

# **High Alpine Multi-Species Survey Methodology**

## **Priority Species - BLACK ROSY-FINCH – MFWP REGIONS 2, 3, 4, and 5**

### **Objective(s):**

Remove species from the Species of Greatest Inventory Need (SGIN) list. Accomplish this by:

- (1) Demonstrating sufficient survey effort using suitable standardized surveys within appropriate habitats across the species known range in Montana.
- (2) Developing a simple/logistically feasible/inexpensive survey methodology that is consistent among surveyors, which will allow a maximum amount of suitable habitat to be surveyed per season and for opportunistic observations of other SGIN, Species of Concern (SOC), and Potential Species of Concern (PSOC) to be recorded.
- (3) Collect adequate data (presence or absence) through systematic surveys and incidental sightings to better describe year-round and seasonal (breeding) distribution and habitat use.

### **Survey Area and timeline:**

Mountain Ranges in SW Montana (MFWP Regions 2, 3, 4, 5; See Figure 1). Predicted ranges have been described using the Montana Natural Heritage Program (MNHP) habitat suitability model and an approximate number of transects per mountain range have been defined based on mountain range size.

### **Habitat type to focus survey effort:**

Black Rosy-Finches are found nesting in crevices in cliffs, rock slides and talus among glaciers and snowfields above timberline. They are often found nesting on north or north east facing slopes. In summer, they are commonly associated with the edges of tundra-snow field as they forage on windblown insects and seeds deposited on the surfaces of snow fields, wet soil, and newly exposed tundra from receding snow fields. They are rarely found more than 150-200m (~500-600ft) from the cliff. Elevation: above tree line (approximately >8000ft in Montana).

### **Products:**

- (1) All survey data, detections and associated locations and observations will be collected through MFWP and retained in a single database. Locations will be submitted to MNHP.
- (2) A summary of the survey efforts and sightings (and transects with no detections) will be compiled annually.



**Thanks for your participation!!!!**

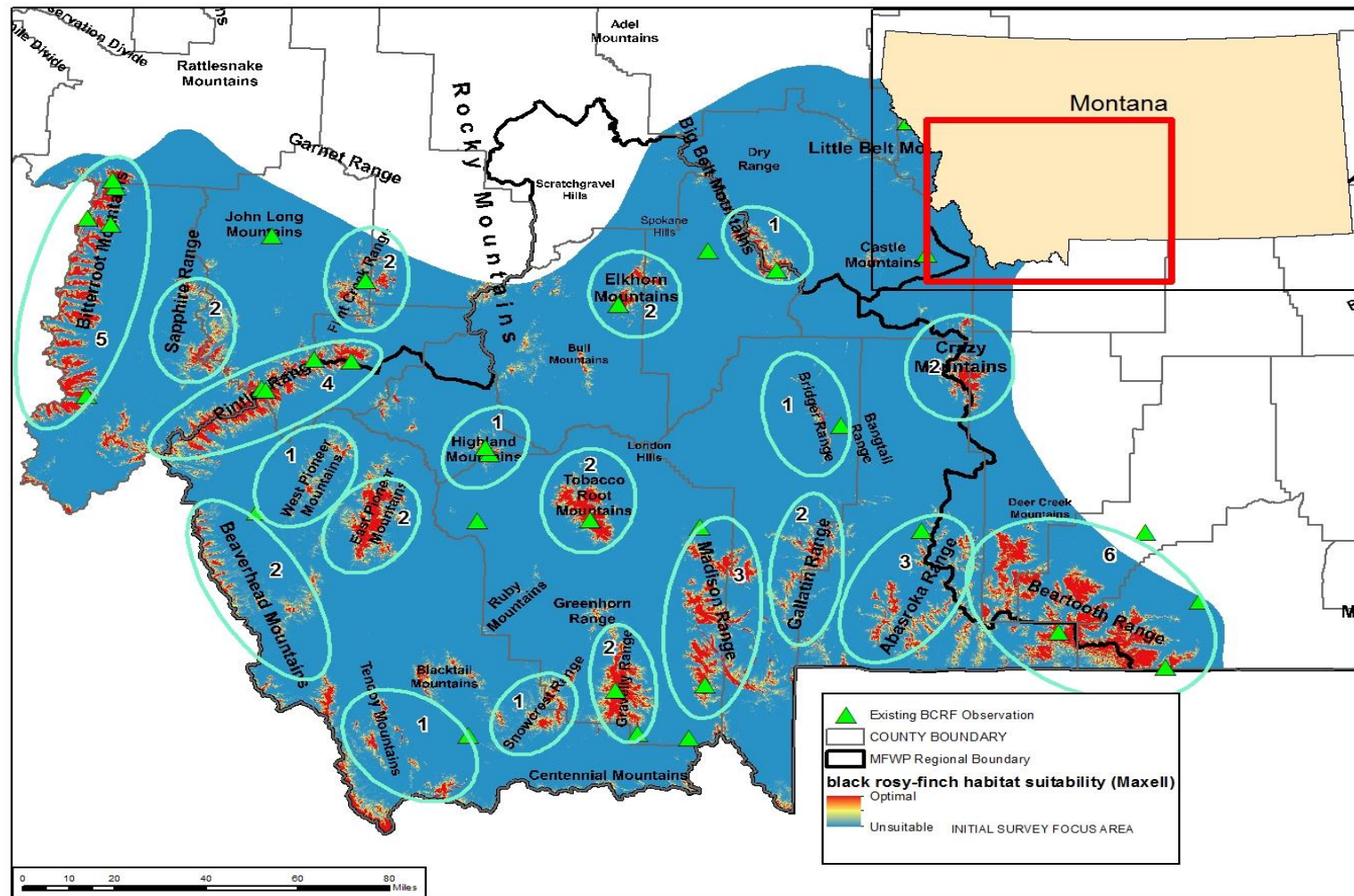


Figure 1. Predicted ranges of Black Rosy-Finch and selected ranges for ground based survey effort. Ranges to be surveyed are outlined in blue and the approximate number of transects to be conducted are numerically defined by range.

## Black Rosy-Finch Survey Protocol

- Time of year: Start as soon in the year when high alpine habitat is accessible by foot or skis (June/July).  
End date: early-mid September (time frame aims to catch Montana breeding birds not transients).
- Time of day: Start in the desired habitat type at sunrise or as close to sunrise as possible (would be ideal) to ~11 am.  
Or half hour after the sun goes down. Activity drops off in middle of day.
- Conduct in suitable weather conditions: clear, calm sunny days are ideal (avoid high wind, precipitation or fog)
- Polygons of Black Rosy finch habitat will be defined within a specific Mountain range. They will be selected based on (1) ideal habitat characteristics (2) predicted distribution and/or previous observations/occurrence and (2) logistics and accessibility to suitable Black Rosy-Finch habitat.
- Polygons will be described as Primary: core habitat, and Secondary: “fringe” sites – less optimal habitat but maybe easier to access. Both have characteristics which are desirable for rosy finches
- Methods-An example of an ideal survey is to walk below a north-facing cliff above tree line where there is an abundance of tundra, boulder and late season snow pack. In early season, the only available snow free habitat to forage on may be vegetated tundra ledges on the cliff face. Some areas will not have tundra below the toe of a boulder field and might be occupied w/sagebrush or trees, and observers should place themselves in the boulder field as close as they feel comfortable to cliff faces. Being close to the cliff wall/cirque is where these birds are found. Boulder fields without tundra have no nutritional value, but cliff edges with tundra do. If walking a transect is not possible locating areas below cliffs and sitting stationary at spaced locations for 15-30 min. is an option. The majority of observations may be auditory and having a device to listen to calls and confirm in the field is very important. The majority of finch observations will occur within 150 meters (~500 ft) of a cliff. While rosy-finches are highly associated with high elevation habitat, walking to the summit of a peak will usually produce far fewer observations than walking at the base of its most prominent north facing cliff while at a lower elevation. The habitat that often leads to a summit at a lower elevation site is gentle, does not possess any cliffs, and is therefore an unlikely place to see Black rosy-finches (Figure 2).
- If you think you observe a finch, please do your best to record the calls for confirmation. Videos from smartphones are more useful in their ability to record auditory information than visual. Be familiar with their call.
- The objective, as defined above, is to survey as much Black rosy-finch habitat as possible. Record a track log for the area searched within a polygon. The track log will be used to document the survey route chosen, distance from cliff base and distance walked in Km.
- In summary for each habitat tract (and tract of suitable rosy finch habitat) surveyed:
  - With a GPS, Record the track log, start time and end time (WGS 84) decimal degrees.
  - Record the number, location and composition of each Black rosy-finch flock observed along with a location marked on your map or a lat/long, bearing (using a compass) and estimated distance to birds (using a rangefinder)
  - Make a note if adults are feeding juveniles or attending a nest.
  - Record how you detected the bird under How detect? **V** – visual, **A** – auditory, along with **F** – flyover or **S**- Stationary
  - Record incidental sightings even if a standardized survey is not being conducted.
- **Equipment required:** GPS, compass, rangefinder, data sheets. You will receive (1) Google earth and Cal-topo map of the mountain Range, (2) Cal-Topo topographic trail head map with selected area, and (3) Google earth image of the selected polygon.
- **Dominant Habitat type:**  
For each rosy finch group record dominant habitat type as follows Cliff (C) Scree/Boulder (SB): Snow field (SN) : Tundra (T) shorter than boot ; Grass Meadow (G) taller than boot; O – Other or Combination of habitat types (please describe)
- Complete the data sheet and record the track log even if NO Black rosy-finches are observed.
- Conduct in pairs or more if in areas of high Grizzly bear density.

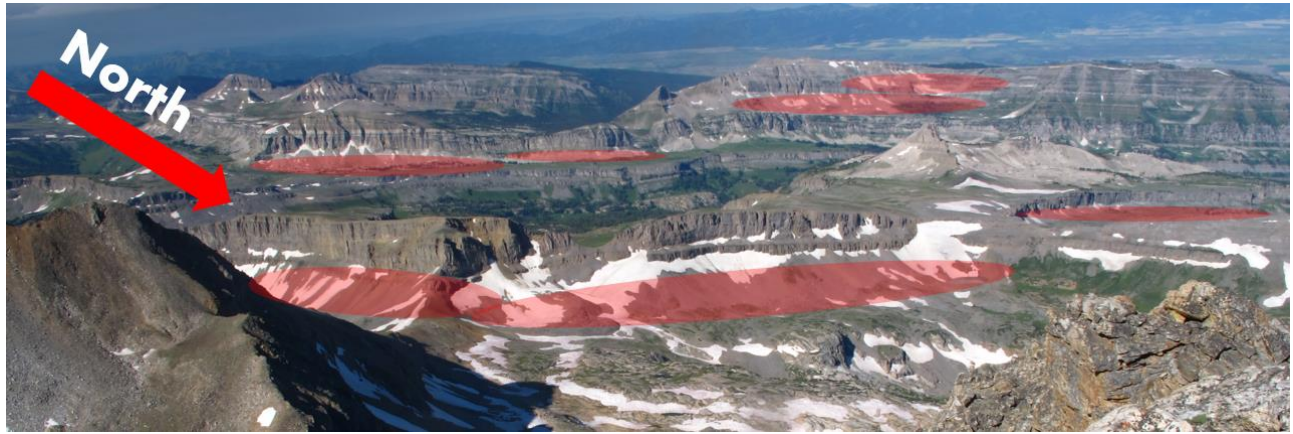


Figure 2. Areas of high detection are highlighted in red. Please note that locations immediately below cliffs are most favored, and that summitting these cliffs will often produce far fewer is not zero observations.

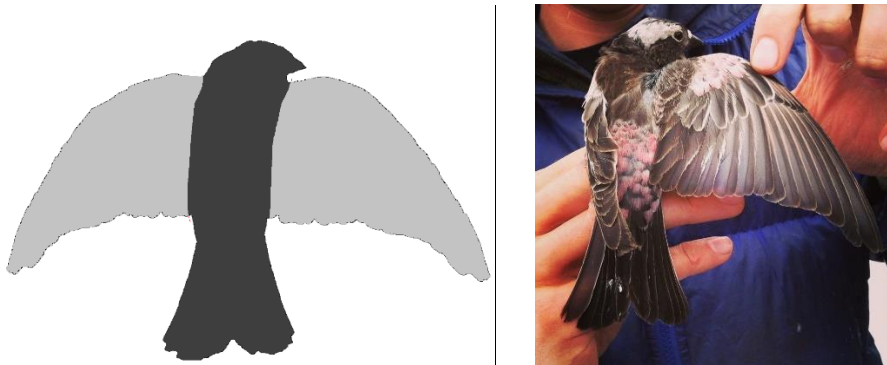
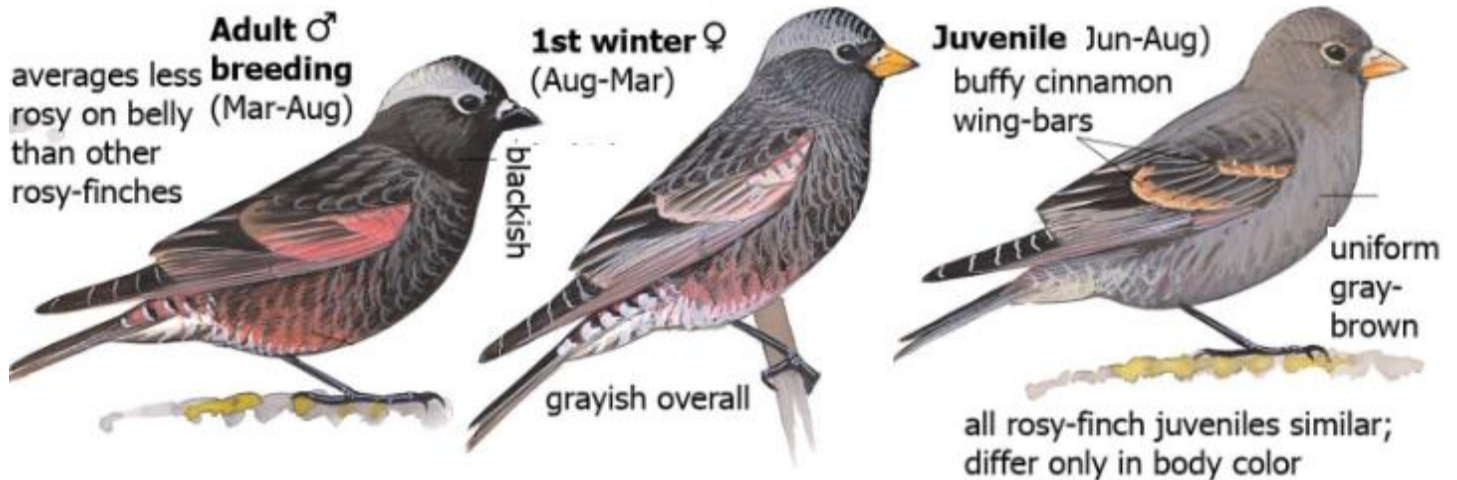


Figure 3. Silhouette of a Black rosy-finch in flight from below (left), in contrast to a photo of a male Black rosy-finch from above (right). Wings will often be a translucent grey (similar to Mylar), while the body will be dark.

***Note: Take caution to differentiate between a Black rosy-finch and a gray-crowned rosy finch. While it is unlikely that they will be observed together as the ranges of these 2 species rarely overlap during breeding season, there is some rare/possible hybridization in the N. end of the Bitterroots (see field guides).***





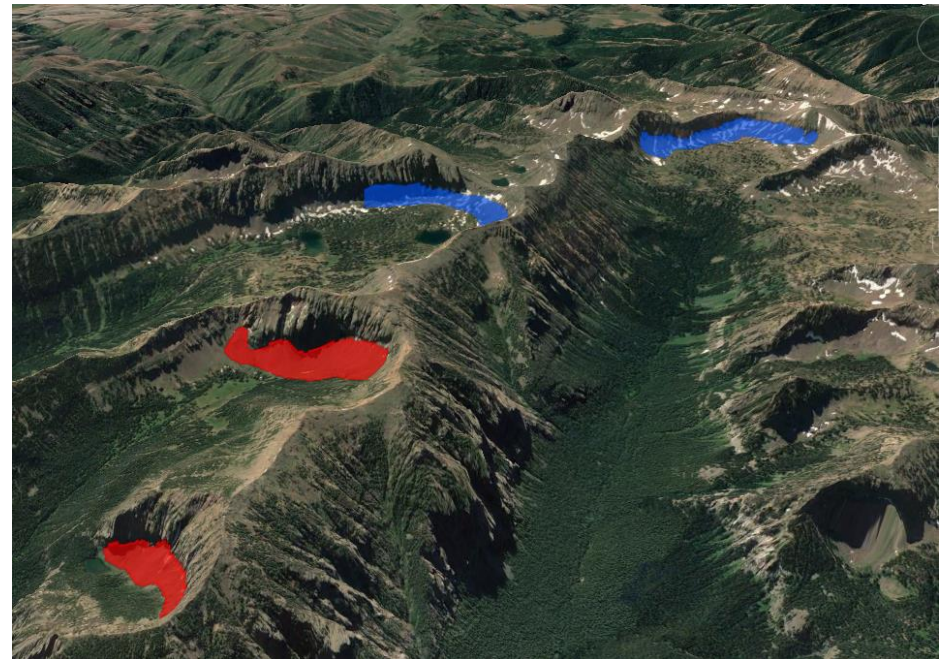
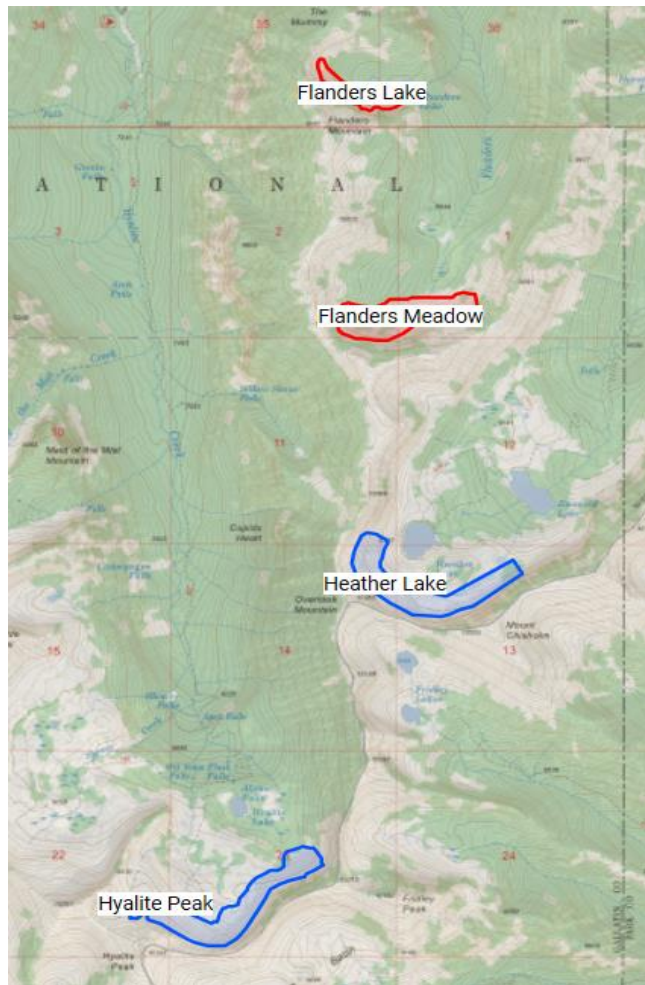
Flight is often powered by a few quick wing beats followed by a gliding motion. This will not hold true when wind is high or when males are engaging in combat.

*Please consult field guides for additional images. For example:*

<http://fieldguide.mt.gov/speciesDetail.aspx?elcode=ABPHY02010>

<http://www.audubon.org/field-guide/bird/black-rosy-finch>

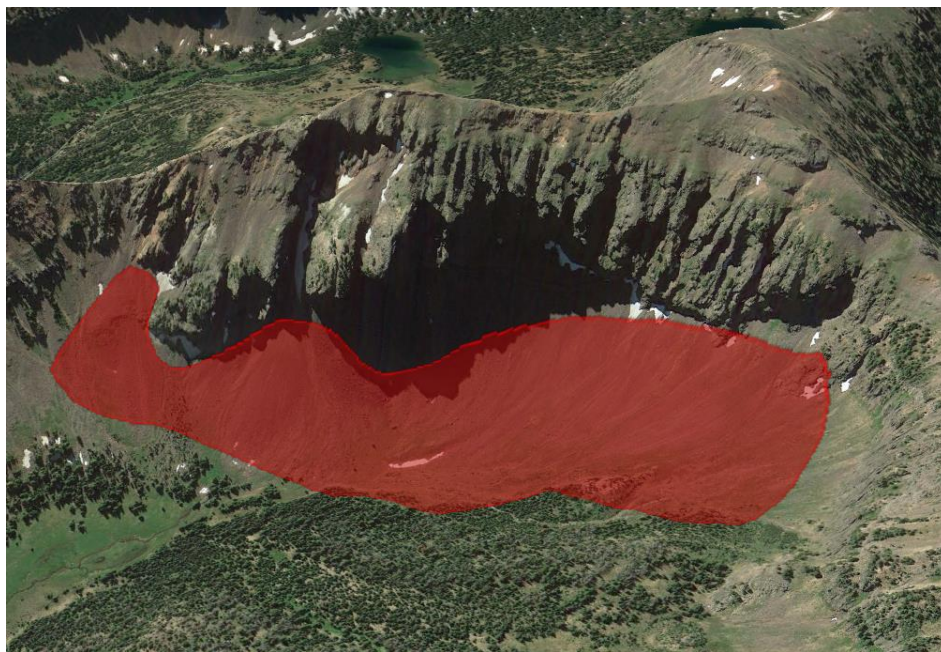
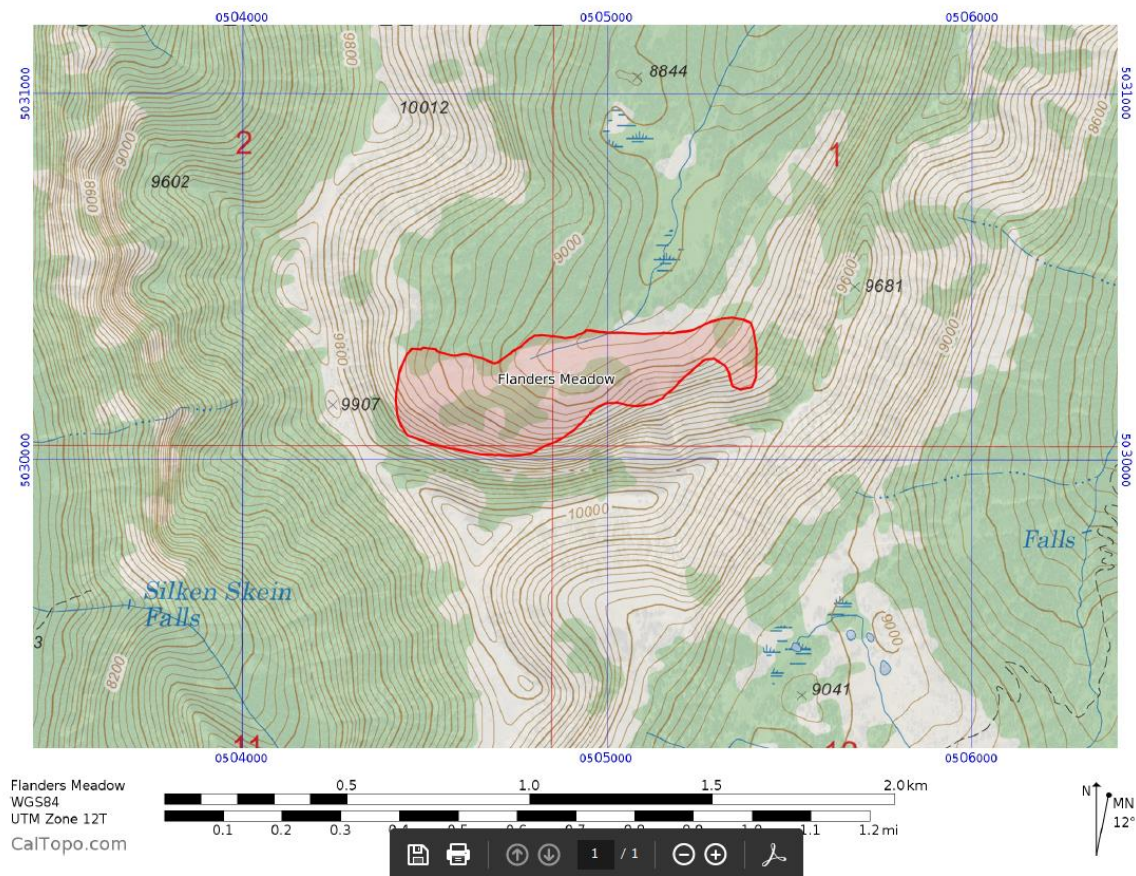
Other species to be recorded: ***Black Rosy-Finch (Focal species)***; Gray-Crown Rosy-Finch, Pika, White-Tailed Ptarmigan (Northern regions); Hoary Marmot (Northern and Western mountain ranges).



Primary (Blue) and secondary (Red) sites described on Cal-Topo.

Google earth image showing primary and secondary sites on North facing aspect.





Cal-Topo image to show trail head and topography (upper) and Google earth image of the polygon, with north facing aspect (lower)

**Please send all completed data sheets to:**

**Claire Gower**

**Montana Fish, Wildlife & Parks**

**1400 South 19<sup>th</sup> Ave**

**Bozeman, MT, 59718**

**OR**

**Megan O'Reilly**

**Montana Fish, Wildlife & Parks**

**2300 Lake Elmo Drive**

**Billings, MT, 59105**

**Questions please call: Claire Gower (406 994 5953); Megan O'Reilly (406 247 2966); Allison Begley (406 444 3370)**



## Black Rosy-Finch Data Form

Survey date: \_\_\_\_\_ Mountain Range: \_\_\_\_\_

General Location of survey: \_\_\_\_\_

Primary or secondary polygon (other) \_\_\_\_\_

Observer 1 name: \_\_\_\_\_ Email/phone: \_\_\_\_\_

Observer 2 name: \_\_\_\_\_

General weather conditions (Cloud cover, temp and wind): \_\_\_\_\_

Weather at Start: \_\_\_\_\_

Weather at End: \_\_\_\_\_

Start time: \_\_\_\_\_ Lat: \_\_\_\_ . \_\_\_\_\_ long - \_\_\_\_ . \_\_\_\_\_

End time: \_\_\_\_\_ Lat: \_\_\_\_ . \_\_\_\_\_ long - \_\_\_\_ . \_\_\_\_\_

Track log recorded on GPS - File name: \_\_\_\_\_

Black Rosy-Finches observed in Polygon (circle) YES / NO

### BLRF group:

1) # in flock \_\_\_\_\_ / # Male and Female and # Fledglings Composition \_\_\_\_\_

Time \_\_\_\_\_ Lat: \_\_\_\_ . \_\_\_\_\_ long - \_\_\_\_ . \_\_\_\_\_

Cliff (C) : Scree/Boulder (SB) : Snow field (SN) : Tundra (T) shorter than boot ; Grass Meadow (G) taller than boot; O – Other ( please describe).

Evidence of breeding Y / N (begging young, adults feeding young, young following adults, adults carrying nesting material, nest found) Check on this with MNHP

V – visual, A – auditory, along with F – flyover or S-Stationary

### BLRF group:

2) # in flock \_\_\_\_\_ / # Male and Female and # Fledglings Composition \_\_\_\_\_

Time \_\_\_\_\_ Lat: \_\_\_\_ . \_\_\_\_\_ long - \_\_\_\_ . \_\_\_\_\_

Cliff (C) : Scree/Boulder (SB) : Snow field (SN) : Tundra (T) shorter than boot ; Grass Meadow (G) taller than boot; O – Other ( please describe).

Evidence of breeding Y / N (begging young, adults feeding young, young following adults, adults carrying nesting material, nest found) Check on this with MNHP

V – visual, A – auditory, along with F – flyover or S-Stationary

### BLRF group:

3) # in flock \_\_\_\_\_ / # Male and Female and # Fledglings Composition \_\_\_\_\_

Time \_\_\_\_\_ Lat: \_\_\_\_ . \_\_\_\_\_ long - \_\_\_\_ . \_\_\_\_\_

Cliff (C) : Scree/Boulder (SB) : Snow field (SN) : Tundra (T) shorter than boot ; Grass Meadow (G) taller than boot; O – Other ( please describe).

Evidence of breeding Y / N (begging young, adults feeding young, young following adults, adults carrying nesting material, nest found) Check on this with MNHP

V – visual, A – auditory, along with F – flyover or S-Stationary

## High Alpine – Incidental Species List. WGS 84

Observer \_\_\_\_\_ pp \_\_\_\_\_ of \_\_\_\_\_

[illegible]

**STATUS:** B = direct evidence of breeding (nest, feeding fledglings.), b = Indirect or circumstantial evidence of breeding, or t = No evidence of breeding

# Black Rosy-Finch

## Species of Concern



## General Description

The Black Rosy-Finch is a medium-sized, slightly stocky finch of about 14 to 16 cm in length and 22 to 32 grams in weight, with a medium-sized bill for eating seeds. The sexes are similar in size and coloration, but the male plumage contrasts more and is more colorful. Males are a uniform dark brownish-black on the back, breast, neck, and face below the eye. The feathers of the belly, rump, upper- and under-tail coverts, and the bend of the wing (wrist) are broadly tipped with pink (more narrowly and reddish in summer). The forecrown is black; there is a silver-gray band around the hindcrown. The nasal tufts are white, and the tail is notched. The bill is yellow in winter and black during the breeding season. The legs are black and the under wings appear silvery during flight. Females are similar but with the body a lighter grayish-brown, the back more streaked, and the pink feathers reduced or absent; the gray on the hindcrown is often absent by midsummer. Juveniles are similar in appearance to females, but lighter (usually more gray-brown), and lacking the silver-gray hindcrown, black forehead, and pink on the feather margins (Johnson 2002).

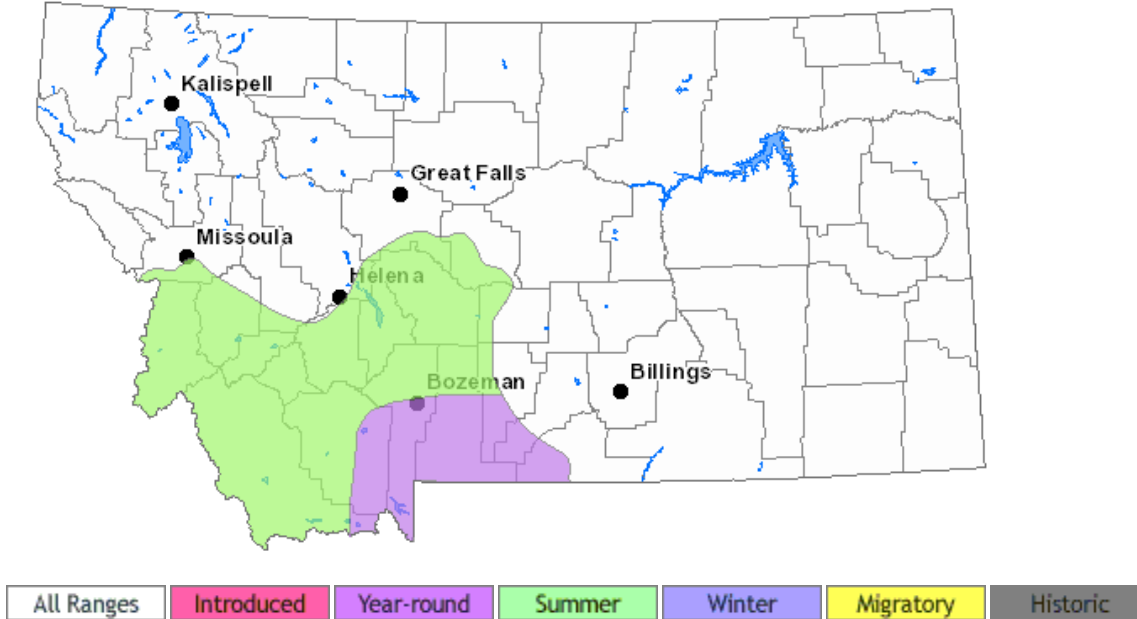
## Diagnostic Characteristics

The Black Rosy-Finch is most likely to be confused only with other rosy-finches. The Gray-crowned Rosy-Finch is much lighter and brownish overall, with more extensive pink to red feather margins that contrast less with the brown plumage. The Brown-capped Rosy-Finch lacks the silver-gray on the head and is much lighter and browner-bodied (almost golden in males). Ranges of the three species rarely overlap during the breeding season (Johnson 2002).



## Species Range

### Montana Range



## Habitat

Habitat use in Montana has not been studied, but is similar to other regions (P. Hendricks, personal observation), where Black Rosy-Finches are known to nest in crevices in cliffs and talus among glaciers and snowfields above timberline (also possibly in abandoned buildings above treeline) and forage in barren, rocky or grassy areas adjacent to the nesting sites; in migration and winter they also occur in open situations, fields, cultivated lands, brushy areas, and around human habitation (American Ornithologists' Union 1983, Johnson 2002). They may roost in mine shafts or similar protected sites. During some winters individuals move out onto the shortgrass and midgrass prairies to feed (Hendricks and Swenson 1983, Johnson 2002).

**Flight:** undulating flight, consisting of several quick wing beats followed by long, graceful glides. Short flights but often direct. They may change direction abruptly to land on a perch or to join a flock. Flock flight is usually very coordinated and synchronized.

## Gray-crowned Rosy-Finch - *Leucosticte tephrocotis*



### Species of Concern

#### **General Description**

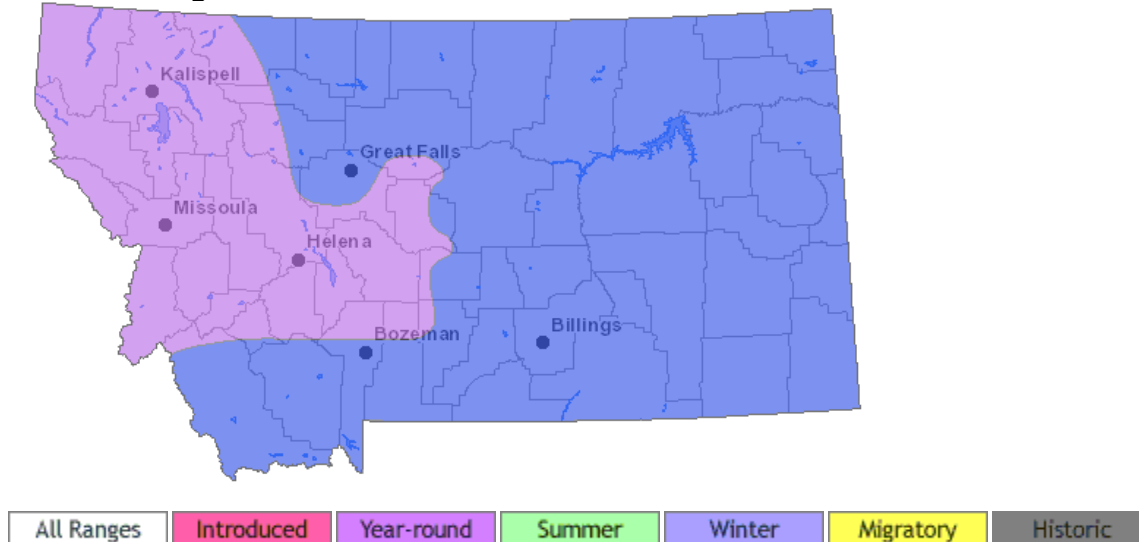
The Gray-crowned Rosy-Finch is a medium-sized, dark brown finch of about 14 to 16 cm in length and 22 to 26 grams in weight; the Pribilof and Aleutian island forms are larger (17 to 21 cm in length and 42 to 60 grams in weight). Adults are rather stout with long wings and a notched tail. Adult male plumage includes pink on the wings, belly, and rump, a black forecrown and gray band around the hindcrown (in some races gray is also present on the cheeks, and the head appears mostly gray). The breast and flanks are brown, nasal tufts are white, and the bill is yellow in winter and black in the breeding season. The sexes are similar in size and appearance, although in females the black in the crown and the pink in the plumage are less distinct. Juveniles are similar in appearance to adult females but with overall duller coloration and lacking the gray crown, black forehead, and pink on the underparts (MacDougall-Shackleton et al. 2000).

#### **Diagnostic Characteristics**

The Gray-crowned Rosy-Finch is most likely to be confused with other rosy-finch species. The Black Rosy-Finch is much darker bodied (blackish or blackish-brown) with less extensive pink on the underparts, and lacks the mostly gray head present in one race of Gray-crowned Rosy-Finch that winters in Montana. The Brown-capped Rosy-Finch lacks gray on the head, and the body plumage is a richer brown with darker and more extensive pink on the belly. Ranges of the three species rarely overlap during the breeding season (MacDougall-Shackleton et al. 2000).

## Species Range

### Montana Range



## Migration

Breeding birds move up to mountain tops with fledged juveniles following breeding (Johnson 1965), then leave the alpine for the winter. Movements between breeding and wintering grounds of Montana rosy-finches have not been documented, but some birds in winter flocks are the Hepburn's race (*Leucosticte tephrocotis littoralis*) that breeds in the Cascade Range and mountains of western British Columbia, Yukon Territory, and Alaska (Hendricks 1981, Swenson et al. 1988, MacDougall-Shackleton et al. 2000). Local winter movements of at least 40 km (with a mountain barrier in between) have been documented in the Bozeman-Livingston area (Swenson et al. 1988).

## Habitat

Breeding, nesting, and winter roosting habitat in Montana is similar to other regions in the species' range (Johnson 1965, Hendricks 1981). Gray-crowned Rosy-Finches nest in crevices in cliffs and talus among glaciers and snowfields above timberline (also in abandoned buildings above treeline) and forage in barren, rocky or grassy areas adjacent to the nesting sites; in migration and winter they also occur in open situations, fields, cultivated lands, brushy areas, and around human habitation. They may roost in mine shafts or similar protected sites. During some winters individuals move out onto the shortgrass and midgrass prairies to feed (Hendricks and Swenson 1983, Swenson et al. 1988).



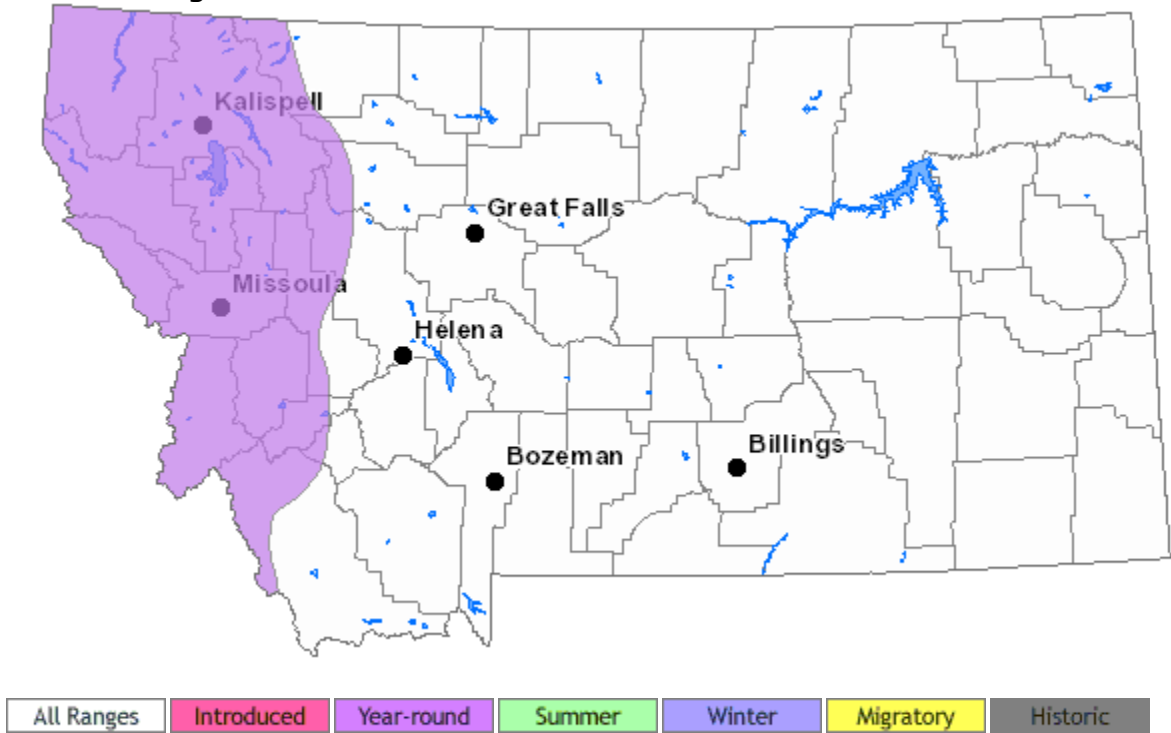
# Hoary Marmot

## Potential Species of Concern



Species Range

Montana Range



## Pika - *Ochotona princeps*

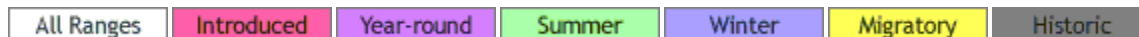
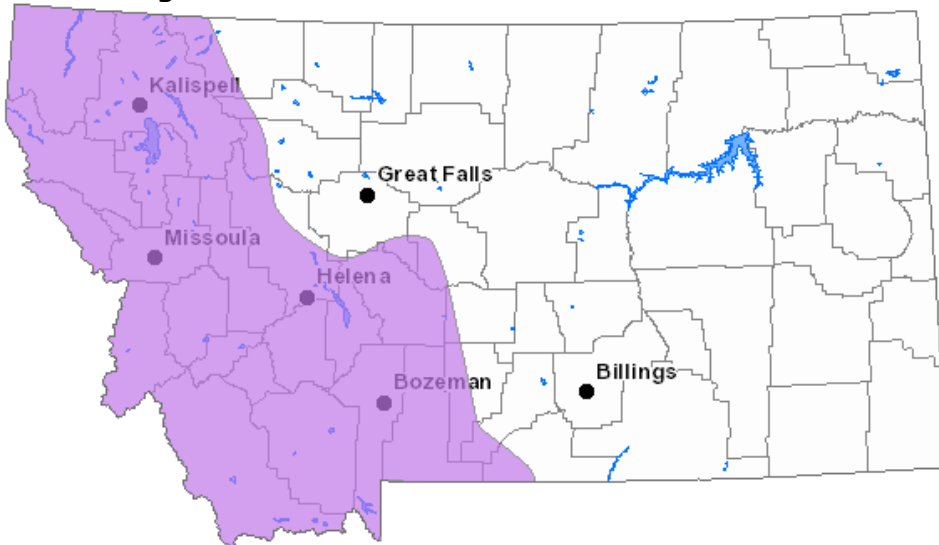


### General Description

We do not yet have descriptive information on this species. Please try the buttons above to search for information from other sources.

### Species Range

#### Montana Range



Click the legend blocks above to view individual ranges.

### Migration

Non-migratory.

### Habitat

Talus slides, boulder fields, rock rubble (with interstitial spaces adequate for habitation) near meadows. Usually at high elevation but mid-elevation possible if suitable rock cover and food plants present (Hoffmann and Pattie 1968).



# White-tailed Ptarmigan - *Lagopus leucura*



## Species of Concern

### General Description

The White-tailed Ptarmigan is a grouse of alpine (above treeline) habitats. It is the smallest grouse in North America (total length 30 to 31 cm, weight 295 to 440 grams), and the only species of grouse with white tail feathers. It possesses cryptic plumage that changes annually from white in winter to grayish-brown in summer. The sexes are similar in body size, shape, and winter plumage.

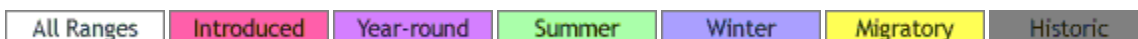
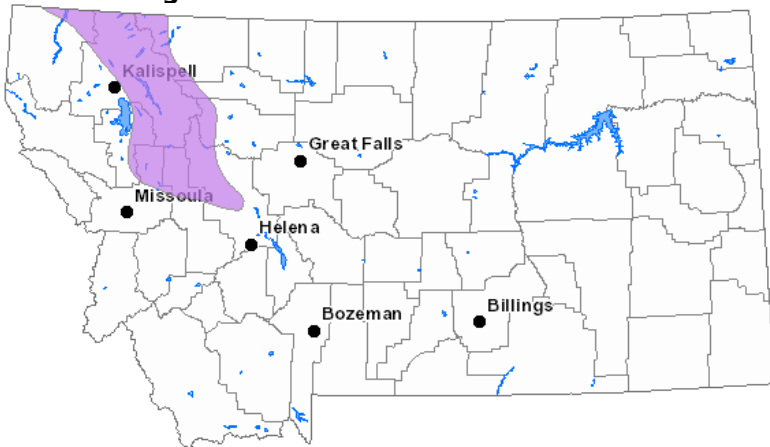
Breeding season males have a conspicuous necklace of coarsely barred brown and black breast feathers, while female plumage is predominantly brown and black with yellowish barring. Male plumage is generally more brown and gray than in the female. Males possess scarlet eye combs that are especially conspicuous during the breeding season; females have less conspicuous and smaller salmon-colored eye combs. In winter, in addition to the completely white plumage, the legs are heavily feathered to the ends of the toes, creating a snowshoe effect for walking on snow (Choate 1960, Braun et al. 1993).

### Diagnostic Characteristics

White-tailed Ptarmigan can be differentiated from all other grouse (including other ptarmigan) by their small body size and distinctive white tail feathers. Dusky Grouse often appear at or above treeline in the mountains of western North America, but lack the white tail.

### Species Range

#### Montana Range



## Migration

Movements tend to be elevational, from higher breeding grounds to lower wintering grounds, although some birds do not migrate. Distances moved are 0.2 to 22.7 km (in Colorado), with females moving farther than males (Braun et al. 1993). Females may also move up to 30+ km between potential breeding territories early in the breeding season (Martin et al. 2000). In Glacier National Park, birds moved an unspecified distance off of the breeding grounds onto adjacent tundra and valley bottoms by mid-October, and reappeared on the breeding grounds by June (Choate 1963).

## Habitat

Habitats occupied in Montana are similar in structure and composition to other locations in the species' range. These include alpine locations with a wide variety of plant habitats from dry, rocky, windswept areas to perpetually wet and mossy streamside areas; level or gently sloping sites are most favored. Moist vegetation (in recently snow-covered or stream-fed areas) and rocks are present in all areas heavily used by ptarmigan in summer, and in Glacier National Park it is often associated with net-veined willow (*Salix nivalis*), heath (*Phyllodoce* sp. and *Cassiope* sp.), and mosses. They do not occur during summer in forest or shrubby vegetation over 50 cm tall, although limited data from autumn and winter indicate ptarmigan sometimes occupy patches of krummholz (stunted and wind-deformed) trees (Choate 1963; Scott 1982). Nests are built in alpine terrain, in rocky areas or sparsely vegetated, grassy slopes. High fidelity to breeding territories in successive years tends to result in young adult birds searching for vacant territories in the natal area.