



COLORADO BLUEBIRD PROJECT

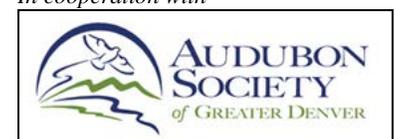
Castle Rock, CO



Information & Instruction Manual

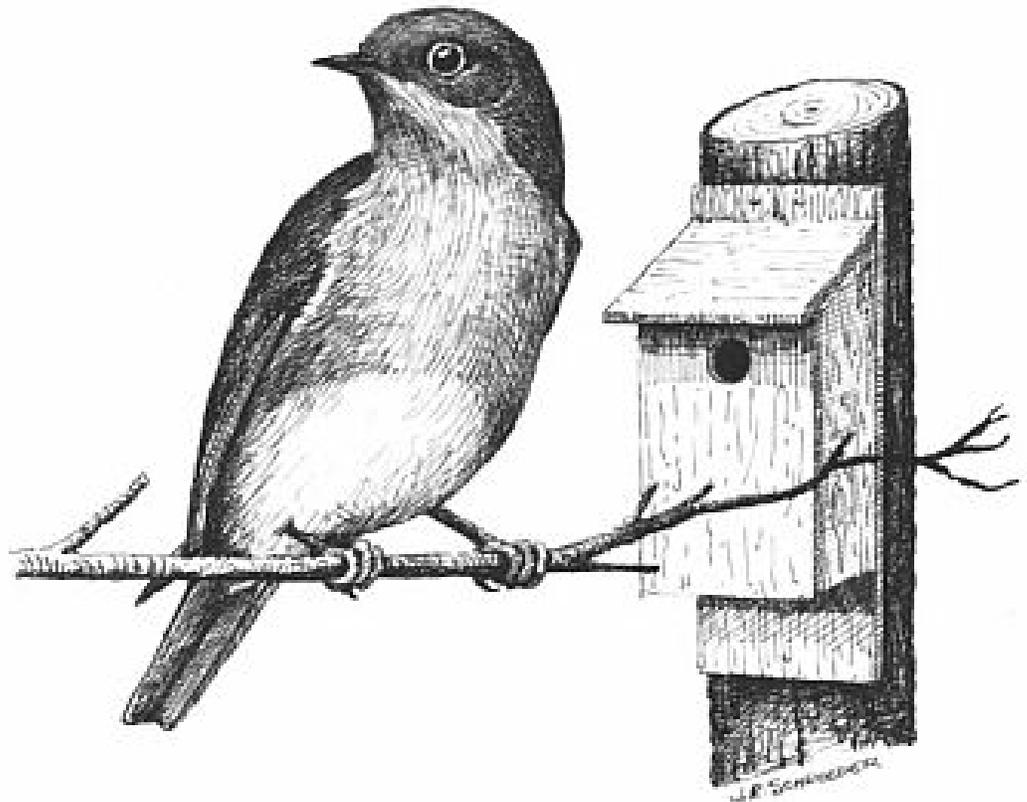
Updated 2018

In cooperation with



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WELCOME!

The Town of Castle Rock Parks and Recreation Department and POST Partners Volunteer Program would like to thank you for volunteering your time to help monitor bluebird boxes, recording data and submitting your observations. We are truly grateful for your assistance with the Colorado Bluebird Project!

Your Bluebird Packet:

We have gathered information related to the monitoring project from the North American Bluebird Society, Colorado Bluebird Project, Cornell Lab of Ornithology and NestWatch, and assembled that information into a valuable and helpful packet for volunteer monitors. This packet contains helpful advice, tips, photographs, reminders and general instructions but is not intended to be a full source. Recommended books include a good bird field guide, *The Bluebird Monitor's Guide* and *The Stokes' Complete Guide to Attracting Bluebirds*.

Contacts:

Questions about the Colorado Bluebird Project and natural resources:

- Barbara Spagnuolo, Natural Resource Specialist, at 720-733-2294 or bspagnuolo@CRgov.com. Work cell phone is 303-472-6986.

Questions about the POST Partners Program and volunteering:

- Marcy Jones, POST Partners Volunteer Coordinator, at 303-814-7456 or mjones@CRgov.com. Work cell phone is 720-357-0205.

Emergency Parks Department contact phone: 303-435-3345.

Castle Rock Police Dispatch (for non-emergencies): 303-663-6100. In an emergency, please dial 911.



PLEASE CONTACT US IMMEDIATELY IF:

- You find a rare bird nesting in a box.
- You find a House Sparrow or European Starling nesting in a box.
- You find dead adult or fledgling bluebirds.
- You find hatchlings with blowfly parasitism.

On-line Resources:

Town of Castle Rock bluebird page:	www.crgov.com/bluebird
Audubon Society of Greater Denver:	www.denveraudubon.org
North American Bluebird Society:	www.nabluebirdsociety.org
NestWatch:	www.nestwatch.org
Cornell Lab of Ornithology:	www.birds.cornell.edu
General bluebird info:	www.sialis.org

There is an official email listserv for the Colorado Bluebird Project, created to provide an opportunity for bluebird enthusiasts to network and share ideas. Anyone interested in the project is encouraged to participate by sending an email to:

Bluebird-Babble@googlegroups.com.

Information Sharing Using Google.com:

In order to facilitate tracking of the monitoring data by several different and unrelated volunteers, all monitoring data will be recorded electronically using Google Documents, which is now referred to as Google Drive. This is a free and easy way to share our data on-line, and will also allow all volunteers to follow the status of the nest boxes.



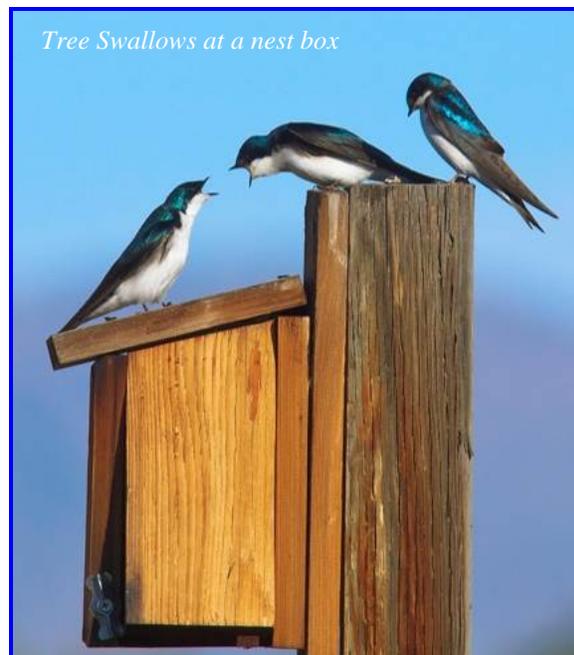
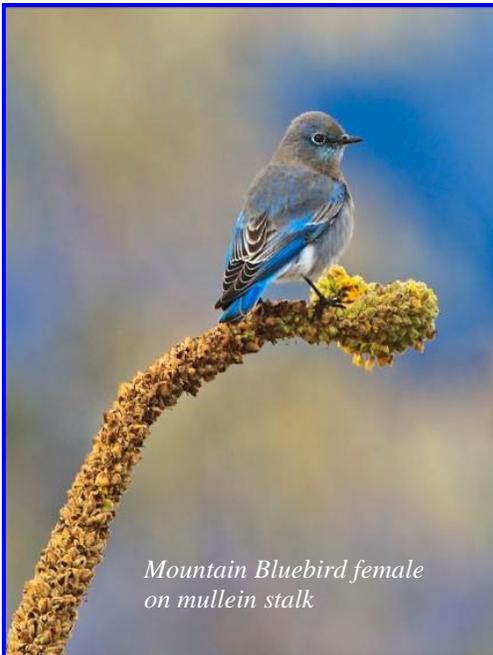
All volunteers must create a Google Account at the beginning of the monitoring season for access to Google Documents to view and share data. Google Accounts established by returning volunteers should still be active should be confirmed before the start of the monitoring season. To set up a Google Account, go to www.Google.com/Documents then follow the instructions to get started.

Here are the steps to set up a Google Account and edit the data sheets:

1. Go to www.Drive.Google.com.
2. Sign in to access the documents if you are a returning volunteer, or, click on the red "Sign Up" button on the upper right corner of the screen to start an account.
3. Enter the required information for a Google account.
4. Send an email to me at bspagnuolo@crqgov.com with your email address so I can "invite" you to view the documents related to the monitoring data.
5. You will be directed to your My Drive page, which contains the monitoring datasheets and folders for each site.
6. Click on a folder to open and the datasheets for that site will open.
7. Click on a specific datasheet to open that document and enter data. Data will be saved automatically.
8. Close the document after data is entered and sign out.

Photographs:

Volunteers, such as yourself, have provided many of the images in this packet. We encourage the submittal of your photographs of birds and people and other sights observed during your involvement in this project.



PROGRAM OVERVIEW

What is the Colorado Bluebird Project?

This project operates under the guidance of the Audubon Society of Greater Denver. Its mission is to improve the vitality of bluebird populations throughout Colorado and to inform and educate the public about bluebirds.

What is a Bluebird?

Bluebirds are social migratory songbirds and one of the few North American birds that are mostly blue in color. There are three species of bluebirds but only two have been sighted in Castle Rock: the Mountain Bluebird and the Western Bluebird (the Eastern Bluebird is found mostly in eastern parts of Colorado). They are secondary cavity nesters, meaning they must rely on other species' used nesting cavities or artificial nest boxes. They feed mainly on insects but also wild fruit, berries and mealworms.



Mountain Bluebird



Western Bluebird

What is a Bluebird nest box?



A nest box is an artificial nesting cavity for bluebirds, but can also be used by Violet-green Swallows and Tree Swallows, usually made of untreated pine, redwood or cedar wood. The boxes are installed in late March, before the bluebirds return from winter migration. There are specifications for nest boxes designs provided by the North American Bluebird Society, which are designed with an overhang, a pivoting side or top for monitoring and cleaning, as well as features to keep out predators and other non-native bird species.

Why do we put up nest boxes?

Over the years, bluebird habitat has been cleared for development and natural nesting cavities (old trees and wooden fence posts) have been greatly reduced or replaced with metal posts. Even though these events led to a population decrease, providing artificial nest sites (bluebird nest boxes) is an important step to help bring back the bluebird. Nest

boxes are placed within public open space areas either along fence lines or near existing trails creating a bluebird trail. Since placement of the boxes in suitable habitat is one of the most important factors for attracting bluebirds, these boxes are placed in open grassland areas with scattered trees or shrubs and plenty of perch sites such as fence lines.

Why do we monitor nest boxes?

It is very important that bluebird nest boxes are actively monitored or checked at least once a week. Opening a nest box once a week should not excessively disturb the parents, and doing so increases the chances of success for bluebirds and provides important information to track population trends. Monitoring also identifies cases of blowfly parasitism or non-native and unwanted species, such as the House Sparrow, using the box. Monitoring usually occurs between April and the end of August or early September, after the nesting efforts have ended for the season.

Why do we report our data?

Researchers are hoping to answer critical bird-related questions using the data gathered and reported by citizen scientists, such as you. Some of the questions that could be answered include:

- How do breeding parameters such as clutch size, nesting success, and daily nest survival vary across time and space?
- Does nest monitoring impact nesting success?
- Can conservationists use nesting data to detect changes in the environment?
- What factors limit breeding success in areas from rural to urban?
- Can people modify backyard habitat to affect breeding birds?
- Are bluebird populations stable, decreasing or increasing?

How is the Town of Castle Rock involved in this Project?

In Castle Rock, this project is managed through the POST Partners Program. The monitoring data sheets are submitted to the Colorado Bluebird Project and the Cornell Lab of Ornithology for the national database of bluebird populations. Castle Rock has been involved with the Bluebird Project since 2007.

What if I am working to become an Eagle Scout?

Boy Scouts looking to earn their Eagle Scout rank are encouraged to participate in the Bluebird Project. Participation includes nest box construction and installation, as well as a minimum one-year commitment to monitor the boxes and collect nesting data. The location of the bluebird trail will be determined by Town staff, based on habitat, site availability and monitoring access.



GENERAL INSTRUCTIONS

Monitoring Activity

Bluebird boxes are checked weekly during the breeding season, generally between April through the end of August and occasionally into September. Volunteer monitors will record any bird activity near and inside the box.

Month-By-Month Expectations

Bluebirds arrive at their breeding grounds in February and March and will begin courtship behavior soon afterwards. On average, bluebird nest box monitoring begins in April and continues through August or early September. Here is a brief summary of general box activity month-by-month.

- March: Existing boxes are checked for maintenance issues or new boxes are installed at new locations.
- April: Courtship behavior. Check your boxes this month and become familiar with the area. Nest building activity may begin this month. Weekly checks will begin depending on box activity.
- May: Egg-laying and incubation. Weekly checks will begin May 1st.
- June: Egg hatching. Young will fledge about 21 days after hatching.
- July: Second clutch is possible.
- August: Egg hatching. Young will fledge about 21 days after hatching.
- September: Monitoring ends. Boxes are prepped and cleaned to remain outside through the winter.

Important Reminders:

- **Use a separate data sheet for each nest box.**
- **Boxes should be checked weekly.**
- **Too many nest visits can lead to nest abandonment by the parents.**
- **Ideal time of day for checking: 10 AM -2 PM.**
- **Do NOT check boxes on windy, rainy or snowy days.**
- **Alert birds to your presence before checking by talking or tapping on the side of the box.**
- **The female bluebird may remain on the nest when checking.**
- **Do NOT check boxes more than 14 days after hatching to prevent early fledging.**
- **Wasp nests may form in the box and can be removed on cold days early in the morning.**
- **Do not allow House Sparrows or European Starlings to build nests in bluebird boxes.**

End of the Season

- Check the Google datasheets to confirm that all of your monitoring data has been recorded and saved.
- Please return the POST Partners Evaluation Survey to the Natural Resource Specialist.
- Summary data will be submitted to the Colorado Bluebird Project and the Cornell Lab of Ornithology for the national database of bluebird populations.
- Assistance is also needed at the end of the summer to conduct year-end maintenance or enter summary data into the NestWatch database; if available to help, please let us know.





Nest Monitor's Code of Conduct

Observations of nests should never jeopardize the well being of birds. Observers must exercise extreme caution and responsibility to ensure the safety of birds, nests, and nest contents. The Nest Monitor's Code of Conduct is intended to help nest monitors minimize disturbance to a bird's nest while observing them and recording data. Careful observation of nests can minimize or eliminate the three potential risks that all nest monitors must be careful to avoid:

- Accidental harm to a nest
- Parental desertion of a nest
- Depredation of a nest

1. Learn about the nesting cycle of birds

Birds are diverse and fascinating creatures! Make the most of your NestWatching experience by understanding a bit about their nesting behaviors. Visit the NestWatch web site for general information about avian breeding biology.

2. Plan and prepare

Make a plan to conduct observations of nests every four or five days, following as closely as possible the NestWatch protocol. The first time you encounter an active nest, accurately record its location in your field notes to avoid long searches on subsequent visits. If you must use flagging to relocate a nest, place the flagging at least 20 to 30 feet away from the nest. Prepare materials such as field datasheets, notebooks, cameras, GPS units, etc., beforehand to minimize time spent in the immediate vicinity of the nest. Clipboards are an excellent way to keep your datasheet(s) handy.

3. Choose an appropriate time to visit nests

As a general rule you should AVOID nest monitoring during certain times:

- **Do not check in the early morning.** Check nests in the afternoon, since most females lay their eggs in the morning. Eggs and young nestlings get cold quickly if left alone in the morning.
- **Avoid nests during the first few days of incubation.** If necessary, observe nests from a distance and approach only when the female leaves the nest.
- **Do not approach nests when young are close to fledging.** When the young are disturbed during this stage, they may leave the nest prematurely. Young that fledge prematurely usually do not stay in the nest despite attempts to return them, and their survival rates away from or outside the nest are very low.
- **Avoid nests during bad weather.** If the weather is cold, damp, or rainy, postpone checking the nest until another day. Checking nests during this time can be very stressful for birds.
- **Do not check nests at or after dusk,** when females may be returning to the nest for the night. The exception to this would be owls, which typically leave the nest at dusk.

over ⇨

Visit NestWatch at www.nestwatch.org

4. Search carefully

It is critically important that monitors avoid damaging known nest sites, whether in nest boxes or out in the open. Nests that have yet to be discovered are particularly vulnerable. When searching for nests, move slowly through dense foliage, being careful not to dislodge any nests. Many birds such as Killdeer, Ovenbirds, Bobolinks, and waterbirds nest on the ground in nests that are difficult to see, so tread lightly and be cautious around potential ground nest sites.

5. Be wary of nest predators

Avoid leaving tracks that can direct predators to nests. Nest predators are everywhere—on the ground, in vegetation, and in the air—and many are smart enough to watch you! Be careful that predators such as cats, crows, and jays are not following you. Minimize damaging or trampling vegetation that could expose a nest to wind, rain, or predators.

6. Minimize disturbance at the nest

It is important not to startle a bird as you approach the nest; this may cause it to accidentally knock out eggs or young when it flies off. Before approaching the nest, try to see if a parent is sitting on it. Whenever possible, wait a few minutes to see if the bird leaves on its own. This is the ideal time to check a nest. Nest boxes should be tapped first, then tapped again when open to allow the parent to slip away before you stare directly into the box. If the bird is to be flushed, give it ample time to slip off quietly by tapping branches during your approach. If a sitting bird does not leave before you look in, do not force it off the nest. Remember to keep each visit brief, and wait until you are at least 10 meters from the nest before recording your field notes.

7. Do not handle birds or eggs without proper permits

Do not handle young birds or eggs. Eggs can be easily cracked or small nestlings injured, and both can be chilled if left unattended by parents. Small nestlings are remarkably helpless and may not be able to crawl back into the nest cup if displaced, even in a nest box. Children monitoring nests should always be under the supervision of an adult. If you wish to band birds or handle the nest contents you need to possess the proper federal and/or state or provincial permits.

8. Don't leave a dead-end trail

Whenever possible, take a different route away from the nest site than the route you took to reach it. Walking to the nest and back leaves a dead-end trail that can lead predators directly to the nest. Make a loop to and from the nest if possible. This is most important for nests that are fewer than eight feet off the ground.

9. Respect private land

If you wish to search private land for nests, first gain permission from the landowner. Remember that you are asking a favor. Explain your purpose; many landowners will probably be interested to know more about what you are doing and what birds are nesting on their property. Treat landowners and their property with utmost respect, and follow any special requests they make.

10. Understand the Migratory Bird Treaty Act

Under the Migratory Bird Treaty Act it is illegal to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued by federal and, in some cases, state agencies.

MONITORING MANUAL

Supplies

There are a few items that will be needed to check the nest boxes and record the data:

- Binoculars
- Pen or pencil
- Clipboard
- Data sheets

Other miscellaneous items that are not needed but can be helpful:

- Field guide to birds
- Small hand mirror
- Phillips-Head screwdriver or drill
- Disposable gloves
- Putty knife
- Camera
- Cell phone



Monitoring Steps:

1. Walk along the bluebird trail.
2. Stop near each nest box and observe for adults that may be on, near or leaving the box.
3. Approach the nest box with care. Tap box lightly before opening.
4. Open box and quickly observe contents and any other activity.
5. Close and secure box before walking away using a different route.
6. Record all observations at a safe distance away from the box.
7. Report each daily observation electronically using Google Documents.



Remember to be efficient and thorough when checking boxes. Check the nest quickly; your visit should take less than a minute. It's okay if you miss a day or can't get an exact count. Safety of the birds should be your first priority.

Collecting Data:

As nest box monitors, you will be collecting information related to adult courtship, nest building, egg laying, incubation, hatching and fledging of bluebirds, swallows and possibly wrens. Collecting data means you will report exactly what you see each time you monitor a nest, therefore, it is recommended to provide as much details as you can.

It is important to record the following data:

- Date: Weather, time.
Adults: Species, activity status.
Nest: Note presence and amount of material, whether cup is lined and condition after fledging.
Eggs: Number, color and first egg date.
Hatchlings: Number, age and condition.
Parasites: Type, any measures taken.
Fledglings: Number, date of fledging (if known), any post-fledging sightings nearby.
Comments: Adult presence, competitors, behavioral notes, other observations.



Nest box monitoring can be generally divided according to activity. Here is a timetable for how long an average bluebird pair spends at each phase:

Nest Building:	1-6 days
Egg-laying:	5-7 days
Incubation:	Eastern – 12-14 days Mountain – 13-15 days Western – 14 days
Brooding:	6 days
Fledging:	Eastern – day 16-21 Mountain – day 19-23 Western – day 19-22

Data Sheets:

All monitoring data collecting during the season should be recorded on specific data sheets for year-end data entry with the Cornell Lab of Ornithology and Audubon Society of Greater Denver. Using data sheets will also help you to track the age of the nestlings to avoid checking the box after Day 14 when the nestlings are vulnerable to premature fledging. The following pages provide an example of a completed data sheet and a blank sheet for data collection this year. This data sheet format does not allow for comments; any occurrences of significance or relevance can be relayed to the other site volunteers through email to Barbara Spagnuolo at bspagnuolo@cr.gov.



Remember to use a separate data sheet for each individual nest box.

Electronic Data Reporting:

The Project Coordinators (Barbara and Marcy) as well as the other volunteer monitors will need to access your data. All monitoring data collected in the field must be recorded and tracked electronically using Google Documents. Your monitoring data must be entered before the end of your assigned monitoring week to provide accurate updates to the subsequent monitor.

Importance of Monitoring:

Your monitoring data is important! Long-term data sets are vital to scientists seeking to unravel the effects of climate and land-use changes on wild bird populations. Data that is collected by our volunteers is submitted to Cornell Lab of Ornithology and tracked through NestWatch each year. NestWatch is a continent-wide citizen-science project and nest-monitoring database of all types of nests; additional information can be found at www.nestwatch.org.

If happy little bluebirds fly
beyond the rainbow
why, oh why, can't I?"

Monitoring Reminders:

- Keep track of data on paper sheets, as well as electronic reporting (email and Google Documents).
- Use a separate data sheet for each nest box.
- Boxes should be checked weekly.
- Too many nest visits can lead to nest abandonment by the parents.
- Ideal time of day for checking: 10 AM -12 PM.
- Do NOT check boxes on windy, rainy or snowy days.
- Wait and observe area near/outside box for adult activity before approaching.
- Note the species using each box.
- Do not allow House Sparrows or European Starlings to build nests in bluebird boxes.
- Wasp nests may form in the box and can be removed on cold days early in the morning.
- Alert birds to your presence before checking by talking or tapping the box.
- The female bluebird or swallow may remain on the nest when checking. If unable to record data, indicate with a “U” for that visit.
- Even if adult birds are not visible near the nest, you can still determine if the nest is from a bluebird or swallow by observing the nesting material and color of the eggs.
- Swallow nests are feather-lined, which is different than bluebird nests, which are lined with grass only.
- Swallow eggs are white and bluebird eggs are blue.



Bluebird nest and eggs.



Swallow nest with feathers and eggs.

- Do NOT check boxes more than 14 days after hatching to prevent early fledging.
- Any dead chicks or unhatched eggs should be reported to the Volunteer Coordinator immediately for removal.
- Do not assume a nest is abandoned just because you don't see or hear an adult bird in the vicinity, even for long periods of time.
- Record all data at a safe distance away from the nest box to reduce potential stress on the birds.
- Report flattened nest, which determines successful fledging.

**TOWN OF CASTLE ROCK
BLUEBIRD NEST BOX MONITORING DATASHEET - 2018**

**EXAMPLE
COMPLETED
DATA SHEET**

SITE NAME: EXAMPLE SITE

BOX #: 1

SPECIES: MOBL

PREDATOR GUARD (Y/N): Y

Date	# Eggs *	# Live Young	# Dead Young	Nest Status	Adult Status	Young Status	# Un-hatched Eggs **	# Fledged	Mgmt Activity	Observer Initials	Check for Notes Below
4/4	--	--	--	NO	NO	NO	--	--	--	BS	
4/11	0	0	0	IN	VA	NO	--	--	--	MJ	
4/18	0	0	0	CN	VA	NO	--	--	--	BS	
4/25	4	0	0	CN	AA	NO	--	--	--	MJ	
5/2	U	U	U	CN	RA	NO	--	-	-	BS	
5/9	0	5	0	CN	FA	NY	-	-	-	MJ	
5/16	0	5	0	CN	VA	PY	-	-	-	BS	
5/23	0	5	0	CN	NO	FY	-	-	-	MJ	X
5/30	U	U	U	CN	NO	U	-	-	-	BS	X
6/6	0	0	0	FN	NO	YY	-	5	RN	MJ	

*** If eggs or young are present but not countable, enter "U" for unknown. ** Unhatched eggs are only counted after chicks have fledged**

SPECIES: MOBL = Mountain Bluebird; WEBL = Western Bluebird; EABL = Eastern Bluebird; TRES = Tree Swallow
VGSW = Violet-green Swallow; HOWR = House Wren; HOSP = House Sparrow; BCCH = Black-capped Chickadee

ADULT STATUS: NO = No adults seen or heard; AA = Adults at/on then flushed from nest; BA = Adults seen building nest or carrying nest material; DA = Dead Adult; FA = Adult feeds young at nest; RA = Adult remained on the nest; VA = Adults in vicinity of nest

NEST STATUS: NO = No Nest; IN = Incomplete Nest; CN = Complete Nest; DN = Damaged Nest; FN = Flattened Nest

YOUNG STATUS: NO = No Young or presumed dead; HY = Hatching Young; NY = Naked Young;
PY = Primary feathers in pin; FY = Fully feathered young; VY = Vocal young, heard only; YY = Young fledged from nest

MGMT ACTIVITY: RN = Removed Nest; PM = Pest Mgmt (wasp nest); EM = Unhatched eggs removed; AM = HOSP nest

NOTES: MJ 5/23: Chicks ready to fledge, do not check next week. BS 5/30: Did not check to prevent premature fledging.
6/6 MJ: Removed nest and cleaned out box.

NESTING ATTEMPT SUMMARY (Fill in information after the nesting attempt is complete.)

IMPORTANT DATES

First Egg Date	
Hatch Date	
Fledge Date	

TARGET SPECIES TOTALS

Visits to Nest	Clutch Size	Unhatched Eggs	Live Young	Fledglings

NEST FATE (Record the outcome of the nesting attempt, whether successful or failed.)

Chose one option below:	
	At least one young (or all) successfully fledged (left the nest)
	All young found dead in or nearby nest
	All young disappeared from nest before fledge date, reason unknown
	Predator known to cause nest failure
	Nest was taken over by another species
	Invasive species management
	No eggs hatched
	Unknown outcome
	No breeding behavior observed

ADDITIONAL BREEDING DATA EXPLANATIONS

Date & Time — Record month and day of each nest visit.
Eggs* — Record the number of host eggs counted.
Live Young* — Enter the number of live young of species in the nest.
Dead Young* — Enter the number of dead young of species in the nest.
Nest Status — Describe the status of the nest at each visit.
 NO = Cavity, nest box, or platform with no nest present, or use this code for species that do not build nests
 IN = Nesting materials present, but nest incomplete
 CN = Nest structurally complete, with an obvious cup
 DN = Damaged nest
 FN = Flattened nest with fecal matter
 AN = New avian nest found in same site (new attempt)
 NN = Non-avian nest found (describe in "NOTES")
 RN = Nest disappeared for unknown reason
Adult Status — Describe activity of adults seen or heard near the nest for each visit.
 NO = No adults seen or heard
 BA = Building nest or carrying nest material
 RA = Remained on the nest during check
 AA = Left nest and flew from vicinity during check
 VA = Remained in vicinity of the nest during check
 FA = Feeding young at nest, or seen carrying food
 DA = Dead adult(s) at or near nest site

Young Status — Describe the appearance of young birds.
 NO = No young present at nest
 HY = At least 1 chick hatching or just emerged from egg
 NY = Nestlings naked and pink, eyes typically closed
 PY = Wing feathers emerging, some skin still visible, eyes open
 FY = Body feathers completely cover skin, tail feathers stubby
 VY = Vocal young, heard only
Management Activity — Describe any human management activities at the nest site for each visit.
 NO = No management activities conducted
 AM = Avian competitor nest/eggs/young removed (House Sparrow & European Starling only)
 BM = Banded adults or young at nest (only to be done by a permitted individual)
 EM = Unhatched host eggs removed
 NM = Nest box management (cleaning, plugging, unplugging, or replacing boxes; removing old nesting material, etc.)
 PM = pest management (wasps, ants, mice, etc.)
 *Enter "U" if eggs or young are present but exact number is unknown. Leave blank if you cannot determine if eggs or young are present.

**TOWN OF CASTLE ROCK
BLUEBIRD NEST BOX MONITORING DATASHEET**

Add species name here

1. SITE NAME: Example Site BOX #: 1 YEAR 2017 SPECIES: _____

2. BREEDING DATA:

Date	# Eggs *	# Live Young	# Dead Young	Nest Status	Adult Activity	Young Status	# Un-hatched Eggs **	# Fledged	Mgmt Activity	Observer Initials	Check for Notes Below
5/3	X	X	X	IN							
5/10	0	0	0	CN							
5/17	2	0					2		No		
5/24	5	0					5		No		
5/31	5	0	0	CN	VA		5		No		
6/7	0	?	0	CN	RA				No		
6/14	0	5	0	CN	AA						
6/21	0	5	0	CN	VA						
6/28	0	5	0	CN	FA				No		
7/5	0	0	0	FN	NO			5	No		

Use this column only at end of nesting cycle for eggs that never hatched.

Do not use "X" to indicate no eggs or chicks in nest.

Use a "U" to indicate unknown eggs or chicks because the female remained on the nest. Don't use a question mark.

Flattened nests need to be removed as soon as possible.

*** If eggs or young are present but not countable, enter "U" for unknown. ** Unhatched eggs are only counted after chicks have fledged**

SPECIES: MOBL = Mountain Bluebird; WEBL = Western Bluebird; EABL = Eastern Bluebird; TRSW = Tree Swallow; VGSW = Violet-green Swallow; HOWR = House Wren; HOSP = House Sparrow

ADULT ACTIVITY: NO = No adults seen or heard; AA = Adults at/on then flushed from nest; BA = Adults seen building nest or carrying nest material; DA = Dead Adult; FA = Adult feeds young at nest; RA = Adult remained on the nest; VA = Adults in vicinity of nest

NEST STATUS: NO = No Nest; IN = Incomplete Nest; CN = Complete Nest; DN = Damaged Nest; FN = Flattened Nest

YOUNG STATUS: NO = No Young or presumed dead; HY = Hatching Young; NY = Naked Young; PY = Primary feathers in pin; FY = Fully feathered young; VY = Vocal young, heard only; YY = Young fledged from nest

MGMT ACTIVITY: RN = Removed Nest; PM = Pest Mgmt (wasp nest); EM = Unhatched eggs removed; AM = HOSP nest

NOTES:

In some cases, you may not know the exact hatch date of the young, and you may need to estimate their age. It is important to keep track of the hatchlings age, since the boxes should not be opened or checked when the young are fully feathered, as this can cause premature fledging (leaving the nest early when frightened). Most bluebird young will fledge approximately three weeks after hatching (estimated 19-23 days). The datasheets, revised in 2015, provide a description of young status that correlates with the NestWatch timetable.

After you are certain that the young have fledged, check the nest to determine if it is intact and flattened, and in some cases covered with fecal matter, which indicates successful fledging. If the box is empty, but appears disheveled or depredated, remember to describe what you see on the data sheet.

Bluebirds will likely raise more than one brood (clutch of eggs) per breeding season, so it is helpful to completely remove the first nest before the pair attempts a second brood. Remember to use a separate data sheet for each new nest attempt. Swallows rarely raise more than one brood in a season.

This table gives you guidelines for estimating hatch date and age of the young:

Day 1:	Bright coral-pink skin, eyes sealed, down in sparse tufts. Described as Hatching Young.
Day 2-4:	Wings, head, spine look bluish due to developing feathers under skin. Described as Naked Young.
Day 5-7:	Feather sheaths begin to emerge on wings. Eyes still closed.
Day 7:	First feathers burst from tip of sheaths. Eyes open as slits. Brooding by female stops.
Day 8-11:	Eyes fully open. Feathers continue to burst sheaths. Described as primary feathers in pin.
Day 11-12:	Feathers of wing and tail reveal cobalt blue in males, duller gray-blue in females.
Day 13:	Cut-off date for box checks. Fully feathered young become increasingly active, and may fledge prematurely if box is opened.
Day 14-22:	Fledging and first flight. Empty nest soiled, flattened. Young remain in cover while parents bring food.
Day 28 on:	Fledglings fly strongly, following parents who feed them.
Day 30 on:	Fledglings feed unassisted.

Abandonment:

If you find a nest with eggs and no parents, verify whether the nest is indeed abandoned. Prior to incubation, birds may leave their eggs unattended for most of the day. During incubation, adults may leave the nest for periods of up to 15 minutes to feed.

Threats of predation, harsh weather, or infestations of insects can cause the parents to leave. Frequent or aggressive disturbances from humans also can cause nest desertion, and care should be taken to eliminate this possibility.

The eggs may remain viable for up to two weeks after being laid even before they are incubated, so as a rule of thumb, you should wait at least two weeks after the expected hatch date before concluding that a nest is abandoned.

NEST STATUS

This is a photographic documentation of the stages of development in the nest. The nest building timeframe is 1-6 days, and then the eggs are laid.



YOUNG STATUS

After hatching, all chicks in the nest can be categorized into 4 phases of development: Hatching Young (HY), Naked Young (NY), Primary Feathers in Pin (PY) or Fully Feathered (FY).

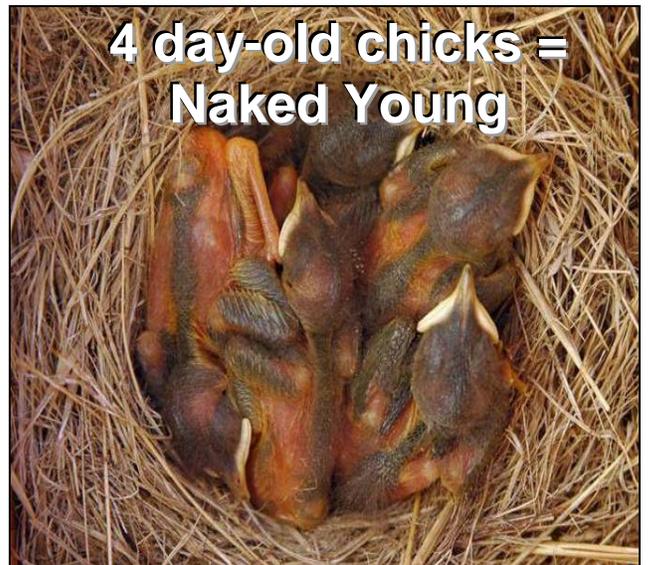


YOUNG STAGES OF DEVELOPMENT

This is a photographic documentation of the stages of young (nestling) development in the nest. At hatching, chicks are blind and featherless but grow quickly and are ready to fledge after 21 days. Bluebird and swallow chick development is very similar.



Hatching Young is only used for Hatch Day. Naked Young are chicks in development between Hatch Day until pin feathers are significantly noticeable (about 7 days).



YOUNG STAGES OF DEVELOPMENT (cont.)



REMEMBER!

Chicks will be ready to fledge 21 days after hatching but are easily startled between 14-21 days of age.

DO NOT check the boxes 14 days from Hatch Day (Day 14) to prevent the chicks from early fledging (leaving the boxes) before they are ready.



BIRD IDENTIFICATION SHEETS

Correct identification of the adult birds using the nest boxes allows you to record accurate breeding data. Although our bluebird nest boxes are designed and intended for use by Mountain and Western Bluebirds, occasionally other species of birds will use the boxes. There is a low likelihood that Eastern Bluebirds will be found in Castle Rock, but it is possible. Other native birds known to use bluebird boxes include Violet-green Swallows, Tree Swallows and less frequently, House Wrens, Black-capped and Mountain Chickadees. These birds are native and therefore allowed to use the boxes. However, **there are two other species of birds that should not be allowed to use the bluebird boxes under any circumstances: House Sparrow and European Starling.** These birds are non-native and aggressive, and are known to attack bluebirds and swallows.



It is recommended that volunteer monitors carry along a bird field guide, or download a bird identification app for smartphones, when checking the boxes to correctly identify adult birds seen in, on or near the boxes. If you do not have access to a field guide, the following pages are provided as a quick reference guide to the three different species of bluebirds, and other species of birds that are either allowed or prohibited from using the bluebird boxes.

*A bird does not sing because he has an answer.
He sings because he has a song.*

BIRD IDENTIFICATION SHEET

MOUNTAIN BLUEBIRD

MALE



Key ID: bright blue overall; whitish lower belly; longer wings.

FEMALE



Key ID: mostly gray with blue wings and tail; white eye ring.

WESTERN BLUEBIRD

MALE



Key ID: blue throat & head creates a blue hood; brown back and chest.

FEMALE



Key ID: head and back brownish gray; brown chest; gray throat.

EASTERN BLUEBIRD

MALE



Key ID: brown throat extends down to belly; blue back.

FEMALE

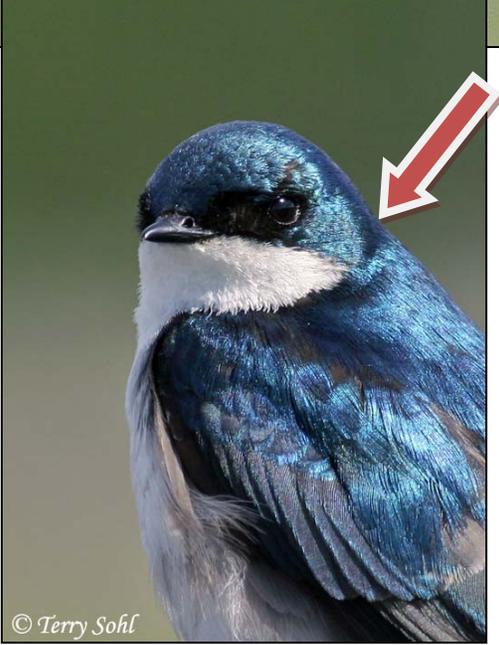
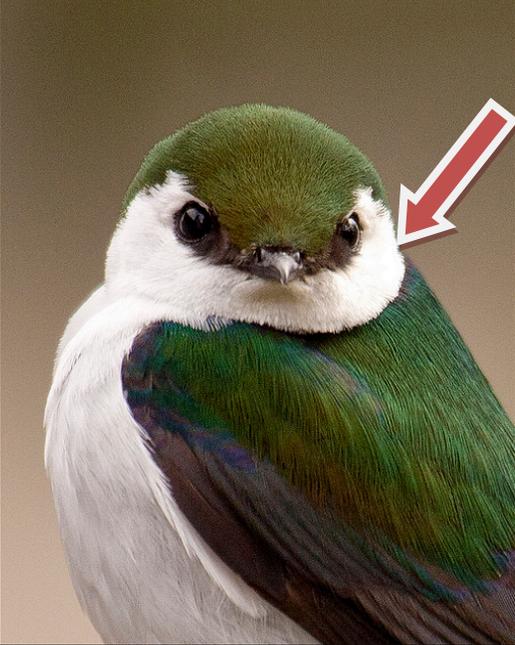


Key ID: light gray head; brown throat extends to belly.

OTHER NATIVE BIRDS THAT MAY USE BLUEBIRD BOXES

In addition to bluebirds, swallows are often found using our nest boxes. The two species of swallows in our boxes are Tree Swallow and Violet-green Swallow. These birds are more defensive than bluebirds and may swoop around the box during box checks, making a loud chattering call.

To correctly identify these species, note the differences in white eye patches and back coloring. Tree Swallows are more common but Violet-green Swallows have used our boxes in the past.

Tree Swallow	Violet-green Swallow
	
	
<p>Key ID: iridescent blue-black back and head; black around eye; white throat and belly; white patch does not extend over eye. Males and females are similar.</p>	<p>Key ID: iridescent green back and head; iridescent purple on lower back; white throat and belly; white cheek patch extends above the eye. Female has duller markings.</p>

UNWANTED BIRDS THAT SHOULD NOT USE BLUEBIRD BOXES

These birds are non-native and aggressive towards bluebirds and swallows, often attacking and injuring or killing adults, eggs or chicks. They may try to use our bluebird boxes.



Please be on the lookout for these two species!

These birds should not be allowed to use the bluebird boxes.

If these birds are observed building a nest in the boxes, you are encouraged, and allowed by law, to immediately remove and dispose of the nest. Please contact us if you find these birds active in or around our bluebird boxes.

House Sparrows have nested in our boxes in the past but Starlings have not been found in our boxes yet.

FEMALE BIRDS ON NESTS

Mountain Bluebird. Note the gray overall coloring.



Western Bluebird. Note the brown coloring on the upper shoulders.



Tree Swallow. Note the slight variations in iridescent blue color. Feathers are present in nest.



TROUBLESHOOTING TIPS

BLUEBIRD TROUBLESHOOTING CHART***

<u>PROBLEM</u>	<u>LIKELY CAUSE</u>	<u>SOLUTION</u>
Box filled with unorganized twigs. Eggs pierced and/or on ground below box, leaving nest undisturbed. Nestlings pecked on head or dead on ground below box, nest undisturbed.	HOUSE WREN	Keep twigs removed. Plug hole until wren relocates. Mount wren box with 1-inch hole near shrubbery. Move bluebird box 100 feet away from shrubs, trees. Leave completed wren nests alone, and erect another box in the open for bluebirds.
Box filled with straw, trash, feathers, curving up back of box. Eggs missing or on ground below box, nest undisturbed. Nestlings pecked on head or dead on ground below box, nest undisturbed. Adult bluebird dead on nest, head pecked.	HOUSE SPARROW	Allow bird to build, then trap by plugging hole. If this fails, use trap in box or cage trap baited with corn. Destroy or relocate birds miles away. Don't mount boxes near barns where animals are fed; don't feed corn. If sparrows outnumber bluebirds, accept defeat and remove boxes.
Feathers, often white, on top of nest. Rarely, eggs missing or young pecked, nest undisturbed.	TREE SWALLOW	Erect another box 15-25 feet away. Tree swallows are to be welcomed as nesters, will help defend bluebirds from wrens, sparrows, other swallows.
Female bluebird, eggs or young gone; nest pulled out of hole, feathers on ground under box. Scratch marks on box.	RACCOON, HOUSE CAT, OPOSSUM	Clean box and remount on metal pole fitted with predator baffle. Mount in open area, far from cover, or use automotive grease on pipe.
All eggs or young gone, nest undisturbed, no scratch marks or remains left.	RAT SNAKE BULL/PINE SNAKE	Remove nest. Remount box on pole fitted with stovepipe predator baffle.
One or more eggs or young missing, nest undisturbed, no scratch marks or remains left	CROW, JAY, MAGPIE, GRACKLE	Install 3/4-inch wood predator guard over hole. Lower nests built right up to hole by removing an inch or two of material from the bottom. For chronic magpie problems, use sheet metal extension to lengthen roof overhang to 5 inches over the hole.
Adults flutter at box hole but don't go in; nest may be abandoned though pair seen in the area.	WASPS, BUMBLEBEE	Check inside ceiling of box for wasp nest. Crush nest and insects with long stick (wait until dark if insects are aggressive.) Rub bar or liquid soap on box ceiling to repel. Don't use insecticides in box.
Nest infested with ants.	ANTS	Remove broken eggs or dead young, Replace nesting material if young are threatened. Apply a band of grease, oil, or Teflon spray to pole.
Nestlings weak and slow to develop, heads and wings scabby. Maggots may be attached under wings. Dirty, ill-smelling damp layer under nest cup. Brown pupal capsules in bottom of box.	BLUEBIRD BLOWFLY	Use putty knife to check under nest cup. Remove and confine nestlings, remove nest, clean box. Pack fresh dry grass tightly in box and replace nestlings. <i>Do not use insecticide in box. Do not attempt blowfly control after nestlings are 13 days old</i>
Nestlings dead or chilled in wet nest.	HYPOTHERMIA	Watch boxes closely in cold, wet weather. Fill vent holes with putty-type weatherstripping (Mortite). Replace wet nest with clean dry grass. Remove dead nestlings and warm living ones before replacing in dry nest. Supplement food with mealworms, conspicuously placed on or near box.
Apparently healthy nestlings found dead, unmarked but bloated, often about 8 days old, parents in attendance. Parent disappears without signs of predation. Birds found dying with tremors, disorientation.	PESTICIDE/ HERBICIDE POISONING	Investigate surroundings for brown, withered vegetation (herbicide) or signs of pesticide use (lawn care company signs). Try to arrange a moratorium on spraying. Relocate box if unsuccessful.

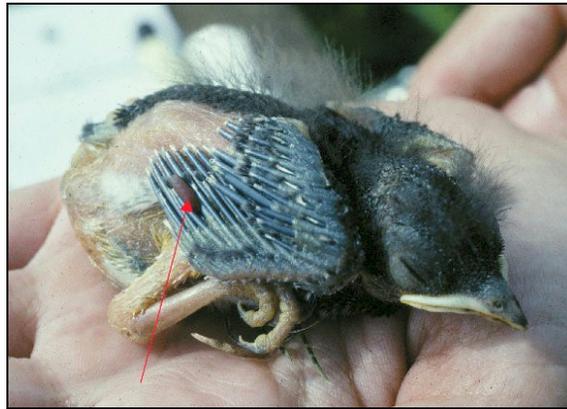
***From Julie Zickefoose's booklet, "Enjoying Bluebirds More"
Published by Bird Watchers Digest
North American Bluebird Society
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www.nabluebirdsociety.org



PARASITES

Parasite control is an important aspect of bluebird box monitoring. Monitoring nest boxes will alert you to problems the birds may be having with ants, lice, mites, fleas and blowfly parasitism. The boxes in Castle Rock shouldn't have problems with lice, mites or fleas as they are rarely found in boxes mounted in the open on a metal post; ants may be found occasionally, but can be controlled by replacing the nesting material and cleaning the box. These parasites rarely cause permanent harm to the bluebirds.

Blowfly parasitism is very concerning and must be controlled immediately if found. Uncontrolled, the larvae of this species may weaken or possibly even kill the nestling bluebirds, but only if the birds are already stressed from food shortages or prolonged rain. If you identify larvae in the nest, you should replace all the nest material with dried lawn clippings in a shape similar to that of the original nest. This will increase the chance that the chicks will survive. Volunteers are encouraged to contact the Natural Resource Specialist if blowflies are detected in a nest box. Do not try to remove any larvae from the live chicks.



Blowfly larva attached to wing of nestling bluebird (Photo copyright ©2001 Kevin Berner)

All kinds of birds have parasitic mites, although they are more common in swallow nests than bluebird nests. Often, birds' nests are crawling with thousands of these tiny (pin-head sized) brown or red dots swarming all over the nest and box. They are not usually fatal to the birds but can be an irritant. Nothing can be done until the chicks fledge, then, remove the nest and rinse out the interior of the box. They are not harmful to humans but it is not recommended to try and brush them off the nest or box.



COLORADO BLUEBIRD PROJECT - SAFETY INFORMATION

TICKS

- Ticks are blood-feeding parasites of animals found throughout Colorado.
- Ticks are most active in spring and early summer in brushy areas.
- DEET is the most effective tick repellent. Apply it to pants or other areas of the lower body.
- Ticks take several hours to settle and begin feeding, so it is important to conduct a thorough tick check after walking through brushy areas.
- To remove a tick, grasp it with blunt tweezers, as close to the skin as possible.



Rocky Mtn.
Wood Tick

WASPS

- Paper wasps may build their nests in nest boxes.
- If wasps move into a box, bluebirds will abandon their nest, so wasp nests must be removed.
- It is best to remove wasps and their nests early in the morning when they are less active.
- A thin layer of Vaseline or Ivory soap rubbed on the interior ceiling of the nest box can prevent wasp nest building.
- Do not spray insecticides that could kill or harm the birds.



POISON IVY

- Poison ivy is a 3-leaved plant found throughout America.
- All parts of the plant (leaves, vines and roots) contain oil, called urushiol, which causes an allergic reaction like a rash.
- Can grow as a bush or climb up trees and across the ground.
- You can get the rash from touching it, or touching something that has touched it.
- There is risk year-round.
- Wear long pants and long-sleeves to prevent direct skin contact with poison ivy.
- Rinse the affected area with lots of cold water within 1 hour.



RATTLESNAKES

- Rattlesnakes, and many varieties of non-venomous snakes, are common throughout Castle Rock.
- Most Colorado snakes are non-venomous (nonpoisonous), harmless and beneficial to people because of their appetites for insects and rodents.
- Venomous snakes do not always release venom when they bite.
- Rattlesnakes generally are non-aggressive toward people unless they are startled, cornered, or stepped upon.
- Rattlesnakes do not always shake their rattles before striking, so do not rely solely on your sense of hearing.
- Non-venomous and venomous snakes can be easily distinguished from each other.
- Rattlesnakes have a broad, triangular head, elliptical pupils, distinctive, heat-sensing pits on each side of their face and rattles on their tail.
- There are two poisonous snakes in Colorado, the Prairie Rattlesnake and Massasauga, but only the Prairie Rattlesnake has been found in Castle Rock.
- Non-poisonous Bull snakes are often confused with rattlesnakes since they have similar markings and will vibrate their rattle-less tails on dry vegetation.
- Prairie Rattlesnakes are commonly seen in Castle Rock in grassland areas and rocky outcrops, but may also be found along both concrete and dirt trails.



Prairie Rattlesnake



Bull Snake (non-poisonous)

Myth: All snakes are aggressive and will always bite.

Truth: Given an opportunity to escape, snakes will choose flight over fight.

WHAT TO DO IF YOU ENCOUNTER A RATTLESNAKE:

- Most importantly, remain calm and still at first.
- Give the snake lots of room and walk around it or back away slowly and carefully.
- Do not handle, move or harass it.
- Quickly seek medical attention for venomous snakebites.



BOX LOCATIONS

There are bluebird boxes distributed around Castle Rock at open space areas, parks, and schools and along both concrete and soft-surface trails. All boxes are located in public areas on public property with parking facilities. Boxes are either attached to existing fence lines or mounted to freestanding metal t-posts. The level of difficulty associated with access to the boxes varies and depends on the site. Also, the success rate (percentage of occupancy) of the boxes varies with location and cannot be guaranteed from year to year. However, the probability of success improves each year the boxes are available since bluebirds will return and nest near where they were raised. Some sites have had boxes and nesting activity since 2007.

Volunteer monitors adopt one property each year and are requested to become familiar with both the nest box locations and the property itself.

This is a current list of locations with bluebird boxes as of 2018:

- 
- Bison Park
 - Butterfield Park
 - Castle Rock Elementary
 - Cedar Hill Cemetery
 - Crystal Valley Ranch
 - Douglas County HS
 - Faith Lutheran Church
 - Flagstone Elementary
 - Flagstone Future Park Site
 - Gateway Mesa
 - Gateway Mesa Interior
 - Gemstone Park
 - Matney Park
 - Memmen Ridge
 - Mesa Middle School
 - Metzler Ranch Park
 - Mitchell Gulch Park
 - Native Legend Trail
 - Native Legend Trail East
 - Philip S. Miller Park
 - Plum Creek Park
 - Quarry Mesa
 - Red Hawk Ridge Golf Course A
 - Red Hawk Ridge Golf Course B
 - Renaissance Magnet School
 - Rhyolite Regional Park
 - Sage Canyon Elem.
 - Stewart Trail
 - The Rock Church
 - Woodlands Bowl
 - Wrangler Park



