratively separated into the Gila Wilderness to the west and, fittingly, the Aldo Leopold Wilderness to the east. Today there are 474 areas preserved as wilderness in the U.S.; 24 of them in New Mexico.

Leopold realized there would always be people who needed wild country in their lives. He knew there exists in the spirit of some of us a need to see high mountain meadows, or the dying embers of a campfire, or an eagle soaring over the rimrock. In a world that was fast becoming plowed and paved, Leopold understood that people needed a refuge from civilization and a technology that seemed to be getting more than a little out of control.

Leopold left the Forest Service in 1928 to study wildlife and write *Game Management*, a conservation classic that refuses to become outdated. Later he was chairman of the game management department at the University of Wisconsin. As an educator, he believed his purpose was "to teach the student to see the land, to understand what he sees, and to enjoy what he understands."

A *Sand County Almanac*, a collection of his essays and his best-known book, makes it clear that wilderness preservation was part of a grand scheme. In the book's final essay he reduces all of ecological science to its bottom line, an outlook or attitude he called "the land ethic," or a way to view the land with admiration. The land ethic places value on land based not on economics, but "in the philosophical sense."

Working to protect the land to the very end, Leopold died of a heart attack in 1948, helping a neighbor fight a grass fire.

My early morning drive is peaceful, the sunrise just beginning to show behind the blue scarp of the Mogollons, outlining the mountains in silver and gold. I notice my grip on the wheel is

light unlike the afternoon a few days before when I was headed in the other direction. Two cow elk look up, then run off as I drive by.

Twelve miles south of Glenwood I pull off the road at Leopold Vista to take a look at the mountains. There was a monument to Leopold at the observation point, a brass plaque set into a boulder of red granite. Several holes through the plaque appear to have been made by rounds from a high-powered rifle.

At 9,975 feet, Sacaton Belay is the highest peak in the Leopold Vista, its summit looking out over nearly 3.5 million acres of national forest and wilderness. If a man can be seen through his work, Leopold is there, looking out across the land.

A man's ideas can't be killed by shooting his monument. Leopold believed that land should be managed by the creative use of the same tools that had "heretofore destroyed it - axe, plow, cow, fire and gun." There is nothing creative in shooting a brass plaque. The bullet holes should serve to remind us to keep his vigil, that his legacy is something we will need to hold onto if we are to preserve wilderness for the refuge it provides wild things and human spirits.

Steve Siegfried first published this article in the September-October 1989 issue of *New Mexico Wildlife*. It is, perhaps, even more pertinent today than then. The images shown in this article version are not the same as in the original publication because of copyright issues.

BUGS

I can hear the cries of anguish - "bugs"! What kind of "real natural history" is bugs? The Black Range website lumps non-butterfly/moth insects and arthropods together in a photo gallery entitled "Bugs". Just as a matter of convenience, until there are enough arthropod species to justify their own gallery. That said, the photo gallery includes 232 photographs of 78 species. The photographs have been contributed by Matilde Holzwarth and Bob Barnes.

You can help grow this resource in three ways:

- Submit your own photographs and species "write-ups" for inclusion on the site (you will retain all copyright to your material);
- Submit information about location and time of year where additional species can be studied to bob@birdtrips.org; and
- Review the galleries and report errors.

The *Triops longicaudatus* shown above is one of those "outliers". It was photographed in a stock pond east of Hillsboro, New Mexico.

Another chance to make history?

In June 1983, Dr. Norman R. Pace (and others) extracted "a 1-kg sample of mud from the bottom of the copper leaching pond (56 finger, south side dump, Chino mine, Kennecott Copper Corp., Hurley, N.Mex.)". They were in search of microbes from extreme environments. Environments which were extremely hot, subject to intense pressure, or extremely toxic.

In this effort, the research group was able to gather samples from a hydrothermal vent thousands of feet deep in the Pacific Ocean, hot springs in Yellowstone, and the Chino sample.

Samples Chino 1 and Chino 2 were key parts of the research effort which later became known as metagenomics. Findings from this effort were described in the Journal of Bacteriology in July 1985 (Phylogenetic Analysis of the Genera Thiobacillus and Thiiomicrospira by 5S rRNA Sequences).

Leaching ponds, like those found at copper mines, are extremely toxic environments. It is to be expected that exotic life forms would exist in such environments. The study of those exotic forms, like those discussed in the article referenced above, has had a significant impact on our understanding of life forms and evolution.

The possibility that additional toxic environments will be created by the proposed Copper Flat Copper Mine, the likelihood that exotic life forms will thrive in such environments, and that all of this will present a rich field of study gives cause to believe that the Black Range will again be mentioned in studies of extreme & toxic environments.

Ready for Winter?

by Nichole Trushell

Like animals, plants have a wide variety of strategies to prepare for winter. Shortening day-length triggers hormone and cellular changes in them. Signs of dormancy, such as fall color and leaf drop in our deciduous cottonwoods, ash, walnut, gambel oak, maples and three-leaf sumacs, are obvious and lovely. But did you ever wonder how evergreens survive during winter with green leaves intact?

Fall color on the deciduous leaves of Three Leaf Sumac, *Rhus trilobata* - *Photo by Nichole Trushell*

Conifers, the "cone-bearers," have leaves that are narrow needles or some, like the Juniper, have tiny scale leaves. We see them as evergreen, but they actually lose and replace leaves slowly throughout the year. Remarkably, these plants do not go fully dormant; they can photosynthesize during all seasons.

Evergreen scale-like leaves and fleshy cones of Alligator Juniper, Juniperus deppeana - Photo by Nichole Trushell

Photosynthesis in winter is a risk – it requires water. Because conifers are evergreen, they face damage to cells as water freezes, and they must resolve dealing with continuing water movement through their vascular systems in cold winter months. The strategies are elegant; I will share some here.

With their small but numerous evergreen leaves, conifers have an enormous surface area; collectively these bring in a lot of sunlight, even in winter. The leaves have a waxy coating of cutin which acts as insulation to both water loss during dry periods and to cold, and they have the ability to close their stomates (leaf pores) tightly to further reduce water loss during inclement weather. Unlike animals, plants also have sturdy cell walls that prevent rupture when ice crystals form inside the cells, and in the case of conifers, their thickened life-giving fluid, the sap, has reduced water content and does not freeze easily.

The antifreeze-like sap, and the waxy coating on the needles help, but in extremes, the water in the ground and in the plant may freeze. Water movement in plants is passive and relies primarily on the function of evaporation, the cohesion and adhesion of water molecules, and on osmotic pressure differences.

Water moves from soil spaces into the root hairs by osmotic pressure (molecules moving from an area of higher concentration in the soil to an area of lower concentration in the plant). It then flows upward through the plant's xylem vessels by capillary action. Evaporation from leaves drives the upward movement of the water columns. This movement is called transpiration. Water is used for different purposes – most importantly for photosynthesis. None of this process works if water is frozen, and if the water column is broken by freezing, movement of water ceases. The expansion of freezing water can also damage cells.

Plants have evolved a variety of adaptations to solve some of this. Some choose dormancy and drop their leaves as freezing weather approaches. Conifers have tiny "check valves" to keep water flow available within the water transport tubes, the xylem vessels. As ice forms and expands, the pressure within the water column increases and a "float" seals the ends of each elongated tracheid cell that makes up the tube. When the ice crystals melt, pressure returns to normal, and the water column is restored to flow without breaking.

So, on a chilly winter hike, stop by a conifer. Feel the waxy cuticle on a pine needle, find a tiny individual scale leaf on a juniper, notice how many leaves there truly are. If it is not too cold, think about how its systems are allowing photosynthesis to continue. Remember all the elegant strategies it takes to stay winter-green!

Horned Lizards of the Black Range

by Randall Gray

There are 13 species of Horned Lizards (often called Horned Toads) distributed from Mexico north to Canada. Eight of those species are found in the United States with another five species only found in Mexico. Many of us have fond childhood memories of Horned Lizards. Once they were more common and often found in the pet trade. However, their numbers have declined due to human impacts on the landscape, and therefore laws have been enacted to conserve them.

Texas Horned Lizard, *Phrynosoma cornutum*. Photo by Randall Gray.

In the Black Range we have three species of horned lizards. The most common in the lowland is the Texas Horned Lizard (Phrynosoma cornutum). They are often seen in May basking on our highways. Unfortunately some get ran over by unaware motorists. As you move up in elevation a little you begin to find more of the smaller Roundtail Horned Lizards (Phrynosoma modestum) in rocky open areas. A little bit higher in elevation and into the conifer forests you find Short-horned Lizards (Phrynosoma hermandesi).

Roundtail Horned Lizard, *Phrynosoma modestum*. Photo by Randall Gray.

Their flat bodies and colors make them difficult to see since they can blend in with the ground cover. In fact, the Roundtail Horned Lizard looks a lot like a rock, and you usually do not spot them until they move. Their body shape also allows them to capture rain on their skin and then channel it to their mouth. Sometimes during light rain you can find them with their heads tipped down to allow the water to run towards the mouth. When approached they may puff up hoping to make some predators avoid them because they look too big. However the most interesting defense mechanism is that they can squirt blood from their eye which works really well on dogs and their native predator coyotes.

Most, if not all, horned lizards eat ants. You can sometimes find them close to an ant mound waiting for ants to walk by so they can flick out their tongues and grab a meal. However, they also eat lots of other kinds of insects.

When temperatures drop in the fall Horned Lizards go into hibernation. Prior to that they put on fat reserves to get them through the winter and allow the production of eggs in the spring. Once the female's eggs are well developed she searches for a nest site, often digging several test sites until she finds the place with the right temperature, humidity and drainage. Site selection is critical to ensure the greatest survival of the eggs; thus she gives it due consideration. She will dig a tunnel a little ways down and then excavate a 6-inch chamber underground and lay a clutch of eggs. Texas Horned Lizards can lay up to 40 plus eggs but usually average around 30. Not all hatch, but those that do can be found scurrying about in the fall.

The Short-horned Lizard occurs at higher elevations where temperatures are lower and the season is shorter. They have adapted to these less desirable conditions by the female keeping the eggs inside of her for 2 to 3 months. Each day she will bask in the sun to warm the eggs to the temperature needed for incubation. When the time comes she gives "live" birth.

Greater Short-horned Lizard, *Phrynosoma hernandesi*, Photo courtesy of Wikipedia (Ninety99nineTK)

Horned Lizards are a joy to find on a walk round the Black Range. Enjoy them and appreciate how unique they are. They were here long before us and most likely will be here long after!

A good reference on Horned Lizards is: *Introduction to Horned Lizards of North America* by Wade C. Sherbrooke, 2003, University of California Press.

Nesting Black-chinned Hummingbird

by Bob Barnes

Between July 31 and August 25 of this year I recorded the nesting behavior of a Black-chinned Hummingbird in Hillsboro, New Mexico. The output of this effort is three videos which may be viewed at the following links: Black-chinned Hummingbird (Nesting) very short (about 2 minutes); short about 20 minutes; and long about 2 hours and 15 minutes. The last, especially, will be of interest to researchers and masochists. If you are reading this in hard copy, visit www.blackrange3.org/the-natural-history-of-the/bird-checklist and scroll down to the Black-chinned Hummingbird listing for video links. Framegrabs from the video are shown here.

During the time in which I monitored the activity at the nest, I recorded over 31 hours (31:15:35) of video in 1920 x 1080 HD format (296.02 GB of data). Recordings were made at various times of the day during daylight hours. As a result, the videos and the information found below do not reflect nocturnal activity at all.

As one might expect, the parent (a female in the case of Black-chinneds) was on the nest for longer durations relative to absent periods during incubation, until both eggs had hatched (entries for August 1 & 3). Thereafter, the periods on the nest decreased in duration and the time away from the nest increased. By August 13, time at the nest was limited solely to feeding the young. The times listed below are time on nest/ time absent from nest in minutes and seconds.

This data set is too small for any conclusions to be drawn, other than the "observations" made above.

August 1 - 1:00/*4:05* 11:36/*1:18* 3:57/*1:30*
August 3 - 34:02/*1:24* 21:58/
August 5 - 23:34/*10:02* 7:54/*4:59* 5:24/*11:14*
August 8 - */31:38*
August 10 - 4:53/*13:07* 3:41/*18:29* 2:31/*18:44* :35/*2:11*
1:07/*24:23* :41/*38:06* :34/
August 11 - :58/*6:30* 4:33/*32:49.* :37/*15:59* :31/*11:44*
7:48/*34:16* :32/*20:30* :48/

Beginning on August 13 (note absent 8/12) the parent was at the nest only to feed the young. The following times are the duration between feedings (time away from the nest) shown in the videos:

8/13 - 27:38 28:20 28:31 6:31
8/15 - 7:34 27:02 7:55
8/17 - 13:41 16:54 7:58 11:20
8/18 - 17:16 5:54 25:44
8/19 - 24:00 5:29 23:16 2:40 29:47
8/20 - 27:29 13:18 26:00
8/21 - 9:46 12:08 14:31 22:32 4:25 9:32
8/22 - 23:40 21:50. 3:56
8/24 (a.m.) - 10:18 20:09 5:53 17:32 4:59
8/24 (p.m.) - 5:48 16:01 7:49 13:15 11:19 3:44 8:29 39:09 11:04 5:14
8/25 (one bird has fledged - leaving one) 1:34 6:27 4:23 5:19 19:52 19:57 9:25 8:56 10:05 18:40 11:06 14:02 4:13 31:49 22:12

Trailcams, Citizen Science and the Black Range Region

by J. R. Absher

It's safe to say many experienced Black Range-area naturalists, biologists, academics and long-in-the-tooth seasoned residents of the region can often react with astonishment when first introduced to the A-Spear Ranch, located about equidistant between Truth or Consequences and the Black Range.

Straddling a narrow portion of Las Palomas canyon before expanding into a wider, agricultural valley on its way to the Rio Grande, the creek bubbles above ground as a perennial stream for nearly two miles, supporting ancient, twisted cottonwoods, towering Arizona ash, willows and walnuts, along with native chub and sucker fish species and nearly 200 species of birds -- including Willow Flycatcher, Yellow-billed Cuckoo and nesting Common Black Hawk.

The reaction from those first-time visitors as they turn onto the bumpy A-Spear access road after the long dusty trip across miles of creosote and scrub brush when they catch their first glimpse of the lush, green ribbon of classic riparian habitat is usually something akin to: "I had no earthly idea this place existed here!"

A similar reaction upon seeing Las Palomas creek on what is now the A-Spear for the first time was recorded in the memoirs of Gen. William H. Emory, chief cartographer and surveyor who headed the initial expedition to map and explore the Mexican border region and the newly acquired Gadsden Purchase in 1848.

"Below were green trees and luxuriant foliage, the sure indication of water. The stream was clear, limpid, and cool, the first, but one, I had seen since crossing the Alleghanies (sic), where water could be drunk without imbibing a due proportion of mud and sand. Its name - Paloma."

Of course, the namesake of the Black Range's Emory Pass was far from the first to observe the unique characteristics of this section of Palomas Creek, as native Americans enjoyed the water and sustenance provided along the creek bottom for centuries prior, and archaeologists agree the dwellings and artifacts left behind indicate the furthest eastern settlement of the Mimbres people.

A trailcammer's dream shot: Perfect daytime light, and a mother bobcat with an unusual litter of four—all in one photo frame!

A very unusual sight, even with a trail camera, shows three mountain lions in one photo frame. It is sensible to assume these are two young ones with their mother. They appeared on other ranch cameras over about a two-month period. (Detail of originial image.)

Elk cows and calves startled during a sudden summer thunderstorm and downpour.

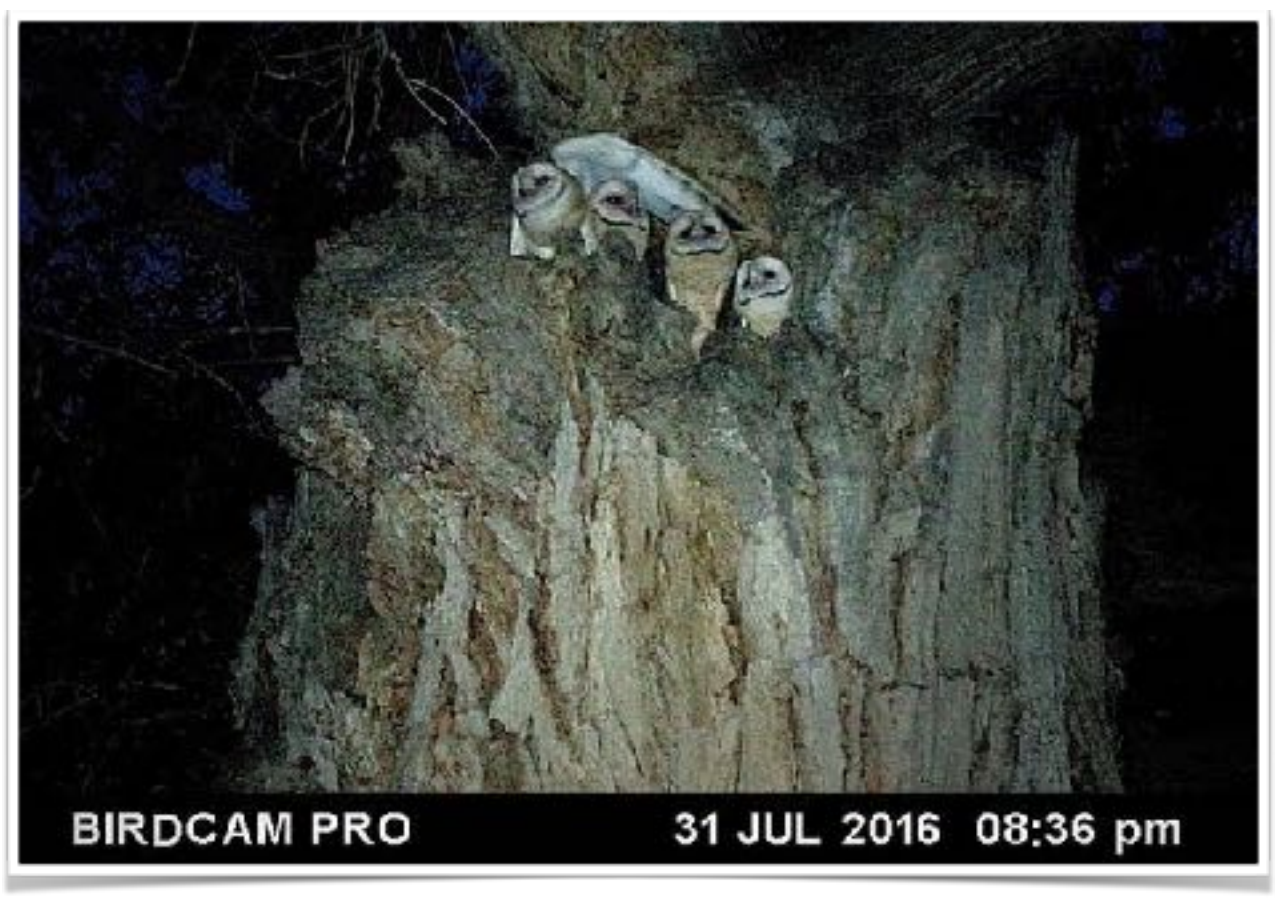
Fast forward to today, when thanks to current private ownership and its conservation practices over the past 20-plus years, this section of lush vegetation, multiple springs and a continually flowing stream probably appears much like it did centuries before.

And with modern photographic technology, its wild inhabitants can be enjoyed and photographically recorded without much interference.

In addition to the native plants, reptiles, insects, fish and birds—the use of today's specialized remote trail cameras provides the opportunity to track and document most of the seasonal and year-round mammal, ungulate and predator activity in this rich and distinctive southwestern habitat. In the four years since serious trailcam use began in earnest on the A-Spear -- with up to 20 units in use at any one time – just about every species native to the region has been recorded and categorized by species, date and location, with thousands of photos currently on file.

Mule and Coues deer, black bear, elk, mountain lion, javelina, bobcat, ring-tailed cat, coatimundi, raccoon, skunk, black-tailed jackrabbits and cottontail and more are regularly photographed, to share with ranch ownership, those in the wildlife community and researchers.

Watch for additional articles in forthcoming editions of The Black Range Naturalist about trailcam placement, tactics, buying tips and suggestions, as well as more interesting and unusual photos from Las Palomas Creek and the A-Spear Ranch!



Barn owls have been photographed in this big ranch cottonwood nest for three consecutive years. One year the nest produced these four youngsters.

Thanks to consistent water and food, it's not unusual to see black bears show up on camera, even at an elevation of around 4,700 feet.

An immature Common black hawk, one of two that fledged on the ranch in 2018.

A mature Common black hawk hunting for one of its preferred targets: large red crayfish. (Originial photo right, detail left.)

It's Not About Species

By Bob Barnes

It is not all about species: we are lucky enough to be able to study several bird subspecies in our area. The groups of Dark-eyed Junco (which we regularly track) are the most notable example. Another example is the White-crowned Sparrow. The common subspecies in our area is Zonotrichia leucophrys gambelii. This sparrow of the west Taiga migrates to our area during the winter. Note the white lores on the bird in the photograph in the left column. (Lores are basically the area between the eye and the bill of a bird.) Lore color is a major distinguishing characteristic between the various subspecies of White-crowns. (There are five.)

Zonotrichia leucophrys oriantha, the sparrow of the interior west of the United States and Canada (photo right column), migrates to Mexico during the winter from its breeding range in the mountains of the interior west. During passage, it is regularly found in our yard in Hillsboro, where both of these photographs were taken.

Intergrades occur between the subspecies of White-crowns where their ranges overlap. Birds that breed in the Taiga show strong clinal differences between the populations of the east and west (light lores to the west and dark to the east). Some birds from the eastern Taiga winter in central Texas, and it is possible that birds from the eastern Taiga, which show dark lores, might be found in this area during winter.

Hummingbirds, Barbed-Wire, and Native Grasses in Art

by Inga McCord

The desert southwest is a magical place filled with amazing and unusual plants and animals. Some of the most fascinating creatures, our tiny hummingbirds, grace our landscape during the spring, summer and fall, feeding abundantly on flowers and bugs that occur in our local high desert and mountainous areas. Some migrate through to points north to breed and some take up temporary residence to raise their broods of baby hummingbirds in our very special part of New Mexico. As a naturalist and an artist I have spent almost 30 years studying the hummers, native grasses, native wildflowers, and barbed-wire of our locale.

The hummingbirds that most commonly inhabit or migrate through our area are the Calliope, the Rufous, the Broad-tailed, and the Black-chinned. The Calliope Hummingbird, the smallest in North America, measures 2 3/4" to 3 1/4" and migrates north in the spring and and south in the fall. The males have a red-striped gorget or throat and are splendid but uncommon. The other migrator is the Rufous hummingbird, with the male having an overall coppery-orange appearance with a reddish orange throat. It measures 3 1/2" to 3 3/4" and migrates north to nest, some as far away as Alaska. Many of the Black-chinned and the Broad-tailed hummingbirds do nest in our area or fly to the north/ northwest to breed. The Black-chinned measures 3 1/2", and the male has a green head with black then purple bands on its throat. The Broad-tailed measures 3 3/4" to 4”, and the male has a green head with a brilliant red throat. Often when the hedgehog cactus blooms in the early spring the male Broad-tailed can be heard "whistling" as it flies. Oddly the female hummingbirds of most species look very much alike, with green heads and white to light gray throats. They are camouflaged to help them survive while nesting and gathering bugs and nectar for their babies.

One Christmas I asked my husband what I should paint for my neighbor, a Montana native, for his present. No flowers for him, so my husband suggested barbed-wire because my neighbor was a barbed-wire artist. After researching different types of barbed-wire commonly used to fence the west, I decided to paint Joseph Glidden's twisted barbed-wire, not the first barbed-wire, but the best. His invention came a few years after President Abraham Lincoln's signing of the Homestead Act of 1862 and it changed the American west forever. "Fence-cutting wars" ensued among farmers, Native Americans, and ranchers, and people even died in the shootouts. Eventually barbed-wire won out and is still used extensively in the west today.

Some years ago while training for leading nature walks at a Nature Conservancy preserve, my initial focus was to learn the native grasses of the desert southwest. While hiking I reinforced my acquired knowledge by observing and gathering specimens of the most commonly occurring grasses. Very soon it occurred to me that I should incorporate grasses with my barbed-wire paintings. It was exciting to learn to paint the different gramma grasses, like Side-oats Gramma, Hairy Gramma, and Blue Gramma. Another predominant grass I am currently learning is Cane Beardgrass which is a grass with an almost white, cotton-like top that smells like freshly-baked blueberry muffins if you rub the top in your fingers.

The journey of any artist never really stops, but I feel very fortunate that I have stumbled into this incorporation of several really different but related things from our natural world and our history. I do not know where this will go next, but I will continue to research, learn and paint hummingbirds, barbed-wire and native grasses for a long time.

Seasonal Bird Species Distribution in Hillsboro (January - June)

by Bob Barnes

Since 2007 we have kept a yard list of the bird species (and a few bird sub-species) which visit our yard in Hillsboro, New Mexico. The lot is 80' x 200'; there are structures in the adjacent lots to the east and west and roads to the north and south. Hillsboro is a small community at 5,250' on the east slope of the Black Range of southwestern New Mexico. The community is a few blocks long, and at the point where we reside there are two unpaved streets to the south with a row of houses between them. Past the most southerly road a desert landscape covers a slope which rises to a mesa. To the north there is a paved street, a row of homes, and then a stream/ wash (Percha Creek). These boundaries are mentioned here because they appear to be quite influential in determining the absence or presence of bird species. There are several species which enter town from the south, for instance, but generally make it no farther than the first row of lots. Gambel's Quail and Greater Roadrunner are within this category.

Although we are fairly studious when we are present, we are not always present so our records do not represent a comprehensive listing of possible sightings. The information we have gathered is presented in two formats here. The first is a summary of activity which is color coded (see next paragraph) but lacks specific detail. The second set of charts has greater granularity. In these charts I have indicated the number of years for which we have records, for the week, in the top row. (Because of the number of records, we have "lumped" data into weeks.) For instance, January 1- 7 is the first data column. Red-winged Blackbird is the first species listed. During the eight years for which we have records for this first week, we have seen the Red-winged Blackbird in only one year, 2013. Entries are made for all years in which we have seen a species, during a particular week.

For the purpose of this article, we have shown relative frequency of sighting through the use of a gray scale. If a cell is shaded with the very lightest shade we have seen that species in fewer than 20% of the years recorded for that week. The next darkest color indicates a frequency of 20 - 49%, the next a frequency of from 50 - 79%, and the darkest shade indicates that we have seen the species in 80% or more of the years for that week.

The color shading is indicative of the likelihood that a species will be present during any particular week. The aggregation of data and the limited data set (in most cases only 8-10 years of data are available) limit the usefulness of the data for some purposes. For instance, if you are interested in whether you will see a species on a particular day you can use these data to determine the likelihood that you will be successful but there are limits to the precision of that prediction.

This study has been interesting to us from several perspectives, not the least of which is how it has enhanced our ability to predict when we might first begin to see species during the year, when we are least likely to see them, etc.

Standard frequency charts generally describe the presence of a particular species (perhaps at a particular time) in broad categories like abundant, common, uncommon, etc. I am particularly interested in determining if there is a reasonable way of presenting more definitive information to possible users. Thus this chart not only presents a general graphic indication of the presence of particular species but it also provides the (aggregated) raw data which allows a user to draw their own conclusions about relative frequency.

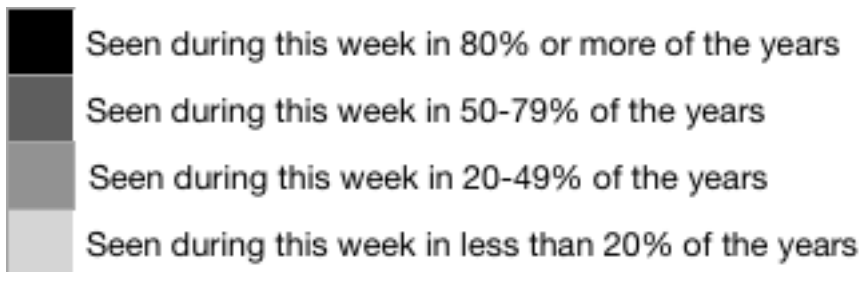
My preliminary conclusions range from the obvious to the curious and from those with interesting implications to those which are mundane. Some are methodological in nature and some are species specific.

The charts highlight the obvious. For instance, Eurasian Collared-Dove, Inca Dove, White-winged Dove, House Finch, Lesser Goldfinch, Dark-eyed Junco (sub-species groups identified in the charts), Pine Siskin, and House Sparrow are almost guaranteed at particular times of the year. Other species, like Curve-billed Thrasher, Ladder-backed Woodpecker, Canyon Towhee, American Robin, and Northern (Red-shafted) Flicker are very likely - but not "guaranteed".

Many people are more interested in the unlikely occurrences. This data describes two sets of species which fit into this category. The first is that group which is likely to be reported again in the future, species like Red-winged Blackbird, Northern Cardinal, American Goldfinch, Lincoln's Sparrow, and Say's Phoebe (during the early period of the year) or some of the mountain species, such as Mountain Chickadee, Brown Creeper, Cassin's Finch, Bridled Titmouse, Juniper Titmouse, Hermit Thrush, and Steller's Jay. The second group are the vagrants, birds like Ovenbird, Common Ground-Dove, Ruddy Ground-Dove, and Harris' Sparrow.

Of the birds which seem to be influenced by micro-environments (present in nearby areas but generally absent from our yard) Western Meadowlark, Gambel's Quail, Black-throated Sparrow, Greater Roadrunner, and Canyon Wren are obvious examples.

It is possible to work these data into all sorts of gyrations leading to many diverse conclusions. Remember, the data set is still small. (Raw data consist of daily observations of roughly 1.5 hours per day aggregated into weekly sets.)

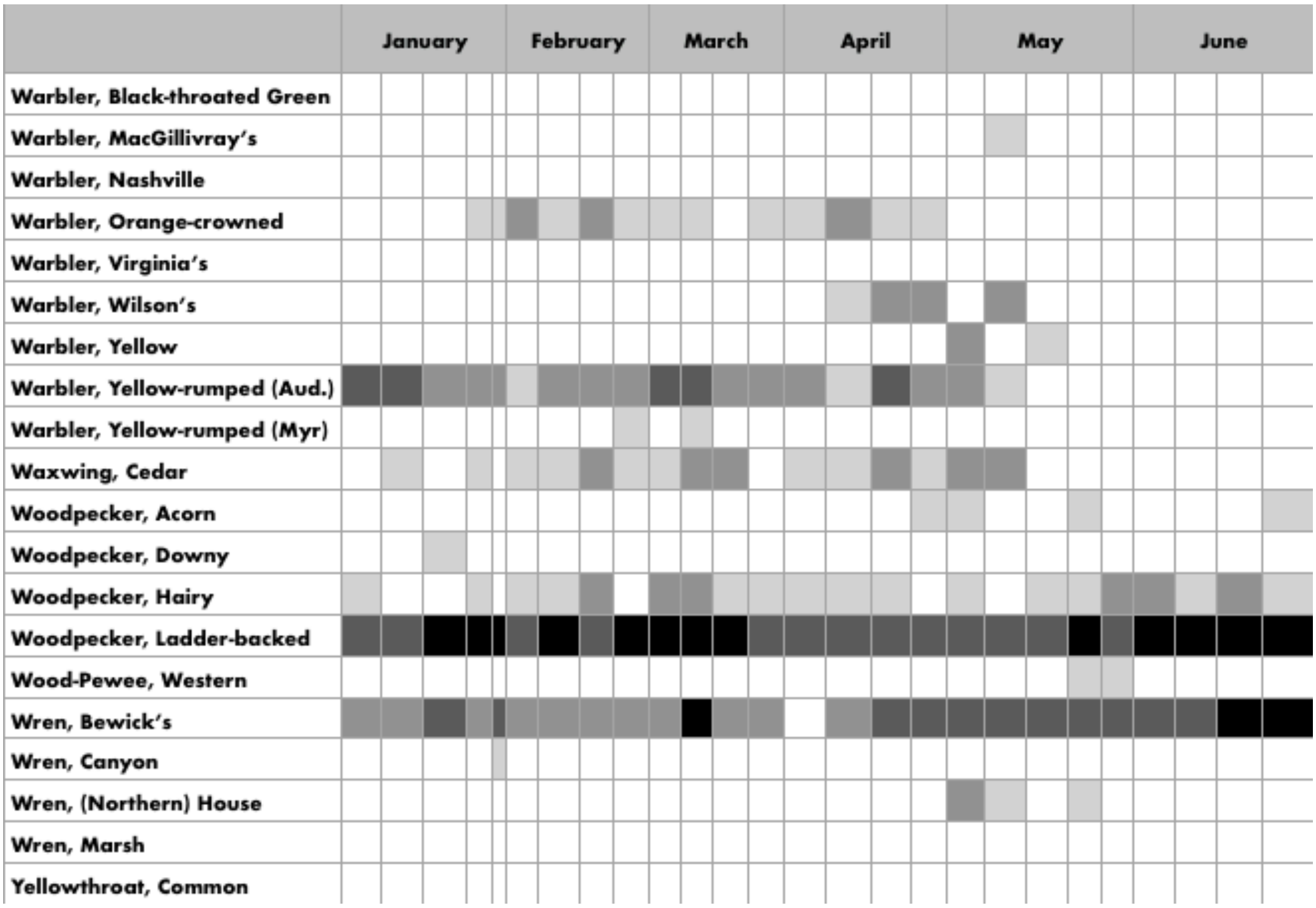


(Narrative continues on page 28.)

	January	February	March	April	May	June
Blackbird, Brewer's						
Blackbird, Red-winged						
Blackbird, Yellow-headed						
Bluebird, Western						
Bunting, Indigo						
Bunting, Lazuli						
Bunting, Lark						
Bunting, Painted						
Cardinal, Northern						
Catbird, Gray						
Chat, Yellow-breasted						
Chickadee, Mountain						
Collared-Dove, Eurasian						
Cowbird, Bronzed						
Cowbird, Brown-headed						
Crane, Sandhill						
Creeper, Brown						
Crossbill, Red						
Crow, American						
Dickcissel						
Dove, Inca						
Dove, Mourning						
Dove, White-winged						
Eagle, Golden						
Falcon, Peregrine						
Falcon, Prairie						
Finch, Cassin's						
Finch, House						
Finch, Purple						
Flicker, Northern (Red-Shafted)						
Flycatcher, Ash-throated						
Flycatcher, Brown-crested						
Flycatcher, Vermillion						
Goldfinch, American						
Goldfinch, Lawrence's						
Goldfinch, Lesser						
Goshawk, Northern						
Grackle, Common						
Grackle, Great-tailed						
Grosbeak, Black-headed						
Grosbeak, Blue						
Grosbeak, Evening						
Grosbeak, Rose-breasted						
Ground-Dove, Common						
Ground-Dove, Ruddy						

	January					February				March				April				May					June			
Harrier, Northern																										
Hawk, Cooper's																										
Hawk, Red-tailed																										
Hawk, Sharp-shinned																										
Hawk, Swainson's																										
Hawk, Zone-tailed																										
Heron, Great Blue																										
Hummingbird, Anna's																										
Hummingbird, Black-chinned																										
Hummingbird, Broad-billed																										
Hummingbird, Broad-tailed																										
Hummingbird, Calliope																										
Hummingbird, Costa's																										
Hummingbird, Rivoli's																										
Hummingbird, Rufous																										
Jay, Steller's																										
Junco, Dark-eyed (GH)																										
Junco, Dark-eyed (PS)																										
Junco, Dark-eyed (O)																										
Junco, Dark-eyed (SC)																										
Junco, Dark-eyed (WW)																										
Kestrel, American																										
Killdeer																										
Kingbird, Cassin's																										
Kingbird, Eastern																										
Kingbird, Western																										
Kinglet, Ruby-crowned																										
Meadowlark, Eastern (Lilian's)																										
Meadowlark, Western																										
Mockingbird, Northern																										
Nighthawk, Common																										
Nuthatch, Red-breasted																										
Nuthatch, White-breasted																										
Oriole, Baltimore																										
Oriole, Bullock's																										
Oriole, Hooded																										
Oriole, Scott's																										
Ovenbird																										
Owl, Great Horned																										
Phainopepla																										
Phoebe, Black																										
Phoebe, Say's																										
Pigeon, Band-tailed																										
Pipit, American																										
Pyrrhuloxia																										
Quail, Gambel's																										

	January	February	March	April	May	June
Raven, Chihuahuan						
Raven, Common						
Redstart, Painted						
Roadrunner, Greater						
Robin, American						
Sapsucker, Red-naped						
Sapsucker, Williamson's						
Scrub-Jay, Woodhouse's						
Shrike, Loggerhead						
Siskin, Pine						
Sparrow, Black-throated						
Sparrow, Cassin's						
Sparrow, Chipping						
Sparrow, Fox						
Sparrow, Harris's						
Sparrow, House						
Sparrow, Lark						
Sparrow, Lincoln's						
Sparrow, Savannah						
Sparrow, Song						
Sparrow, Vesper						
Sparrow, White-crowned						
Sparrow, White-throated						
Starling, European						
Swallow, Barn						
Swallow, Cliff						
Swallow, Northern Rough-winged						
Swallow, Violet-green						
Swift, White-throated						
Tanager, Summer						
Tanager, Summer x Western						
Tanager, Western						
Thrasher, Curve-billed						
Thrush, Hermit						
Thursh, Swainson's						
Titmouse, Bridled						
Titmouse, Juniper						
Towhee, Canyon						
Towhee, Green-tailed						
Towhee, Spotted						
Turtle-Dove, Ringed						
Vireo, Plumbeous						
Vireo, Warbling						
Vulture, Turkey						



Of interest to me is the issue of methodology. The graphic descriptors (light gray for less than 20% etc.) are such that the data tend to sort to the two middle categories, at least when relatively few years of data are available. This will tend to sort somewhat for the light gray category when the 11th year of data is entered (meaning that two yearly entries in a cell can be categorized as "light gray" at that point). This will be both beneficial and detrimental. For many species it will more accurately indicate their frequency. For the "one-off's", like Ovenbird, it will tend to lump them in with the present but less frequent group and obfuscate their true frequency.

Conclusions: The doves (Eurasian Collared, White-winged, and Inca) can be seen at about any time during the first part of the year, as can House Finch. Mourning Doves are likely to be seen, but they have always been more common in the washes around Hillsboro than in our yard.

Cassin's Finch and Northern (Red-shafted) Flicker can best be seen during the shoulder months and during the winter, while the cowbirds (Bronzed and Brown-headed) are more likely to be seen starting in April.

The frequency of Northern Cardinals in this area was discussed in the first issue of this newsletter. This chart documents the frequency of occurrence for that species.

The buntings (Lazuli and Indigo) start to show up in mid-April. The Yellow-breasted Chat is seen in May. Red-headed Blackbirds are seen periodically during the first half of the year and are more frequently seen than are Yellow-headed Blackbirds, which are generally absent during the colder months.

	Jan 1-7	Jan 8-14	Jan 15-21	Jan 22-28	Jan 29-Feb 4	Feb 5-11	Feb 12-18	Feb 19-25	Feb 26-Mar4	Mar 5-11	Mar 12-18	Mar 19-25	Mar 25-Apr 1	Apr 2-8	Apr 9-15	Apr 16-22	Apr 23-29	Apr 30-May 6	May 7-13	May 14-20	May 21-27	May 28-Jun3	Jun 4-10	Jun 11-17	Jun 18-24	Jun 25-Jul 1
No. Of Years	8	9	9	9	9	9	8	9	10	8	8	8	9	8	8	10	10	9	9	9	9	9	8	8	8	8
Blackbird, Brewer's																	18									
Blackbird, Red-winged	12		12	12,13		12	13		12,14	13,14,15, 17,18	11,12,13, 17	12,13,14	12,14	14	13,14	11	13		13,15		9	11,18				
Blackbird, Yellow-headed																18						18				17
Bluebird, Western							15,17	15	16	15	16								9							
Bunting, Indigo																	9,12	9,12	9,11,12	9,11	9,11,12,18	9,11,13	11	11	11	11
Bunting, Lazuli																9,11	9,11,12, 12,15,18	9,11,12,14,15, 18	9,11,12 13,14,15	9,11,12	9,11,12,16	11	11	16		
Cardinal, Northern	15		15	15	15		15	15,16	14,16,18	14,15,18	14,15,18	15,18	15,18	14,18	15,16	15,18	13,14,15, 18,18	14,15,16,18	14,15,16	15,16,18	16	13,15,16,18	15,16,18	13,15,16, 18	15	15,16,17,18
Chat, Yellow-breasted																			18	18	13,18	13				
Chickadee, Mountain	18		18			18	18		18																	
Collared-Dove, Eurasian	10,11,12, 13,14,15, 17,18	10,11,12, 13,14,15, 16,17,18	10,11,12, 13,14,15, 16,17,18	10,11,12, 13,14,15, 16,17,18	10,11,12, 13,14,15, 16,17,18	10,11,12, 13,14,15, 16,17,18	11,12,13, 14,15,16, 17,18	9,11,12, 13,14,15, 16,17,18	9,11,12, 13,14,15, 16,17,18	11,12,13 14,15,16, 17,18	11,12,13 14,15,16, 17,18	11,12,13 14,15,16, 17,18	9,11,12, 13,14,15, 16,17,18	9,11,12,13, 14,15,16,17	9,11,12,13 14,15,16, 17	9,10,11,12, 13,14,15, 16,17,18	8,9,11,12, 13,14,15, 16,17,18	9,11,12,13,14, 15,16,17,18	9,11,12 13,14,15, 16,17,18	9,11,12,13 14,15,16, 17,18	9,11,12,13 14,15,16, 17,18	9,11,12,13 14,15,16, 17,18	9,11,12,1314 15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13 14,15,16, 17,18	11,12,13 14,15,16 17,18	11,12,13, 14,15,16, 17,18
Cowbird, Bronzed																		9,12, 13,15,17, 18	9,11,15, 16,17,18	9,12, 14,15,16 17,18	9,12, 13,14,15, 16, 17,18	9,12, 13,14,15, 16, 17,18	11,12,14, 15,16,17, 18	12,13,14, 15,16,17 18	11,12,13, 14,15,16 17,18	12,13,14,15, 17,18
Cowbird, Brown-headed								16							11,15,17	9,11,12, 13,14,15	8,9,11,12, 13,14,15, 18,18	9,11,12,13,14, 15,16,17,18	9,11,12 13,14,15, 16,17,18	11,12,13, 14,15,16, 17,18	9,11,12,13 14,15,16, 17,18	9,11,12,13, 14,15,16,18	11,12,13, 14,15,16, 18	11,12,13, 14,15,16 18	11,12,13, 14,15,16 18	11,12,13,14, 15,18
Creeper, Brown			18	18					18		18															
Crow, American										14																
Dove, Inca	10,11,12, 13,14,15, 18	10,11,12, 13,14,15, 16	10,11,12, 13,14,15	10,11,12, 13,14,15, 16,18	10,11,12, 13, 14,15,16	10,11,12, 13,14,15, 16	11,12,13, 14,15,16, 18	08,11,12, 13,14,15, 16	8,10,11, 12,13,14, 15,16,18	11,12,13 14,15,16, 17,18	11,12,13 14,15,16, 17,18	11,12,13 14,15,16	9,11,13, 14,15,16,17	9,11,13, 14,15,16,17	9,11,13 14,15,16, 17	8,9,11,12, 13,14,15, 16,17	8,9,11,12, 13,14,15, 16,17,18	9,11,12,13,14, 15,16,17,18	9,11,12 13,14,15, 16,17,18	9,11,12, 14,15,16 17,18	9,11,12,13 14,15,16, 17,18	9,11,12,1314 15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13 15,16,17, 18	11,12,13 14,15,16 17,18	11,12,13, 14,15,16, 17,18
Dove, Mourning			17			14	14	11,18	17,12,18	11,12,14, 18	11,12,14, 16,17	11,12,17, 18	9,11,12,1 3, 14,15	12,14,18	11,12,14, 18	11,12,13, 14,15,16, 18	8,9,11,12, 12,14,15, 16,18	11,12,13,14, 15,17	11,12,14 15	11,14,15 16,17,18	11,12,13, 14,15, 16,17	11,12,13 14,15,16, 17,18	12,13, 14,15,17	12,13,14 15,18	11,13,15 18	12,13,14,15, 18,18
Dove, White-winged	10,11,12, 13,14,15, 17,18	10,11,12, 13,14,15, 16,17,18	10,11,12, 13,14,15, 16,17,18	10,11,12, 13,14,15, 16,17,18	10,11,12, 13,14,15, 16,17,18	10,11,12, 13,14,15, 16,17,18	12,13,14, 15,16,17, 18	08,11,12, 13,14,15, 16,17,18	08,10,11, 12,13,14, 15,16,17, 18	11,12,13 14,15,16, 17,18	11,12,13 14,15,16, 17,18	11,12,13 14,15,16, 17,18	5,11,12, 13,14,15, 16,17,18	9,11,12,13, 14,15,16,17	9,11,12,13 14,15,16, 17	8,9,11,12, 13,14,15, 16,17,18	8,9,11,12, 12,14,15, 16,17,18	9,11,12,13,14, 15,16,17,18	8,11,12 13,14,15, 16,17,18	9,11,12,13 14,15,16, 17,18	9,11,12,13 14,15,16, 17,18	5,11,12,1314 15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13 14,15,16 17,18	11,12,13 14,15,16 17,18	11,12,13,14, 15,16,17,18
Eagle, Golden																					12					
Falcon, Peregrine																	15									
Falcon, Prairie																8,9										
Finch, Cassin's	18	18	18	18	18	18	18	W	18	18	15,18	15,18	18			18	11,15,16, 18	11,15,16,18	18		11					
Finch, House	10,11,12, 13,14,15, 17,18	10,11,12, 13,14,15, 16,17,18	10,11,12, 13,14,15, 16,17,18	10,11,12, 13,14,15, 16,17,18	10,11,12, 13,14,15, 16,18	10,11,12, 13,14,15, 18,17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	08,10,11, 12,13,14, 15,16,17, 18	11,12,13 14,15,16, 17,18	11,12,13 14,15,16, 17,18	11,12,13 14,15,16, 17,18	5,11,12, 13,14,15, 16,17,18	9,11,12,13, 14,15,16	9,11,12,13 14,15,16, 17	8,9,11,12, 13,14,15, 16,17,18	8,9,11,12, 12,14,15, 16,17,18	9,11,12,13,14, 15,16,17,18	9,11,12 13,14,15, 16,17,18	9,11,12,13 14,15,16, 17,18	9,11,12,13 14,15,16, 17,18	5,11,12,1314 15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13 14,15,16 17,18	11,12,13 14,15,16 17,18	11,12,13,14, 15,16,17,18
Finch, Purple																	15		15							
Flicker, Northern (Red-Shafted)	14,15,16	14,15,16, 17,18	13,14,15, 17,18	12,13,14, 15,16,18	12,13,14, 15, 16,18	12,13,14, 15, 16,18	12,13,14, 16,17,18	13,14,15, 18,18	13,14,15, 16	13,14,15, 16	14,15,16, 17	13,15	15,16														
Flycatcher, Ash-throated																		17		16						
Flycatcher, Brown-crested																			16					17	15,18	18
Flycatcher, Vermillion										17								15								

	Jan 1-7	Jan 8-14	Jan 15-21	Jan 22-28	Jan 29-Feb 4	Feb 5-11	Feb 12-18	Feb 19-25	Feb 26-Mar4	Mar 5-11	Mar 12-18	Mar 19-25	Mar 26-Apr 1	Apr 2-8	Apr 9-15	Apr 16-22	Apr 23-29	Apr 30-May 6	May 7-13	May 14-20	May 21-27	May 28-Jun3	Jun 4-10	Jun 11-17	Jun 18-24	Jun 25-Jul 1
No. Of Years	8	9	9	9	9	9	8	9	10	8	8	8	9	8	8	10	10	9	9	9	9	9	8	8	8	8
Goldfinch, American	17	17	16		17	17	14,17	14,17	12,14,16, 17	14,17	11,14,16		14	9,11,14	14	12,14		9			13				11	17
Goldfinch, Lawrence's										14																
Goldfinch, Lesser	11,12,13, 14,15,17, 18	11,12,14, 15,16,17, 18	10,12,13, 14,15,16, 17,18	10,12,13, 14,15,16, 17,18	10,12,13, 14,15,16, 17,18	10,12,13, 14,15,16, 17,18	12,14,15, 16,17,18	12,13,14, 15,16,17, 18	12,13,14, 15,16,17, 18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17, 18	12,13, 14,15,16,17	9,11,12,13, 14,15,16, 17	9,11,12, 13,14,15, 16,17,18	9,11,12, 13,14,15, 16,17,18	9,11,12,13,14, 15,16,17,18	9,12,13, 14,15,16, 17,18	9,11,12,13, 14,15,16, 17,18	9,11,12,13, 14,15,16, 18	9,11,12,13,14, 15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13,14, 15,16,17,18
Grackle, Common												12														
Grackle, Great-tailed																9	8,9,11,13			16	9	12				
Grosbeak, Black-headed																13,15,16	8,9,11,12, 13,14,15, 16	9,11,12,13,14, 15,16,17,18	9,11,12, 13,14,15, 16,17,18	9,11,12,13, 14,15,16, 17,18	9,11,12,13, 14,15, 17,18	9,11,12,13,15,16,18	11,12,13	11,12,13, 15,16	11,13	11,13,16
Grosbeak, Blue																	13,15,16	9,11,13,14,15, 16,17,18	9,11,12, 13,14,15, 16,17,18	9,11,12,13, 14,15,16, 17,18	9,11,12,13, 14,15,16, 17,18	9,11,12,13, 15,16,17, 18	11,12,13, 14,15,16, 17,18	11,12,13, 15,16,17	11,12,13, 15,16,17	11,12,13,14, 15,16
Grosbeak, Rose-breasted																12	12,16		9	9		14		11		
Ground-Dove, Common																		14	9							
Hawk, Cooper's	17	17	17	17			17	17			14		14,16	11,16	15,17	11,16	11	14	11	11	11	11	11			
Hawk, Red-tailed						17	14	17	16,17		18			9	11	14		9								
Hawk, Sharp-shinned	15,16,17, 18	15,16,17	15,16,17, 18	15,16,17, 18	15,16,17		15,17	16	16,17	18	18	16,17		9		16					9					
Hawk, Swainson's			17										18			14										
Hawk, Zone-tailed												16		17	11	12,16	11,15	12,17	12	12	12					
Heron, Great Blue														18									16			
Hummingbird, Anna's	17															12,16	12	12,17		14,15			12			
Hummingbird, Black-chinned												17	14,15,16, 17	9,13,14,15, 16,17	9,11,13 14,15,16, 17	9,11,12, 13,14,15, 16,17,18	8,9,11,12, 13,14,15, 16,17,18	8,11,12,13,14, 15,16,17,18	8,11,12, 13,14,15, 16,17,18	8,11,12,13 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13,14, 15,16,17,18
Hummingbird, Broad-tailed												15,17	15,17	14,17	9,15	13,14,15, 16,18	9,11,13, 17	11,13,16,17, 18	11,13,17	11,14,16, 17	11,15,17	11,17	11,13,16, 18	11,15,17	11	
Hummingbird, Costa's																					13					
Hummingbird, Rivoli's																8										
Hummingbird, Rufous														11	9,13		11,12									16
Jay, Steller's	16	15	16	16	16	16	15	16	16	16			16			16										
Junco, Dark-eyed (GH)	10,11,12, 13,14,16, 17	10,11,15, 16,17,18	10,11,16, 17,18	10,11,15, 16,17,18	10,11,16, 17,18	10,11,13, 15,16,17, 18	11,15,16, 17,18	11,12,14, 15,16,17, 18	10,12,16, 16,17,18	11,12,14, 15,16,17, 18	11,12,14, 15,16,18	11,12,14, 17,18	12,15,18	11,16,17	13,16	8,11,13	13			18						
Junco, Dark-eyed (PS)	10,11,12, 13,14,16, 17,18	10,11,12, 13,14,15, 16,17,18	10,11,12, 13,14,15, 16,17,18	10,11,12, 13,14,15, 16,17,18	10,11,12, 13,14,16, 16,17,18	10,11,12, 13,14,15, 16,17,18	11,12,13, 14,15,16, 17,18	08,11,12, 13,14,15, 16,17,18	10,11,12, 13,14,16, 16,17,18	11,12,13, 14,15,16 17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16 17,18	8,11,12,13 16,17,18	9,16,17	9,16,17	9,11	9										
Junco, Dark-eyed (O)	10,11,12, 13,16,17 18	10,11,12, 13,15,16, 17,18	10,11,12, 13,14,15, 16,17,18	10,11,12, 13,14,15, 16,17,18	10,11,12, 13,15,16 17,18	10,11,12, 13,14,15, 16,17,18	11,12,13, 15,16,17, 18	11,12,13, 16,16,17, 18	08,10,11, 12,13,14, 15,16, 17,18	11,12,13, 15,15,17 18	11,12,13, 15,16,17, 18	11,12,16, 18					13										
Junco, Dark-eyed (SG)	10,11,17 18	10,11,16, 17,18	10,11,16, 17,18	10,11,16, 18	10,11,16 18	10,11,16, 18	16,17,18	08,11,16, 17,18	11,12,16 17,18	11,15,17 18	17,18															
Kestrel, American						15	15	13			13						8						17			
Killdeer																								14		

Lesser Goldfinches are seen throughout this period.

Four subspecies groups of Dark-eyed Juncos are seen regularly in this area: Oregon, Pink-sided, Slate-colored, and Grey-headed. A "subspecies group" consists of one or more subspecies. Dark-eyes Juncos are winter birds, generally being gone by the end of April.

Although there are some Hummingbirds which are present during the colder months, they generally do not start to arrive in numbers until mid March. Some species, like the Rufous, appear to visit the area only during passage (migration). Although Broad-tailed are seen here starting in March, they are much more common in the Black Range at higher elevations.

Common Ground-Dove has been seen in the yard, as has Rivoli's Hummingbird (formerly Magnificent Hummingbird).

Steller's Jay has been seen here in only one year, 2018. They are common in the higher elevation forests of the Black Range.

The yard does not have habitat for species like Killdeer, and our observations bear that out. Percha Creek, which is only a hundred yards away as it passes through Hillsboro, offers much better habitat for such species and others like the Great Blue Heron.

	Jan 1-7	Jan 8-14	Jan 15-21	Jan 22-28	Jan 29-Feb 4	Feb 5-11	Feb 12-18	Feb 19-25	Feb 26-Mar4	Mar 5-11	Mar 12-18	Mar 19-25	Mar 26-Apr 1	Apr 2-8	Apr 9-15	Apr 16-22	Apr 23-29	Apr 30-May 6	May 7-13	May 14-20	May 21-27	May 28-Jun3	Jun 4-10	Jun 11-17	Jun 18-24	Jun 25-Jul 1
No. Of Years	8	9	9	9	9	9	8	9	10	8	8	8	8	8	8	10	10	9	9	9	9	9	8	8	8	8
Kingbird, Cassin's															17	5,16,17	5,13,15, 16,17,18	5,13,15,16,17, 18	5,13,14, 15,16,17, 18	12,14,15, 16,18	5,13,14, 15,16,17, 18	12,15,16, 16,17,18	11,12,13, 14,15,16, 17,18	11,13,14, 15,16,17, 18	12,13,14, 15,16,17, 18	13,14,15, 17,18
Kingbird, Eastern														14				14								
Kingbird, Western															17	16,17	5,11,13, 15,16,17 18	14,15,16,17	11,12,11, 15,16,17, 18	14,15,16, 17,18	14,16,17, 18	16,17,18	16,17,18	11,16,17, 18	14,15,16, 17,18	14,15,16,17, 18
Kinglet, Ruby-crowned	14,17,18	14,15,18	14,15,18	14,15,17, 18	13,14,15, 17, 18	13,14,15, 17,18	14,15,17, 18	13,14,15, 17,18	14,15,17, 18	14,15 16,17	13,14	14,17		15	15		17									
Meadowlark, Western			13			13		12	12																	
Mockingbird, Northern											12								17	18	12	15,16,18	18,18	12,14,15, 18	12,14,15, 18	12,15,18
Nighthawk, Common																										13
Nuthatch, White-breasted	12,17,18	13,17,18	12,17	13,18	13,18	17	17,18	17,18	18	18	17,18															
Oriole, Baltimore																		15								
Oriole, Bullock's															18	14,15,16, 17,18	8,9,11 13,14,15, 16,17,18	9,11,13,14,15, 16,17,18	9,11, 12,14,15, 16,17,18	9,11,12,13 14,15,16, 17,18	11,13,14, 15,16,17, 18	9,11,12,13,14, 15,16,17,18	11,13,14, 15,16,17, 18	11,12,13,14, 15,16,17, 18	11,13,14, 15,16,17, 18	11,12,13,14, 15,16,18
Oriole, Hooded							16		15	16	15		16,17,18	11,13,14,15, 16,17	11,14,15, 16,17	8,11,13, 14,15,16, 17,18	8,11,12, 13,14,15, 16,17,18	8,11,12,13,14, 15,16,17,18	12,14,15, 16,17,18	9,11,12,13 14,15,16, 17,18	11,12,13, 15,16,17, 18	11,12,13,14, 15,16,17,18	11,13,13, 14,15,16, 17,18	12,13,17, 15,16,17, 18	11,12,13, 14,15,16, 17,18	11,12,13,14, 15,16,17,18
Oriole, Scott's																14,18	13,18	13	11,18							
Ovenbird		10																								
Owl, Great Horned																									17	
Phainopepla	16,18	12,15		15,16	12,13,15, 16	14,16	14,15,16	14,15,16, 17	13,14,15, 16	12,13,14, 15,16	14,17	13,14,18	11,14,17	14,17	14,17	13,14,15, 17	15,16,18	15,16,17,18	16,17,18	15,16,17, 18	11,12,14 15,16,17, 18	12,16,17, 18	14,15,16, 17,18	14,15,16, 17,18	12,13,14, 15,16,17, 18	12,14,15,16, 17,18
Phoebe, Black																							11	17		
Phoebe, Say's	18				18	14,15,17	14,15	14,15,16	14,15,16, 18	11,13,14, 15,16,17	12,14,15, 16,17,18	12,13,15, 18	12,14,16, 18,17	11,12,13,15, 18	11,14,15, 18	12,13,14, 15,16,17	5,12,13, 14,15,16, 17,18	11,12,13,14, 15,16,17,18	15,16,17, 18	12,15,16, 18	12,13,14 17,18	12,13,16	12,13,14, 15,16,17, 18	11,13,14, 15,16,17, 18	11,12,13, 14,15,16, 18	11,12,13,14, 15,16,17,18
Pigeon, Band-tailed																			14	14				12,13	12,13	11,13
Pyrrhuloxia	12,13,18	12	13	13	12,18	12	18	12,18	12,13	11,12,18	12,18	12,18	12,18													
Quail, Gambel's																	8,9	8,18	9	9	9,11	9,18	18	18	13	
Raven, Chihuahuan													12						12		9					
Raven, Common	11,12,17, 16,17	11,12,13, 14,15,17, 18	12,13,14, 15,16,17, 18	13,14,15, 16,17,18	12,13,14, 16, 16,17,18	12,13,14, 16,16,17, 18	12,13,14, 15,16,17, 18	12,14,15, 16,17,18	12,13,14, 15,16,17, 18	12,13,14, 15,16,17, 18	12,13,15, 16,17,18	11,13,17, 15,16,17, 18	14,15,16, 17,18	13,14,15,16, 17	12,14,15	12,13, 14,15,16, 17,18	13,15,16, 17,18	5,12,13,14,15, 16,17,18	9,11,12, 13,14,15, 16,17,18	11,12,13, 15,16,17, 18	9,11,12,13 14,15,16, 18	11,12,13,14, 15,16,18	11,12,13, 14,16,18	11,13,16, 18	14	12,16
Redstart, Painted																13										
Roadrunner, Greater	18	18	18	18	18		18								18		18							18	18	
Robin, American	16,18	13,14,15, 18	12,14,15, 18	12,14,15, 18	10,12,14, 15, 18	12,13,14, 16,18	12,14,16, 17,18	05,12,13, 14,15,16, 18	06,10,12, 13,14,15, 18,18	11,12,13, 14,15,16 17,18	11,12,14, 15,16,17, 18	12,13,14, 15,16,17, 18	13,15,16, 17,18	9,15,16,17	9,11,15,16 17	8,9,15,16, 17,18	8,9,11,13, 15,16,17, 18	9,14,15,16,18	9,11,13, 16,17,18	9,11,12,15 16,17,18	9,11,12,13 16,18	9,11,12,13,15 16,18	11,13,15, 16,17,18	11,15,16, 18	11,12,14, 15,16,17, 18	11,12,14,16, 17,18
Sapsucker, Red-naped	14,17,18	16	14,18	16,16,18	18	13,17	16,17,18	14,17	17	11,12,14, 16	14,13	12	16	13												
Sapsucker, Williamson's																9										
Scrub-Jay, Woodhouse's	18	10,11,18	10,18	10,11,15, 18	10,18	10,18	18	11,18	10,11,18	11,14,15, 18	11,18	11	15,18	18			18									
Siskin, Pine	10,11,12, 13,16,17, 18	10,11,12, 13,15,16, 17,18	10,11,12, 13,15,16, 17,18	10,11,12, 13,15,16, 17,18	10,11,12, 13,14,15, 16,17,18	10,11,12, 13,15,16, 17,18	11,12,13, 15,16,17, 18	11,12,13, 15,16,17, 18	06,10,11, 12,13,14, 15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14, 15,16,17, 18	9,11,12,13, 14,15,16,17	9,11,12,13 14,15,16, 17	8,9,11,12, 13,14,15 16,17,18	5,11,12, 13,14,15 16,17,18	9,11,12,13,14, 15,16,17,18	9,11,12, 13,14,15, 16,18	9,11,12,13 14,15,16, 17,18	9,11,13,15 16,17,18	11,13,15,18	11,13			

The Kingbirds (Cassin's and Western) are birds of the summer, not appearing until April. Eastern Kingbird, which is quite rare in this area, has been seen in the yard.

Pine Siskins are prevalent during the cooler weather but absent during most of June.

Woodhouse's Scrub-Jay, Pyrrhuloxia, Ruby-crowned Kinglet, White-breasted Nuthatch, and Red-naped Sapsucker are all more likely to be seen during the cooler months than in the warmer ones.

Hooded and Bullock's Orioles appear in numers by April, and Scott's has been present during April and May.

Phainopepla is seen through the year, feasting on berries of mistletoe and Mexican Elder.

Say's Phoebe can be quite regular throughout the period, as can American Robin.

	Jan 1-7	Jan 8-14	Jan 15-21	Jan 22-28	Jan 29-Feb 4	Feb 5-11	Feb 12-18	Feb 19-25	Feb 26-Mar4	Mar 5-11	Mar 12-18	Mar 19-25	Mar 26-Apr 1	Apr 2-8	Apr 9-15	Apr 16-22	Apr 23-29	Apr 30-May 6	May 7-13	May 14-20	May 21-27	May 28-Jun3	Jun 4-10	Jun 11-17	Jun 18-24	Jun 25-Jul 1
No. Of Years	8	9	9	9	9	9	8	9	10	8	8	8	9	5	8	10	10	9	9	9	9	9	8	8	6	6
Sparrow, Black-throated																									11	
Sparrow, Cassin's																	9									
Sparrow, Chipping	14,17	10,11,15, 17	14,16,17	13,14,16	14,15,17	14,15,17	13,14,15, 17	13,14,15, 17	14,15,16	13,14,15, 16	13,14,15, 16,17	11,14,15	9,14,15,1 6	8,12,13,14, 16,17	9,11,13, 14,15,16, 17	8,9,11,12, 13,14,16 17,18	8,9,11,13, 14,15,16	9,11,12,16	11,16,18		9					
Sparrow, Fox	18	18	18	18	18	12,18	18	18	18	18	18	18	18													
Sparrow, Harris's				19					19		17	17	17		17		17	17								
Sparrow, House	10,11,12, 13,14,15, 17,18	10,11,12, 13,14,15, 16,17,18	10,11,12, 13,14,15, 16,17,18	10,11,12, 13,14,15, 16,18	10,11,12, 13,14,15, 16,17,18	10,11,12, 13,14,15, 16,17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	09,10,11, 12, 13,14,15, 16,17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	9,11,12, 13,14,15, 16,17,18	9,11,12,13, 14,15,16,17	9,11,12,13, 14,15,16, 17	8,9,11,12, 13,14,15, 16,17,18	8,9,11,12, 13,14,15, 16,17,18	9,11,12,13,14, 15,16,17,18	9,11,12, 13,14,15, 16,17,18	9,11,12,13, 14,15,16, 17,18	9,11,12,13, 14,15,16, 17,18	9,11,12,1314, 15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13,14, 15,16,17,18
Sparrow, Lark																	8,11,13, 16	11,12	12,16	16		12		11	13	13
Sparrow, Lincoln's	17	17	17	17	17,17	17,18	13,17,18	12,13,14 17	11,12,13, 16,17	11,12,13, 14,15,17, 18	11,12,13, 17	11,12,13	11,12,13, 16,18	9,11,12,13	9,11,12,13 17	9,11,12, 18	8,9,18	13,18	18	18		18		18		
Sparrow, Savannah						12			12																	
Sparrow, Vesper											12	12	12													
Sparrow, White-crowned	10,11,12, 13,14,16, 17,18	10,11,12, 13,14,16 17,18	10,11,12, 13,15,16, 17,18	10,11,12, 13,15,16, 17,18	10,11,12, 13,14,15, 16,17,18	10,11,12 12,13,17, 18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	10,11,12, 13,14,15, 16,17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	9,11,12 13,14,15, 16,17,18	9,11,12,13, 14,15,16,17	9,11,12,13 14,15,16, 17	8,9,11,12, 13,14,16 16,17,18	8,9,11,12, 13,14,15, 16,17,18	9,11,12,13,14, 15,16,17,18	9,11,12, 13,14,15, 16,17,18	9,11,12, 13,14,15, 16,17,18	9,11,13,14, 15,16,17, 18	12,14,15,18	16,18	18	12,18	
Sparrow, White-throated	12,18	12,18	12,18	12,18,18	12,18	12,18,18	12,18,18	12,18,18	12,17,17, 18	12,13,14 18	12,13,17, 18	12,13,14, 18	12,13,15	13,14	13,14,15, 17	13,14,17	13,18									18
Starling, European	14,18	12,14,15	14	14	10,13,15	12,14	13,18	9,14,16,1 8	9,18	11,14,15, 18	11,12,13, 16,17	16,17	11,14,15, 16	9,11,13,14	9,11,13,15	8,9,12,13, 15	8,9,11,13, 14,15,18	9,13,17,18	9,11,13, 14,15,18	9,12,14,15, 16,18	9,11,15,18	13,14,16,18	12,13,14, 16,18	13,18	12,14,16, 18	12,14,18
Swallow, Barn															9		8,17	9	9,18	9,14,18,18	9,11,14,15 16,18	12,13,17,18	12,14,16, 17	13,14,15, 16,17,18	11,12,13, 14,15,16	11,12,13,14, 15,16,17,18
Swallow, Cliff																										13
Swallow, Northern Rough-winged																	8									
Swallow, Violet-green																				16		18				
Swift, White-throated																				17						
Tanager, Summer															17	8,18,18	8,15,16, 17,18	13,14,15,16, 17,18	13,14,15, 16,17	14,15,16, 18	11,13,14, 16,18	12,15,16,18	13,15,18	13,15,16, 18	13,15,16, 18	12,13,14,15, 18
Tanager, Summer x Western																	14									
Tanager, Western															16	18	9,13	13,14,15,18	11,13,14, 16,18,17, 18	11,13,14, 16,18,17, 18	11,15,18, 14,18,18	11,13,16,18	11	11		
Thrasher, Curve-billed	10,15,16, 18	10,15,16, 16,17,18	12,13,15, 17,18	12,13,15, 17,18	12,13,14, 16, 16,17,18	12,13,14 16,17,18	12,13,14, 16,16,17, 18	12,13,14 15,16,17, 18	12,13,14, 16,16,17, 18	12,13,14 15,16,17, 18	12,13,14, 16,16,17, 18	12,13,14, 16,16,17, 18	12,13,14 15, 16,17,18	11,12,13, 14,15,16,17	11,13,14, 16,16,17	8,9,12,13, 14,15,16, 17,18	8,11,12, 13,14,15, 16,17,18	9,11,12,13,14, 15,16,17,18	9,11,13, 13,14,15, 16,17,18	9,11,12, 13,14,15, 16,17,18	9,11,12,13 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	12,13,14,15, 16,17,18
Thrush, Hermit		18		18	18									12	12				9							
Thrush, Swainson's																			11							
Titmouse, Bridled	16					17																				
Titmouse, Juniper	16	16		16	16	16																				
Towhee, Canyon	10,12,16	10,12,15, 16,18,18	10,13,18	10,13,18	10,13,15, 16,18	10,11,12 12,15,17, 18	13,15,16, 18	13,15,16 18	11,13,15, 14,15,16, 18	11,12,13, 18	11,13,15, 16	11,12,13, 14,15,16, 17,18	11,13,14, 16,18	9,11,14,18	9,13,15, 16,17	9,11,14, 16,16,18	9,11,13, 14,15,16, 17,18	9,13,14,15,16, 17,18	9,11,13, 14,15,16, 17,18	11,13,14, 16,16,17, 18	9,11,15,14 15,16,17, 18	9,11,13,14,15 16,18	11,13,14 15,16,17, 18	11,13,14, 16,16,17, 18	11,13,14, 15,17,18	11,12,13,14, 16,16,17,18
Towhee, Green-tailed	17	17	17								16	14,16,17	14,16,17	14	12,14	12	11,13,18	11,13,18	11,13,18	11,13	11,13					
Towhee, Spotted	10,15,16, 18	10,12,15, 17,18	10,12,15, 17,18	12,14,15, 18	12,15,18	12,15,17, 18	12,15,17, 18	08,12,14, 15,17,18	12,14,15, 17,18	13,15,18	14,15,18	14,15,18	15,18	18	16						11					

Species like Curve-billed Thrasher, Canyon Towhee, House Sparrow, and European Starling are generally present throughout the period, although their numbers can vary quite a bit - except the House Sparrow, which is usually quite numerous. The White-crowned Sparrow is present in numbers until the very warmest months.

Chipping Sparrow, Lincoln's Sparrow, Fox Sparrow, Spotted Towhee, and White-throated Sparrow are generally birds of cooler weather and are absent during the summer.

The Harris's Sparrow sightings appear to be two separate individuals, visiting five years apart.

Hermit and Swainson's Thrush are sometimes present during the colder months.

The tanagers (Summer and Western) arrive in mid-April, and in two years a hybrid between the two species was present in the yard for several days.

	Jan 1-7	Jan 8-14	Jan 15-21	Jan 22-28	Jan 29-Feb 4	Feb 5-11	Feb 12-18	Feb 19-25	Feb 26-Mar4	Mar 5-11	Mar 12-18	Mar 19-25	Mar 26-Apr 1	Apr 2-8	Apr 9-15	Apr 16-22	Apr 23-29	Apr 30-May 6	May 7-13	May 14-20	May 21-27	May 28-Jun3	Jun 4-10	Jun 11-17	Jun 18-24	Jun 25-Jul 1
No. Of Years	8	9	9	9	9	9	8	9	10	8	8	8	9	8	8	10	10	9	9	9	9	9	8	8	8	8
Turtle-Dove, Ringed																11	11,13		11	11	11		11	11		
Vireo, Plumbeous																			10							
Vireo, Warbling																				10		12				
Vulture, Turkey										17	16,17,18	15,14,15, 16,17,18	9,12,13,1 4,15,16,1 7,18	9,11,12,13, 14,15,16,17	9,13,14,15 16,17	8,9,11,12, 13,14,15, 16,17,18	8,9,11,12, 13,15,16, 17,18	9,12,13,14,15, 16,17,18	9,11,12, 14,15,16, 17,18	9,12,13,14 15,16,17, 18	9,11,12,13 14,15,16, 17,18	9,11,12,1314 15,16, 17,18	11,12,13, 14,15,16, 17,18	12,13,14, 15,16,17, 18	11,13,14, 15,16,17, 18	11,12,13,14, 15,16,17,18
Warbler, MacGillivray's																			17							
Warbler, Orange-crowned				17	17	17,17	17	16,17	17	17	17		14	14	14,16	16	13									
Warbler, Wilson's															17	8,16,18	8,15,18		16,15,18							
Warbler, Yellow																		15,17		15						
Warbler, Yellow-rumped (Aud.)	14,16,17, 18	13,14,15, 17,18	17,18	15,16,17, 18	16,17,18	17	14,16,17, 18	15,17,18	14,16,17	14,15,16, 17	13,14,15, 16,17,18	17,18	16,17,18	16,17	17	9,11,12, 13,15,16, 18	15,16,17, 18	9,14	11,18							
Warbler, Yellow-rumped (Myrtle)									16		16,17															
Waxwing, Cedar		18		14	13,14	14	14	14,15	14	14	14,17	14,17		14	14	14,15	15,17	14,17	15,17,18							
Woodpecker, Acorn																	9	9			13					11
Woodpecker, Downy			16																							
Woodpecker, Hairy	18			18		18	18	17,18		17,18	17,18	17	17	17	17	17		18		17	17	17,18	17,18	17	17,18	17
Woodpecker, Ladder-backed	12,13,14, 16,17,18	12,13,14 15,16,17, 18	11,12,13, 14,15,16, 17,18	10,12,13, 14,15,16, 17,18	11,12,13, 14,15,16, 17,18	12,13,14, 15,16,17, 18	12,13,14, 15,16,17, 18	12,13,14, 15,16,17, 18	11,12,13, 14,15,16, 17,18	11,12,13 14,15,16, 17,18	12,13, 14,15,16, 17,18	12,13, 14,15,16, 17,18	12,13,14, 15, 16,17,18	13,15,16,17	13,14,15, 16,17	13,14,15, 16,17,18	13,14,15, 16,17,18	13,14,15,16 17,18	12,13,14 15,16,17, 18	11,12,14 15,16,17, 18	9,11,13,14 15,16,17, 18	12,13,14,15, 16,17,18	12,13,14, 15,16,17, 18	12,13,14 15,16,17, 18	11,13,14 15,16,17, 18	11,12,13,14, 16,16,17,18
Wood-Pewee, Western																					17	11				
Wren, Bewick's	13,14,17	15,14,16, 17	15,16,16, 16,17	10,14,16	10,11,15, 16, 18	14,15,16, 18	13,16,17, 18	14,15,16, 17,18	11,15,16 18	14,16,17 18	11,12,13, 15,16,17, 18	14,15,18	11,16		11,15,17	13,14,15, 16,17,18	11,12, 15,16,17, 18	11,12,15,16, 18	11,12,14 15,16,18	11,12,14 15,16,18	12,13,14 16,16,18	12,13,14,15, 16,18	12,13,15, 16,17,18	13,15,16 18	12,13,14 15,16,17, 18	11,12,13,14, 16,16,18
Wren, Canyon					16																					
Wren, (Northern) House																		9,13,18	16		12					

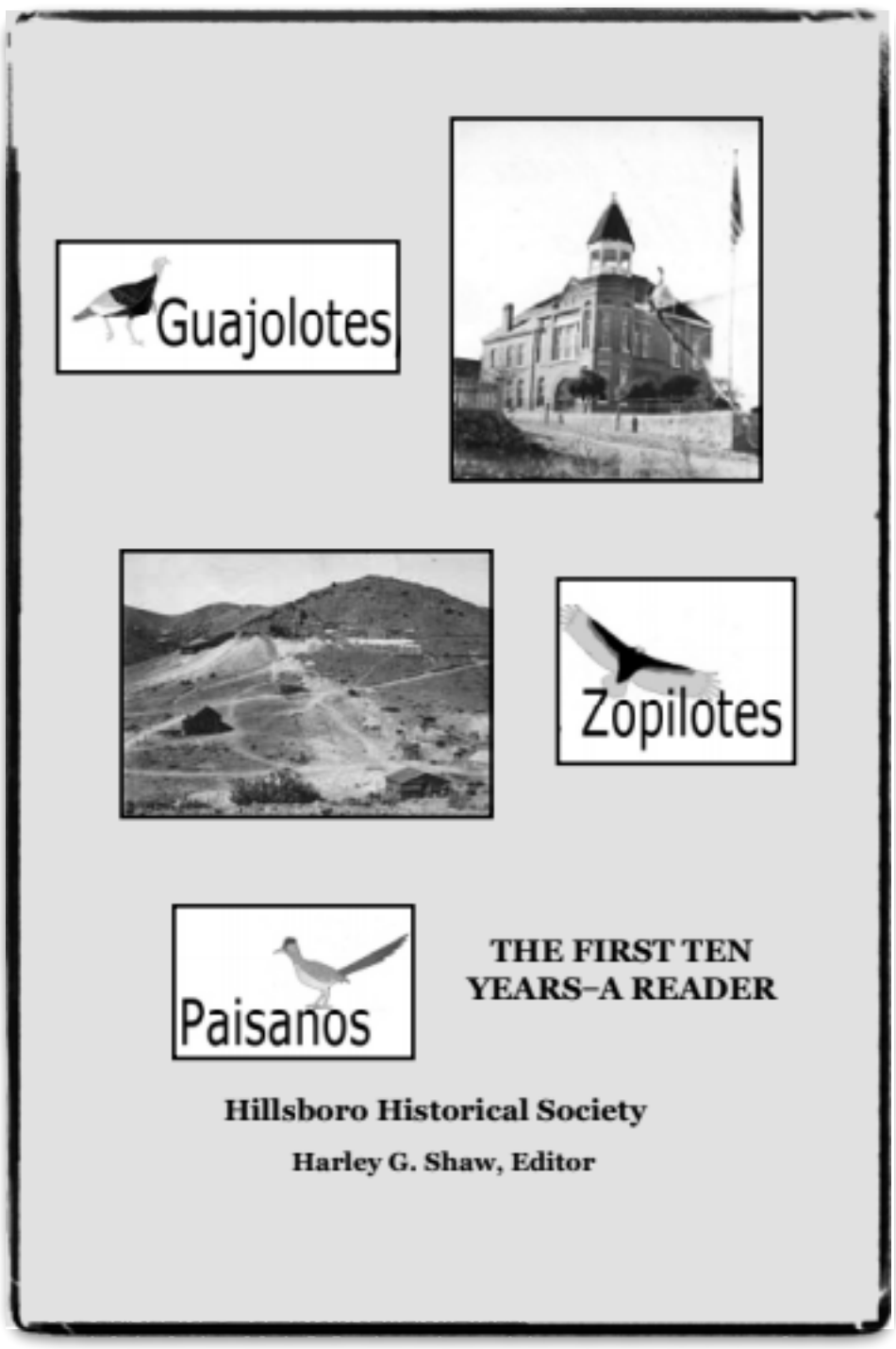
Ladder-backed Woodpeckers and Bewick's Wrens are present throughout the period, although the numbers will vary. Ladder-backed Woodpeckers can be very common, especially when the young have fledged.

Yellow-rumped Warblers have generally left by early May, Orange-crowned Warblers are seen from January to April, and other Warbler species are most commonly seen during passage.

Turkey Vultures arrive like clockwork during the first part of March, and large roosts can occur in the area.

Canyon Wrens are seldom present during the period but are almost always quite tame when they are present.

These charts are indicative in nature, rather than definitive. Bird species can be present at the oddest of times and under the most peculiar circumstances.



The Hillsboro Historical Society (HHS) has released "Guajolotes, Zopilotes, y Paisanos - The First Ten Years - A Reader", edited by Harley G. Shaw. The book features all of the main articles of the first ten years of the Society's excellent newsletter. It costs $20 ($15 for members of the Society) and is available from Harley Shaw or Garland Bills (until the HHS's Black Range Museum reopens). It warrants notice here because some of Harley Shaw's excellent natural history articles are reprinted in this release. And they, by themselves, are worth the cost.

Note that membership in the HHS is only $25 a year and comes with perks like book discounts and outings to historical sites as well as the good feelings you experience from supporting a worthy cause. For membership particulars see the HHS facebook page.

Wildfire Impacts on Species of Concern Plants In the Gila National Forest, New Mexico

The subject report, by Daniela Roth of the NM Energy, Minerals, & Natural Resources Department, Forestery Division, is available at the link above. The report describes the impact of the Silver and Whitewater-Baldy Fires on 8 species of plant which are identified as species of concern; Goodding's Onion, Mogollon Death Camas, Gila Thistle, Hearleaf Groundsel, Hess' Fleabane, Mogollon Hawkweed, Metcalfe's Penstemon, and Mimbres Figwort. The study of fire impacts on these species, and others, is ongoing - watch future issues of this newsletter for more information.