Acknowledgements

Development of the Black Rosy-finch Study would not have been possible without our diverse partners, sponsors, donors, and volunteers like you. The study is funded and supported largely through the Tracy Aviary and the Tracy Aviary Conservation Fund, Utah Department of Natural Resources, Utah State University, Wild Utah Project, and U.S. Department of Defense. We thank many for their valuable fiscal and in-kind contributions: Bridgerland Audubon Society, Great Salt Lake Audubon, Cross Charitable Foundation, Powder Ridge Condominiums, Friends of Alta, Alta Ski Area, Town of Alta, Powder Mountain, Solitude Mountain Resort, Beaver Mountain, Brighton Institute, Cottonwood Canyons Foundation, The Nature Conservancy’s Canyonlands Research Center, U.S. Fish and Wildlife Service, and many other private donors. Through these groups, the Study is able to fund equipment and travel costs, seed to keep feeders full, professional scientists’ staff time, and graduate student stipends. Thank you to the many partners, sponsors, and donors for your contributions in making this study a success!

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Contents

THE BLACK ROSY-FINCH ........................................ 3
BIOLOGY .......................................................... 3
CONSERVATION CONCERNS .............................. 4
THE STUDY ......................................................... 4
PROTOCOL #1 STANDARD FEEDER COUNTS ............ 7
PROTOCOL #2 OPPORTUNISTIC FEEDER COUNTS ... 10
BIRD COUNTING TIPS & TRICKS ............................ 11
IDENTIFICATION GUIDE ..................................... 15
The Black Rosy-finches are one of the least understood birds in North America. We know little about their population status, survival rates, distribution, or migratory tendencies. These data gaps limit not only our understanding of the species, but also limit our ability to conserve them.

**Biology**

**IDENTIFICATION:** The Black Rosy-finch is a member of the finch family (Fringillidae) with a short tail and stocky bill. Individuals have a striking black plumage in the summer and subdued dark brownish charcoal color in the winter. This species has wing, flank, and undertail feathers highlighted in a rosy pink. Black rosy-finches also have a light grey patch extending behind each eye. Bill color changes from yellowish in the fall and early winter to black in the breeding season. Males and females look similar, except females have a more muted brownish-gray overall as compared to the darker males.

**BREEDING:** The Black Rosy-finch is an alpine specialist. They occupy patches of mountain-tops within the Rocky Mountain and Great Basin regions. In the breeding season (May – July), the Black Rosy-finch range extends from central Montana, south to the La Sal Mountains in southeastern Utah. These finches are usually at the confluence of talus slopes, rocky cliffs, open alpine tundra, and snowfields or glaciers. This habitat is extremely hard to access, contributing to our lack of knowledge about these birds. Black Rosy-finches form flexible territories and lay clutches of 4 to 5 eggs in a cup-shaped nest placed in crevices amongst talus or on cliff faces.

**WINTERING:** In the winter, these finches range more widely from southern Montana, southwest through Nevada, east to the front range of Colorado, and as far south as Albuquerque, New Mexico. Black Rosy-finches can be seen mixed in flocks of other rosy-finches, forming groups of dozens to thousands. Black Rosy-finches occupy two distinct habitat types in the winter; mountains and open rocky deserts. In mountains, Black Rosy-finches travel up and down in elevation according to the weather and food availability.
Black Rosy-finches roost at night in rock crevices, mine shafts, and sometimes in human structures like porches. In deserts, rosy-finches can form huge flocks roaming exposed rocks.

**DIET:** Black Rosy-finches are primarily granivorous (seed-eating). During the summer, adult rosy-finches search for newly exposed seeds. Adult birds feed their chicks mostly insects, which are high in protein. Migrating flocks often pick seeds from flower heads above the snow. In the winter, Black Rosy-finches search for seeds in windswept areas. When adverse weather covers up their food, rosy-finches decent to lower elevations and are frequently seen at bird feeders.

### Conservation Concerns

The future wellbeing of Rosy-finches is hampered by an absence of even basic information. Currently, with what information we do know, many agencies and organization have designated the Black Rosy-finch as a species of concern.

Rosy-finches depend on alpine habitats to breed successfully. Scientists suspect the birds might have a strict temperature tolerance, and may not be able to withstand warm temperatures. With climate change, scientists predict alpine habitats will be pushed upward in elevation as woody vegetation advances upslope. With a 3°C increase in average annual temperature, it is predicted that the Black Rosy-finch will lose 94% of its current habitat before 2080. In addition, aspects of the Black Rosy-finch’s migration and wintering tendencies are unknown. They may depend on critical habitats outside of the alpine zone. Without any knowledge about how many rosy-finches there are, or that a region can support, we cannot ensure that their populations can be sustained, even in the face of threats like climate change.

### The Study

To fill the data gaps that currently limit effective conservation of Black Rosy-finches, biologists developed the Black Rosy-finch study in 2018. The partnership is working with volunteer community scientists to build a shared knowledgebase. The overall goal of our study is to establish baseline demographic rates and seasonal movements for future conservation of Black Rosy-finches. **You are now part of our greater partnership and conservation effort!**

Studying Black Rosy-finches on their breeding grounds is extremely costly and difficult due to the inaccessibility of their nesting sites. In winter, however, flocks of Black Rosy-finches visit bird feeders maintained at ski areas and private mountain residences across their range. These feeders provide accessible study sites for data collection.

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The Feeder Counts

Overview

Hello! Thank you for your participation in the Black Rosy-finches Feeder Counts. We are looking forward to working with you throughout this winter. The purpose of this study is to conduct standardized, scientifically-sound counts of Black Rosy-finches to assess their range and population size.

For this study, we want to count the number of Black Rosy-finches using feeders throughout their range. These feeders can be a public feeder near you or a feeder in your own yard. By getting systematic and repeated counts of rosy-finches, we hope to better estimate the number of rosy-finches using the region. To help this estimate, biologists in Utah are also using RFID (radio-frequency identification) technology to help track rosy-finches. RFID technology is the same thing we use to microchip pets or to track a marathon runner’s time. Biologists safely capture rosy-finches and attach a uniquely numbered metal leg band and a colored RFID leg band. These bands sit like a bracelet on the bird’s leg and can be seen with binoculars. The special RFID leg band has a unique code associated with it that is detected by our special bird feeders in our study. Biologists in other states band rosy-finches too, so be on the lookout for any type of leg band!

Most songbirds, like the rosy-finches, are too small to carry devices that actively transmit their location. These RFID bands allow us to “observe” a banded finch at a feeder even if there is no person there to see it. Plus, you can observe these marked birds with your binoculars! Knowing how many birds are banded versus unbanded is a critical piece to the population abundance puzzle we are trying to solve.

Our main goals for Black Rosy-finch counts are as to:

1. **Obtain count data** across a wide spatial area for Black Rosy-finches to better understand winter distribution and abundance.

2. **Recruit a network of dedicated volunteers** to conduct replicated counts throughout the winter.

© Kim Savides
As part of the study, a Black Rosy-finch has been fitted with two leg bands and is ready for release.
Getting Started

In the next section, you will find two types of count protocols - Standard Feeder Counts and Opportunistic Feeder Counts - and how to conduct them.

When you first receive this information packet, we suggest reading the protocols and having the datasheet open to ensure everything is clear enough for you to collect data correctly. If you have questions while reviewing the protocol, please contact Tracy Aviary or Wild Utah Project. An overview of the data we are collecting and how it will be used is below.

🌟 Site Description: The only site information we require is the location of each feeder (either geographic coordinates or a street address). Black Rosy-finches are high-elevation loving birds. But, in adverse weather they are known to descend and feed at lower elevations.

🌟 Type of Count: Counting in a standardized and structured way, like repeating counts at the same places throughout the season, allows us to use powerful methods to analyze the data. However, if you see Black Rosy-finches at your counting feeder outside your chosen count time that is great! These data are also useful, and these optional counts allow you to contribute count data no matter when the finches show up.

🌟 Weather: Black Rosy-finches move around quite a bit during the winter. Birders often observe Black Rosy-finches using feeders when conditions are not so kind outside. We ask you to record temperature, wind speed, local snow depth, and type of precipitation during your count. Some of this data, like temperature and wind can be grabbed from a weather app or wherever you get your weather information. Try to estimate the snow depth at your feeder. We all know local snowfall can be quite variable from what was predicted or what your friend across town got. If you have a yard stick, stick it in the snow.

Questions or Need Help?
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Counts can be conducted anywhere in the range of Black Rosy-finch.
Protocol #1: Standard Feeder Counts

Using this protocol, anyone can conduct a Black Rosy-finch count at a personal or local bird feeder. The feeder can be of any style or size and can be anywhere you have access to. A feeder can be your own, at a local park, at a nature center, or in any other public space. The only requirement is that you are counting according to this protocol and your feeder is within the range of the Black Rosy-finch!

1. Select Your Count Feeder(s)

Your Black Rosy-finch count site should be an area that is convenient and easy for you to observe. Select an area centered around the feeder as large as you can consistently observe from week to week. Please select a count feeder that you can observe from a single, stationary point. Choose some obvious boundaries, such as the border of your yard or a hedgerow or tree line. Try to limit the counting area to be no larger than two tennis courts. Count areas can be as small as a single feeder and its immediate area, but somewhere in between is optimal. This will help you count all the birds present without counting them twice. Once you have chosen your site, count birds at this same site all season. (If you want to submit counts at multiple locations, please submit separate counts)

2. Choose Your Count Days

The Black Rosy-finch count season runs from December to the end of April. This season is broken into seven 3-week count windows. Based on your availability, we’ll work with you to schedule count days within each 3-week window to survey, totaling 7 days of counts. If possible, schedule your count days in advance and ensure consecutive counts are at least 5 days apart. Counts need not be conducted on the same day of the week or time of day as previous counts - select times and dates convenient to your schedule. Scheduling counts in advance will reduce bias of counting only when large numbers of birds at your feeder. Zero counts are OK and vitally important!

3. Count Rosy-finches and Chickadees

On your count day, watch your feeder and the surrounding area for any rosy-finches and chickadees for a total of 20 minutes. If you are outside counting, try to sit or stand in one spot and limit your movement to not startle the birds. Count the maximum number of each rosy-finch species you were able to see at once. Do not add birds seen at different times. Because Black Rosy-finches are the priority of this study, please count Black Rosy-finches first before continuing to Brown-capped Rosy-
finches and Grey-crowned Rosy-finches, and chickadees. For help differentiating the species of, see the **ID Guide** section. Try your best to ensure you are confident of your count before moving to other species. If you are overwhelmed by the number of birds, limit the count area to a size you can manage reasonably or use the “blocking method” outlined in the **Counting Tips** section of this guide. Make every attempt to not double-count birds if they are moving around. If the flock flies off before you finished counting, use the highest number you counted to.

If you do not see any rosy-finches of any species, do not fret! Believe it or not, counts with 0 rosy-finches gives us valuable data too. If there are no rosy-finches around, record the number of Mountain and Black-capped Chickadees using the feeder. If you want to record more bird species, feel free!

### 4. What Not to Count

Please only include birds which are totally visible and identifiable. Do not count birds flying over your count area who are not interacting with your feeding area. Perching in the vegetation is fine. Please do not add birds seen outside your count period within that day or other days. If you see Black Rosy-finches outside your scheduled count, you can conduct this same protocol, but circle “Opportunistic” on your datasheet (see Opportunistic Counts).

### 5. Count Banded Birds & Record

If you are able to obtain a confident count of rosy-finches and chickadees during your survey, you may then look at the legs of every rosy-finch you can see, starting with those closest to the feeder. Some of those individuals may have leg bands. Record the number of birds you saw with leg bands for each rosy-finch species, starting with Black Rosy-finches. Then record the number of birds checked for bands. This will give us a ratio of banded to unbanded birds for each species. You might not be able to check every individual in the flock for bands and that is OK.

In Utah, a banded bird will have a silver aluminum band on one leg and a solid colored RFID band on the other. The RFID bands could be any color from black to pink. Other states use just silver bands, or combinations of silver and other color bands. If birds are moving around a lot, use the colors to try to see if there are multiple individuals banded. For example, let’s say you saw two greens at the same time, and then later a red, a blue, a green, and a blue while the birds were moving too quickly to keep track of individuals. You would record seeing 4 banded birds (2 green, 1 red, 1 blue). Overall, be conservative. **If the flock happens to fly off** after you look at 26 birds for bands, simply record 26 as your number of birds sampled for bands.

### 6. Fill Out a Datasheet

During each feeder count, you should keep track of your data on a datasheet or notebook. We have provided a datasheet in this packet. Be sure to record the protocol type (“Standard”), date/time, location, weather data, your maximum count of Black Rosy-finches, and maximum counts of any other species you were able to count. It may be helpful to write totals of birds as you go, counting the flock several times over the 20 minutes, and then taking the highest of those counts. If you do not see any
Black Rosy-finches or other rosy-finches during your count, we want to know that too! Please be sure to record and submit these “Zero Counts”. There is as much data in zero counts as positive counts, and zero counts are critical to our understanding of the Black Rosy-finch’s movements and tendencies!

7. Report Your Counts
Once you have conducted your count, you will need to submit your count data. Please email or text a picture or scan of your datasheet to rosyfinchstudy@gmail.com.

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Special Directions for
Utah’s Alta Town Office and Powder Ridge Condominiums Feeders

During the 2020-2021 season, two public bird feeders are retrofitted with RFID technology to scan tagged rosy-finches that visit the feeders. If you are doing your bird counts at either of these bird feeders, we ask you to complete these additional steps.

1. On the Bird Feeder pole, locate the ‘RFID Test Fob’.
2. Before you start your bird count, move the RFID Test Fob over the bird feeder perch for 10-20 seconds, where the RFID antenna is located.
3. When you finish your 20-minute bird count, repeat Step 2.

A RFID Test Fob can be located on the pole of RFID bird feeders at the Alta Town Office and Powder Ridge Condominiums in Utah. The Test Fob should be moved around the antenna, which is located where this Gray-crowned Rosy-finch is standing on the feeder perch.
Protocol #2: Opportunistic Feeder Counts

Bird surveys often do not produce sightings of target bird species every time. In fact, these “Zero Counts” are just as interesting and important as counts when birds are present! We highly encourage you to schedule your seven feeder counts in advance to not bias your counts to times Black Rosy-finches are using your count feeder.

But, we also recognize that submitting sightings is truly rewarding as well. So, if you see rosy-finches at your count feeder outside of your selected count day, feel free to count using the same protocols outlined previously. When you enter the data, be sure to circle “Opportunistic”. You can submit as many opportunistic counts, as frequently as you like. The more data we can collect the better our estimates will be. Thanks!

If you encounter rosy-finches out birding and not at your usual counting feeder, please enter that data into your preferred citizen science website, like eBird. We can only work with data repeatedly collected at individual locations. But submitting your data to eBird will be helpful to other researchers and scientists in the future!

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Two Black Rosy-finches and a Gray-crowned Rosy-finch foraging.
Bird Counting Tips & Tricks

Counting birds can be a tricky process. Birds group up and obscure each other, they move around, they might enter and exit the count area quickly. All these factors present potential errors into the data we collect. But there are several methods professionals have established to help count birds more accurately. The following trips draw heavily or are reproduced form eBird, U.S. Fish and Wildlife Service, and others. If you want more practice or further reading, you can find the original source material from the footnotes below. And don’t worry, counting is challenging and no matter how well we are trained or how good we are at counting, our data are almost always estimates that reflect the real number of individuals present. But we can always strive to get better! Happy counting!

Things to Keep in Mind

Why is counting important?

Obviously, we want to know how many Black Rosy-finches there are. And counting them helps get us closer to that estimate. Your numeric estimates help us judge relative abundance and are an important part of our count data.

“What if my numbers are way off the mark,” you say? Think of it this way: what do counts of birds mean biologically? Biologically, there is a huge difference between zero and one. The species was either not present, or only one was detected. Either way, this tells us that the species in question is not particularly “common” in the area you sampled at the time of your observation, or at least you didn’t detect it commonly. There is an almost equally significant difference between one and two. A record of one Painted Bunting in New Jersey could well be chalked up to a vagrant outlier, but two would be an event!

In our rosy-finch case, we want numbers to be as accurate as possible. Even if those end up being estimates within a huge flock of birds.

Write Things Down

It is always a good habit to write things down. How many times have you gone to the grocery store and come home without that one item you went for? Too often birders go out birding without a notebook or app on their phone and then try to recreate what they’ve seen after returning home. This a bad habit to get into. Even those of us with the best of memories can easily forget a number or get counts of two species mixed up. This type of data loss is far too common and can be avoided by keeping a simple list as you see birds. Consider jotting down a list of species as you see them and follow each with a tally as you detect individuals. For this project, we want to ensure these counts are the maximum seen at once. This method gives us a more accurate depiction of how many individuals there are. If we sat at a feeder for 20 minutes and observed chickadees using the feeder 254 times that does not mean there were 254 chickadees!
Likely, there were a handful of individuals feeding frequently. By recounting the flock every few minutes, and recording these “sub-counts”, we can easily look at all the counts for your survey and see the max! For example, your survey notes might look something like:

- **Black Rosy-finches**: 0, 0, 2, **10**, 3
- **Gray-crowned Rosy-finches**: 20, **23**, 7, 2, 10
- **Mountain Chickadee**: 3, 7, 2, 1, 3

We can see that there is a max for each species we observed. And that is what we will report on our Data Sheet. We want the maximum count at one time. There is room on your datasheet to make these sub-counts, or you can erase a count you wrote down if you count a larger number. If you’re out birding on your own, give this method a try if you are stationary. And if you are traveling a long distance, list these sub-counts and add them together at the end for a total. You will be surprised just how many birds you are seeing. And just how many birds you probably would not have reported.

**Be Conservative – False Precision & Double Counting**

*Everyone tends to either over-estimate or under-estimate numbers.* And this tendency might even vary by what species or taxa we are counting. We want to promote **conservative counting**. The idea is for you to give us your best count of the birds you saw during your survey. The goal is not to break high count records for a site, but to provide an accurate count of what is present at your site at that time. Even if we saw a rosy-finches take off in one direction and one come to the feeder from another shortly after, we cannot assume they were different birds. Only if you can still see that first bird can you count the second with confidence. This an example of potential double counting.

**Double counting is exactly what it sounds like – counting one bird twice.** Inevitably, it is going to happen. But keeping this in mind can help you reduce how often it happens in your counts! Double counting can also happen when a flock is jostling around for position at the feeder. Sometimes its good to take a look at the flock overall and for a cursory estimate of the group as a whole and or each species if you can. Like saying I think there are roughly 10 Black Rosy-finches and 30 Gray-crowned. From there you can focus on some individuals and try to track them as they move around. If your count is way off from your estimate, consider both numbers. Were you double counting? Or did you notice more hidden birds during your inspection? You can always count again and see what you get!

False precision happens when we combine estimates and direct counts. Say you estimated 70 birds in a flock and you watch 6 more birds fly in. If you report your count as 70 + 6 = 76 birds, this is false precision. You should ideally report this number as 80 if you were estimating by tens, or 75 if by fives. This is a tough concept to pin down, and it depends on what order of magnitude you estimated by. But we hope all of our community scientists will do their best to estimate and then get a more direct count of the birds they are observing. In an ideal situation, we would want everyone to count every individual bird. However, we recognize wholeheartedly that this is a rare occurrence. We just ask that you take pride in your data and report your numbers to the best of your ability. Oh, and have fun doing it!
The Blocking Method

When counting flocks, one of the best ways to estimate birds is by using the “Blocking Method”. This entails selecting a section of the flock and counting them up to a number you can easily visualize. For instance, if the flock is a moderate size, count a group of 10 birds. See how much space they occupy in the flock. Then draw an imaginary block around them and move that block around the flock to count in groups of 10. If you counted 4 total blocks of 10, then your estimated count is 40 birds. This works best in single species flocks, or to get an estimate of the total birds before you start a more direct count. When you have a blocked count and a more direct count of the same species, you should report the more accurate count, whatever you think that is (usually the direct count). Let’s practice some blocking! Look at the flock image on this page.

1. Write down how many birds you think there are without blocking or counting.
2. Form a block and estimate how many birds there are.
3. Them, let’s see how well we estimated!

Here, I counted in blocks of 5, and estimated 5 blocks. So, my estimate would be 25 birds.

Upon closer inspection, there were actually 31 birds! Some are hiding with their heads down in the feeder. But an estimate of 25 put us on the right track! And our direct count improved our estimate.
The Scanning Method

A feeder count is a perfect example of when the “Scanning Method” can work wonders! When conducting a rosy-finch count, our priority is Black Rosy-finches. The scanning method is where you systematically scan a flock, such as from left to right, for a particular species. As you scan, keep a running tally of the number of individuals you are searching for. Once you have scanned the flock and gotten a number of that species, repeat the same process with another species, and so on.

The advantage of this count style is that once you get a mental search image for the species you are targeting; you can rapidly scan though the flock and get a number of individuals of that species. This works particularly well in large groups of birds when the species you want is in low proportions. This also works well if individuals in the flock are moving around a bit but staying in the same area. By rapidly scanning for your target birds, you reduce the chances of double counting.

Here, we can scan for American Black Ducks (they are the large dark ducks). By scanning, we can quickly count the 7 American Black Ducks. And if we wanted, we could switch to gulls or Goldeneyes (the smaller back and white ducks). There are 22 Bufflehead and 12 gulls!

For more info about counting or for practice examples, visit the following webpages (they really help!!!)

1. Arial Observed Training: [https://www.fws.gov/waterfowlsurveys/forms/counting.jsp?menu=counting](https://www.fws.gov/waterfowlsurveys/forms/counting.jsp?menu=counting)
Black Rosy-finch

Black Rosy-finches can vary in color by age, sex, and time of year. **Overall, they have a darker, and cooler color palate than the other two Rosy-finches.** Adult males will have bolder and blacker body feathers than females and younger males. The top right is an example of a young male or a female. Its body feathers are a light charcoal over all, and it only has a little bit of the rosy highlighting.

The other two images show older males. The bottom is a good example of an older male later in the winter with dark black feathers and bold rosy highlights. The first image shows an adult male with some fresher feathers, which are edged in brown. Over time, these brown edges wear down, leaving the bird with jet black feathers in time for breeding season!

As seen here, Black Rosy-finches can have a variable amount of brown in the backs. **But this brown has a cooler hue and is often mixed with grays, as compared to the Gray-crowned Rosy-finch.**
Gray-crowned Rosy-finch

Gray-crowned Rosy-finches can be easily confused with the other two species of rosy-finch. Look for the abundance of warm brown tones in the backs and chests of this finch. This is a contrast to the cooler brown backs of the younger Black Rosy-finches. There are two subspecies of Gray-crowned Rosy-finch that occur in the Rocky Mountains: Interior and Coastal (Hepburn’s). You can tell them apart by the amount of gray they have in their head. The interior form (left) as a swath of gray from the eye going around the back of the head. The Coastal (Hepburn’s) form (right) has gray covering most of the head.

Brown-capped Rosy-finch

Brown-capped Rosy-finches are the least abundant of the rosy-finches, and are most often found in Colorado. They can be easily confused with Gray-crowned Rosy-finches. Brown-capped also have the warm browns of the Gray-crowned, however they lack the bold gray crown and face. Instead they have a rich warn brown to grayish brown head. Brown-caps also have more extensive rosy coloring in the flanks than the other two rosy-finch species.
Rosy-finch Feeder Counts - Datasheet

Please fill out the following datasheet once during each 3-week count window. A different sheet must be used for each count you conduct. Record weather information during your count. During the 20-minute count, record the highest number of individuals of Black Rosy-finch, followed by Gray-crowned, Brown-capped Rosy-finches, and chickadees. Feel free to record other birds you see too, but Black Rosy-finch is the priority. During or after your 20-minute count, look at the legs of rosy-finches for metal or colored bands. Record the # birds banded and the # of birds surveyed.

Surveyor Name: ____________________________  Bird Feeder Name: ____________________________

Location (Coordinates) of Feeder: ____________________________°N, ____________________________°W

Date (mm/dd/yyyy): ____________  Start Time (24-hr, hh:mm): ____________  End Time (24-hr, hh:mm): ____________

Protocol Type (Circle one):  Standard Survey  Opportunistic Survey

Weather

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Precipitation (circle all that apply)

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Bird Counts

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<th># Rosy-finches Banded</th>
<th># Rosy-finches Surveyed for Bands</th>
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<tr>
<td>Mountain Chickadee</td>
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Feeder Count Notes (as applicable):

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