

**MOUNT LORETTE AND BEAVER MINES, ALBERTA, AND STEEPLES BC,
SPRING 2019**

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www.eaglewatch.ca

Summary and highlights

Following a reconnaissance count at the site in 1992, this was the 27th consecutive year that a systematic spring count has been held at Mount Lorette. It is the 11th consecutive extended (as opposed to complete) count at the site and, as started in 2011, the count period was again March 1 to April 22. At all three counts the start of raptor movement was significantly delayed by the persistence of very cold and snowy weather that had prevailed throughout February, and sustained Golden Eagle migration was not established until the middle of March. After the first week of March the weather dramatically changed and the remainder of the counts were conducted in weather characterised by close to normal temperatures, more variable and generally light to moderate winds and below average cloud cover and precipitation.

At Mount Lorette the combined species count of 2460 was 23.7% below average. The Golden Eagle count was 2135 which was 26.5% below average and the March count of 1300 was 46% below average. The highest single day count (263) occurred on April 1 and the species median passage date equaled the latest ever on March 30. The immature:adult ratio of 0.15 represents a significant decrease from the highest ever spring ratio at the site of 0.25 last spring and reflects a similar reduction seen in the fall 2018 count. The Golden Eagle count again remained close to average for counts conducted since 2003 and suggests that the population may have stabilized following a marginally significant decline in numbers between 1995 and 2002.

Counts of almost all other raptor species were significantly below average at all three sites and most moved significantly later than average. Beaver Mines had its lowest ever count despite a record 631 hours in the field with totals of combined species (1216) and Golden Eagles (642) being 40.6% and 45.8% below average respectively. At Steeples 76% of raptor movement occurred between March 14 and 24 including a record single-day count of 152 on March 23 that included 126 Golden Eagles, but after April 2 only a further 24 migrants were seen. Data from all three sites appears to indicate there was a significant shift of the main migration route to the west this season, especially in March and early April.

Introduction

The Mount Lorette site is located in the Kananaskis Valley in the Front Ranges of the Rocky Mountains (50°58'N 115°8'W) 70 km due west of Calgary and immediately northeast of the Nakiska Ski Hill on Mount Allan. At this point the valley trends north-south and cuts obliquely across the NW-SE oriented trend of the Front Ranges. To the east of the observation site the Fisher Range has an average elevation of about 2500m with Mount McDougall rising to 2726m. Mount Lorette itself is 2487m and is a geological continuation of the Fisher Range across the Kananaskis Valley to the NW. To the west the mountains of the Kananaskis Range are somewhat higher and include Mount Kidd (2958m), Mount Bogart (3144m) and Mount Allan (2819m). The observation site is in a cleared area on the valley floor known as the Hay Meadow at an elevation of 1433m. The site gives 360-degree views of the surrounding mountains and allows monitoring of raptors moving along the mountain ridges to the east and west, and especially those crossing the valley between the north end of the Fisher Range and Mount Lorette. The site is unique in that it allows observation of approximately the same high percentage of a population of migratory Golden Eagles both in spring and fall at exactly the same site, which has in the past been occupied for up to 190 days in a year. When downslope cloud obscures these mountains an alternate site at Lusk Creek, 13km NE of the Hay Meadow site, is used to observe birds moving along the westernmost foothills ridge that have been displaced to the east from the Front Ranges. Birds seen here when active observation is occurring at Hay Meadow are not included in the official count.

Migrating Golden Eagles were first seen moving over Mount Lorette on March 20, 1992, and the first extended (33 day, 280 hour) count was conducted the following fall and yielded 2661 migrant raptors of which 2044 were Golden Eagles¹. Until 2007, full-season spring counts were conducted annually at Mount Lorette, with an average time spent at the site of the 15 counts of 79.9 days (863.5 hours). From 2006 to 2009 the principal fall observation site was moved to the Piitaistakis-South Livingstone location close to the Municipality of Crowsnest Pass in SW Alberta, during which time extended comparison counts were conducted at Mount Lorette during the main period of the Golden Eagle migration. In each of the four years the Piitaistakis-South Livingstone site produced significantly higher numbers of Golden Eagles and other raptor species than at Mount Lorette. Complete spring counts were also conducted at the site in 2008 (February 20 to May 19: 84 days, 975.5 hours), 2009 (February 15 to May 25: 87 days, 993 hours) and 2010 (February 15 to May 21: 88 days, 1015 hours). These counts yielded 4204 raptors (2981 Golden Eagles), 3837 raptors (2737 Golden Eagles) and 3039 raptors (2185 Golden Eagles) respectively.

At Mount Lorette comparative counts in 2008, 2009 and 2010 were conducted between March 01 and April 15 and comprised 40 days (493.3 hours), 41 days (458.7 hours) and 46 days (519 hours) of active observation respectively. These counts yielded (with numbers from the same time period at Piitaistakis-South Livingstone in parenthesis) in 2008 1171 (2582) Golden Eagles and 111 (537) other raptors; in 2009 882 (2422) Golden Eagles and 118 (544) other raptors, and in 2010 1160 (1967) Golden Eagles and 152 (464) other raptors. **Table 2** summarizes all the

spring counts since 1992 conducted at Mount Lorette to date. It is clear that the counts conducted in 2008, 2009, 2010 and also 2012 are anomalously low compared to other counts at the site. The combined species count for the years 2008, 2009, 2010 and 2012 (with comparison for Golden Eagle in parentheses) are only 39% (39%), 30.5% (29.4%), 40% (43.7%) and 37.7% (33.3%) respectively of the average for the counts from 1993 to 2007 and 2011. By contrast the fifth lowest spring count at the site in 2007 is 68.2% (65.6%) of average. The anomalous nature of these four counts probably results from a combination of poor weather conditions and, in some cases, observer inexperience but, whatever the cause, it seems prudent at this time to exclude these counts from the statistical comparisons with subsequent counts.

The spring 2011 count was conducted between March 01 and April 22, one week longer than those from 2008-2010, and all subsequent counts have been conducted during the same time period. **Table 3A** summarizes all the counts conducted at Mount Lorette for the period March 1 to April 22 1973-2019. **Table 3B** excludes the anomalously low counts of 2008, 2009, 2010 and 2012 on which the data variances of the current count (number, median passage dates and age ratios) are based unless otherwise stated.

This report concerns counts conducted between March 1 and April 22 at Mount Lorette, at Beaver Mines in SW Alberta and a 42-day extended reconnaissance count conducted by Vance Mattson at the Steeples site on the western flank of the Rocky Mountains in British Columbia.

At Mount Lorette observers spent a total of 51 days (593.5 hours) of a possible 53 days at the site between March 1 and April 22, with the days and hours being 4.2% and 8.9% above the average of valid counts since 1993 respectively.

After reconnaissance counts were conducted by Peter Sherrington at Beaver Mines in 2014 and 2015, full counts were made in 2016, 2017 and 2018 and this year the count was 51 days (631.3 hours), which are 1% and 48.4% above the 2015-2018 average respectively.

The tenth consecutive Steeples reconnaissance count in BC conducted by Vance Mattson between comprised 42 days (206 hours), the days and hours being 28.6% and 56.4% above the 2010-2018 average.

Mount Lorette, Alberta

Weather

Table 6 summarizes the weather data from this season's count. The weak El Niño conditions that prevailed during much of last fall's count persisted up to the end of January and produced one of the warmest Januarys on record. By contrast, February saw an influx of very cold arctic air which resulted in record low temperatures for the month and these conditions persisted into the start of the count with a starting temperature of -30 °C on March 2. The temperature did not rise above zero until March 7 and the first day completely above freezing was March 24.

During the count, however, only 2 days (March 1 and 12) were completely lost to adverse weather (38.5% below the 2011-2018 average, all of which used the same count period), and a further 3 days were significantly curtailed because of weather (+26.3%). A total of 15 active days (29.4%) experienced precipitation (excluding days with occasional flurries or drizzle) which is 33.4% below average. Snow fell on 13 days (19.6%) which is 42% below average and rain fell on 2 days (6.9%: 43.8% below average).

The highest maximum temperature was 17°C on March 20 and the lowest maximum was -16°C on March 1; the highest minimum temperature was 5°C on April 18 and the lowest minimum was -30°C on March 2. On 8 days the temperature failed to rise above 0°C (10.4% below average). The average daily high temperature in March was 3.84°C and the average daily low was -9°C; the average daily high temperature in April was 8.43°C and the average low was -0.64°C.

The Environment Canada Nakiska Ridgetop weather station situated 4 km west of the Hay Meadow site on Olympic Summit (Mount Allan) at 2543 m was again inoperative and ridge wind information had to be estimated by observers. It should be noted that experience has demonstrated that wind velocities tend to be underestimated by observers located in the valley. On cloudless days or when the ridges were cloaked in cloud estimating the wind direction and velocity is difficult, but reference to the weather station at Banff situated to the NW of the site provided information on general wind conditions on such days. Observers assessed ridge winds to be from the SSW-W 54.7% of the time (25% below average), from the WNW-NW 15.1% (174.5% above average), from the NW-NE 7.5% (31.1% below average), and from other directions and variable winds 17%. Ridge wind direction could not be assessed 5.8% of the time (+52.1%).

Ridge wind speeds were assessed as strong to very strong (41 km/h to >100 km/h) just 3.8% of the time which is 74.6% below average; they were moderate to strong (11 to 100 km/h) 22.6% of the time (24.6% below average), moderate (11-40 km/h) 18.9% of the time (3.4% above average), light to moderate (1-40 km/h) 37.4% of the time (+50.6%) and light winds occurred 4.2% of the time (+115.3%). On 1 day (1.9%) winds varied from light to strong (-24.4%).

Six days (11.3%) experienced cloud cover between 0 and 10% (245% above average), 9 days (17%) saw cloud cover between 80 and 100% (-9.9%) and a total of 32 days (60.4%) experienced 100% cloud for at least part of the day (-8.3%). The eastern ridge system (Fisher Range and Mounts Lorette and McDougall) was at least 10% obscured on 18 active days (34.0%, 22.2% below average), and 40-100% obscured on 13 active days (24.5%, 1.1% below average). The western ridge system (Mounts Kidd, Bogart, Allan and Collembola) was at least partly obscured (10%+) on 24 days (45.3%, -24.9%) and 40-100% obscured on 15 active days (28.3%, 17.1% below average).

Apart from the frigid first week of the count temperatures were close to or slightly below normal. Precipitation was significantly below average, ridge winds were predominantly SSW-W as usual but were 25% below average and were predominantly light to moderate with relatively few moderate to strong days. Cloud cover was close to average, but there were significantly more cloudless or near-cloudless days. Ridge occlusion was below average on both the eastern route and especially on the western route.

La Niña oceanic conditions were probably responsible for the cold, snowy start of the count, but subsequently they did not appear to be typical of either La Niña or El Niño conditions

General flight dynamics March 1 to April 22

A total of 2460 migrant raptors of 13 species were counted on 45 of 51 active observation days between March 1 and April 22 (**Table 1**). The combined species total was 15.6% below the long-term average of all counts for the period March 1 to April 22 at the site (**Table 3A**), but 23.7% below average when the anomalously low counts are excluded (**Table 3B**). A total of 20 active days (39.2%) had counts of 10 birds or less, that included the entire period between March 1 and March 9 that only produced 7 migrant raptors. The first significant movement did not occur until March 15 when 23 birds (21 Golden Eagles) were counted, after which movement was fairly persistent for the rest of the count although only 9 days saw movements in excess of 100 birds. This period was encompassed by March 22 and April 3 when 13 days produced 1755 migrants (71.3% of the total count), of which 1572 were Golden Eagles which represents 73.6% of their total. The March combined-species count of 1462 included 1300 Golden Eagles, the totals being 42.7% and 46% below the average for valid March counts respectively (**Table 4B**). April produced 998 migrant raptors of which 835 were Golden Eagles, the totals being 48.9% and 67.1% above the average for valid April counts respectively (**Table 5B**). The highest single-day combined-species count was 284 on April 1, which is the third-lowest maximum count ever and 29.7% below average. Other counts over 200 were 220 on March 26 and 217 on March 25. The March combined species total of 1462 represented 59.4% of the total spring 2018 count, and the April total of 998 represents 40.6% of the total count. During much of March and not uncommonly in April most of the eagle movement at Mount Lorette was to the west of the Hay Meadow observation site on the “western route” located on the Kananaskis Range (Mount Kidd, Mount Bogart, Mount Allan, Mount Collembola and Skogan Pass), and not on the “eastern route” (the Fisher Range, Mount Lorette and Mount McGillivray) which is usually the preferred route for migrating Golden Eagles. The context and possible significance of this is discussed in the Beaver Mines section under Weather and General flight dynamics, on page 19.

Of the 15 species that regularly occur during the period (**Table 3B**) only 3 species occurred in above average numbers: Osprey 3 (+61%), Bald Eagle 209 (+14.5%) and Northern Harrier 5 (+107%), while a single Turkey Vulture was only the 6th to be seen at the site. Nine other species occurred in lower than average numbers: Sharp-shinned Hawk 11 (-54.9%), Cooper’s Hawk 2 (-69.9%), Northern Goshawk 18 (-20.5%), Red-tailed Hawk 18 (-41%), Rough-legged Hawk 14 (-27.7%), Golden Eagle 2135 (-26.5%), Merlin 5 (-25.7%), Gyrfalcon 1 (-35.3%) and Prairie Falcon 2 (-4.3%). Five species: Broad-winged Hawk, Swainson’s Hawk, Ferruginous Hawk, American Kestrel and Peregrine Falcon, were not recorded this year.

The final count was Turkey Vulture 1, Osprey 3, Bald Eagle 209, Northern Harrier 5, Sharp-shinned Hawk 11, Cooper’s Hawk 2, Northern Goshawk 18, *Accipiter* sp. 1, Broad-winged Hawk 0, Swainson’s Hawk 0, Red-tailed Hawk 18, Ferruginous Hawk 0, Rough-legged Hawk 14, *Buteo* sp. 3, Golden Eagle 2135, eagle sp. 26, American Kestrel 0, Merlin 5, Gyrfalcon 1, Peregrine Falcon 0, Prairie Falcon 2, *Falco* sp. 1 and indeterminate raptor 5, for a total of 2460 migrant raptors of 13 species.

The combined species median passage date was March 30, 7 days later than the long-term average, and reflects the numerical dominance of Golden Eagles. Seven species occurring in sufficient numbers to calculate median passage dates were later than average: Bald Eagle 2 days, Northern Harrier 8 days, Sharp-shinned Hawk 8 days, Northern Goshawk 2 days, Red-tailed

Hawk 2 days, Rough-legged Hawk 1 day and Golden Eagle 8 days. Only Merlin was 3 days earlier than average. (**Table 11**).

Detailed daily summaries of weather and flight dynamics can be found on the spring 2019 blog on the RMERF website www.eaglewatch.ca

Golden Eagle

Observers counted a total of 2135 migrating Golden Eagles on 40 days between March 9 and April 22, with the highest single-day count of 263 occurring on April 1 which equals 2014 for the latest maximum count ever (**Figure 1**). The number of days on which the species was recorded is 10.9% below average, the total is 26.5% below the long-term average and the high count is 33.2% below average and is the second lowest maximum count ever for a valid count ahead of 252 in 2006. Eight other days also had three-figure counts: March 22 (101), March 25 (210), March 26 (212), March 28 (102), March 30 (127), March 31 (121), April 2 (147) and April 3 (100).

The March count of 1300 was 40.2% below the average of all counts at the site (**Table 4A**), but when the anomalously low counts are excluded the figure falls to -46% and the count is the lowest ever March total for the site (**Table 4B**). By contrast the April count of 835 is 67.1% above the average excluding the anomalously low counts (**Table 5B**) and is the 4th highest April count ever. The flight comprised 1310 adults, 59 subadults, 119 juveniles and 600 birds of unknown age yielding an immature:adult ratio of 0.15 which is 52.8% above the long-term average ratio but represents a significant decrease from is the highest ever spring ratio at the site of 0.25 last spring. The ratio also reflects a similar decrease seen in the fall 2018 count at the site.

The median passage date for the species was March 30 which equals 2002 as the latest ever date and is 8 days later than average. Adult birds were 6 days later than average on March 28 and immature birds were 3 days earlier than average on April 3.

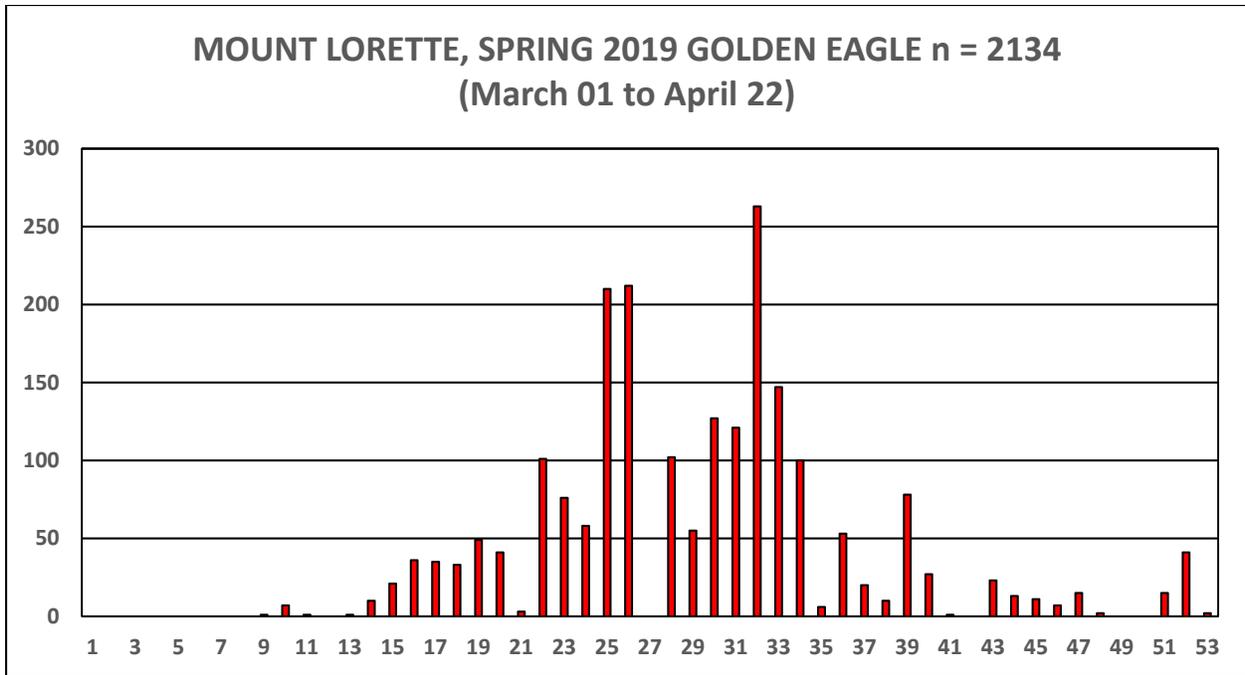


Figure 1

The pattern of the hourly cumulative counts (**Table 7, Figure 2A**) only generally conforms to the long-term average (1993-2007) negatively-skewed normal distribution curve where hourly counts steadily increase throughout the day, peak around 1600 and fall thereafter (**Figure 2B**). This season's chart shows a build-up to 1100-1200 (263 birds) followed by three hours of similar magnitude (249, 223 and 258) with a drop to 193 and 200 before peaking at 280 between 1700 and 1800, which is an hour later than average and then declining “normally” thereafter. Single migrants were counted between 0600 and 1700 and between 1700 and 1800, and a total of 4 were seen after 1900. The highest single-hour counts were 76 between 1400 and 1500 on April 1, 65 between 1700 and 1800 on March 25 and 52 between 100 and 1100 on March 30.

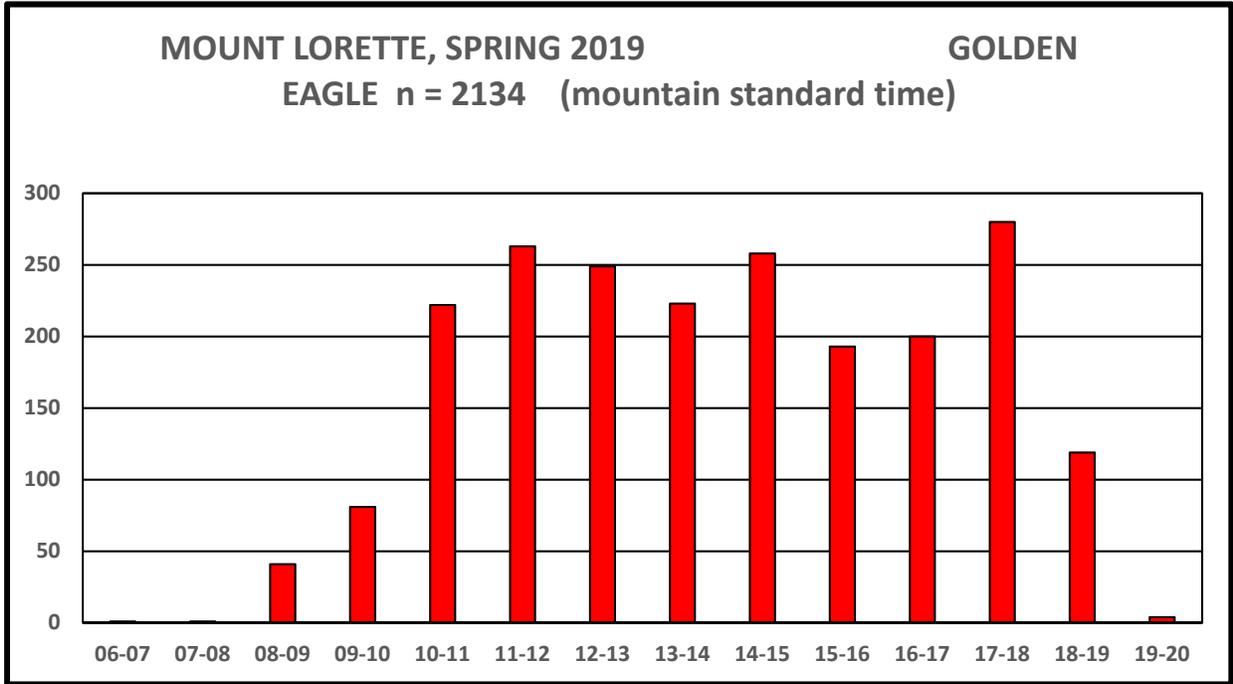


Figure 2A

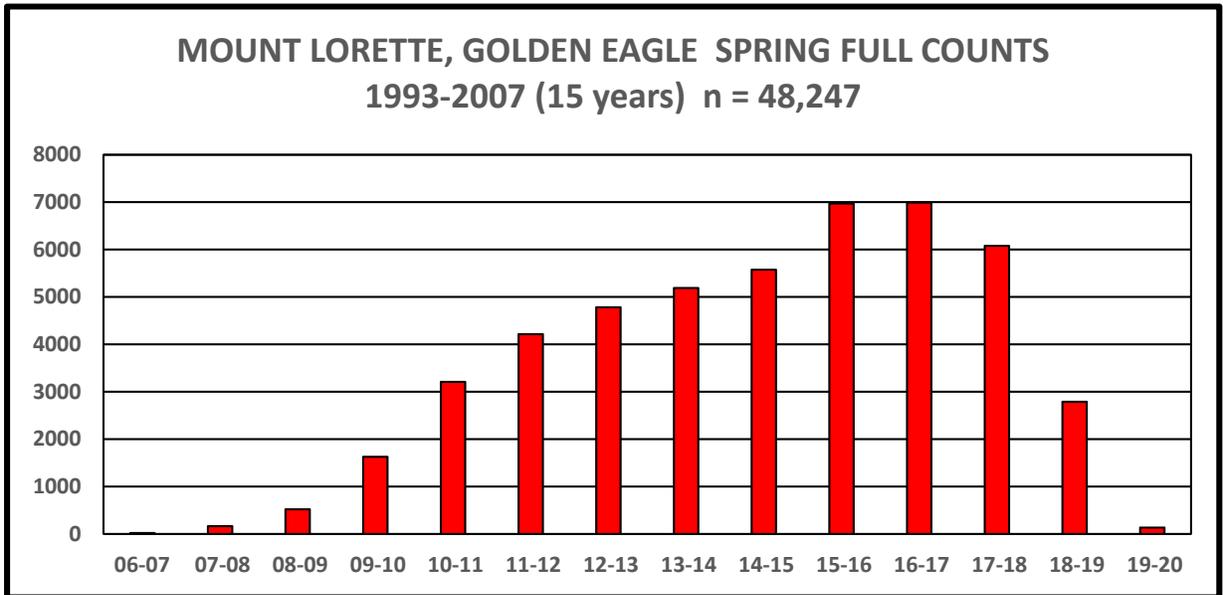


Figure 2B

Spring Golden Eagle Trend

Figure 3A shows the trend of all Golden Eagle counts at the Mount Lorette site since 1993 for the period March 1 to April 22. As this period normally captures about 97% of the total Golden Eagle movement it is essentially identical to the trend derived from using data from complete counts. For reasons discussed in the Introduction, the years 2008, 2009, 2010 and 2012 that yielded anomalously very low counts have been omitted on **Figure 3B**.

The weather at the site since 2007 has generally been worse than average and birds may have been deflected to more easterly routes in greater numbers than usual, but the weather in 2011 was similar, as was the weather in 1997 and 1999 and all of these counts (2982, 2352 and 2565 respectively) were significantly higher than those of the period 2008-10. The linear trend line (**Figure 3A**) appears to show an overall decline and removal of the anomalous low counts (**Figure 3B**) only slightly tempers but does not change this overall trend, neither does the removal of the demonstrably weather-affected counts in 1997 and 1999. When data from the 2008-2010 spring counts at the Piitaistakis-South Livingstone site are substituted they fall comfortably on the trend line (**Figure 3C**) and also clearly show the anomalous nature of the contemporary counts at Mount Lorette. The removal of the remaining anomalous count in 2012 does not materially affect the trend, and it is unfortunate that no count was conducted at Piitaistakis-South Livingstone in spring 2012.

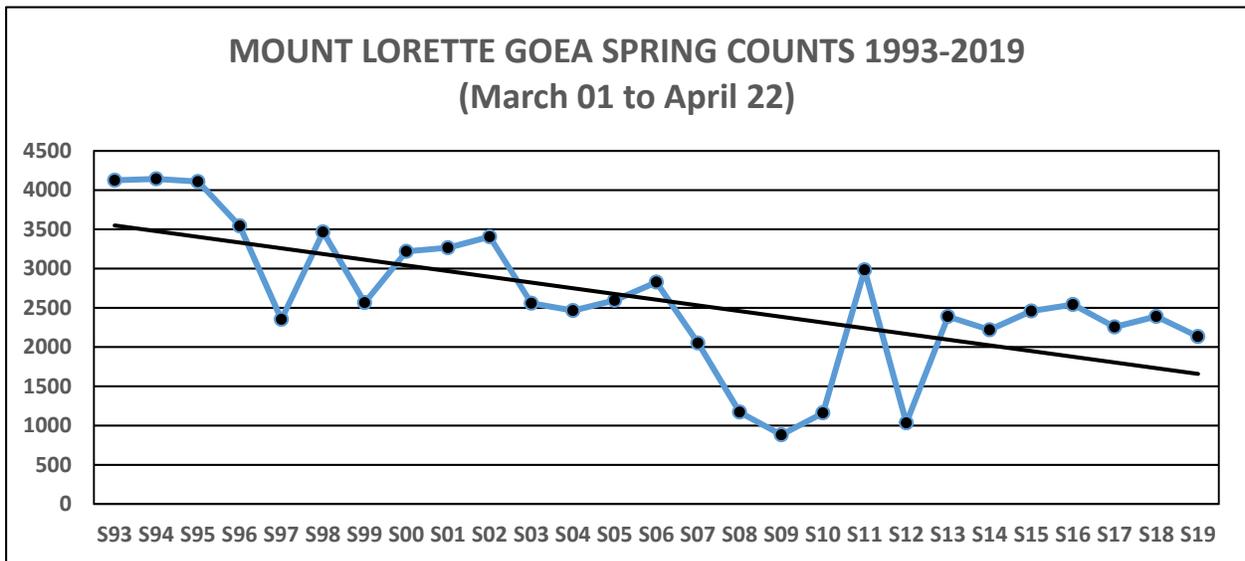


Figure 3A

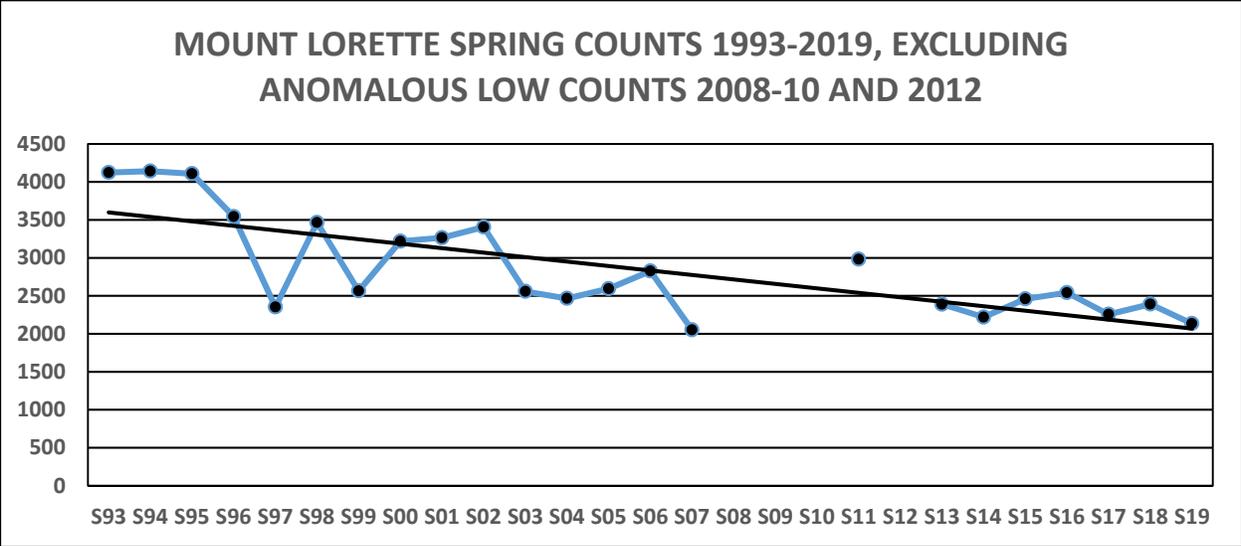


Figure 3B

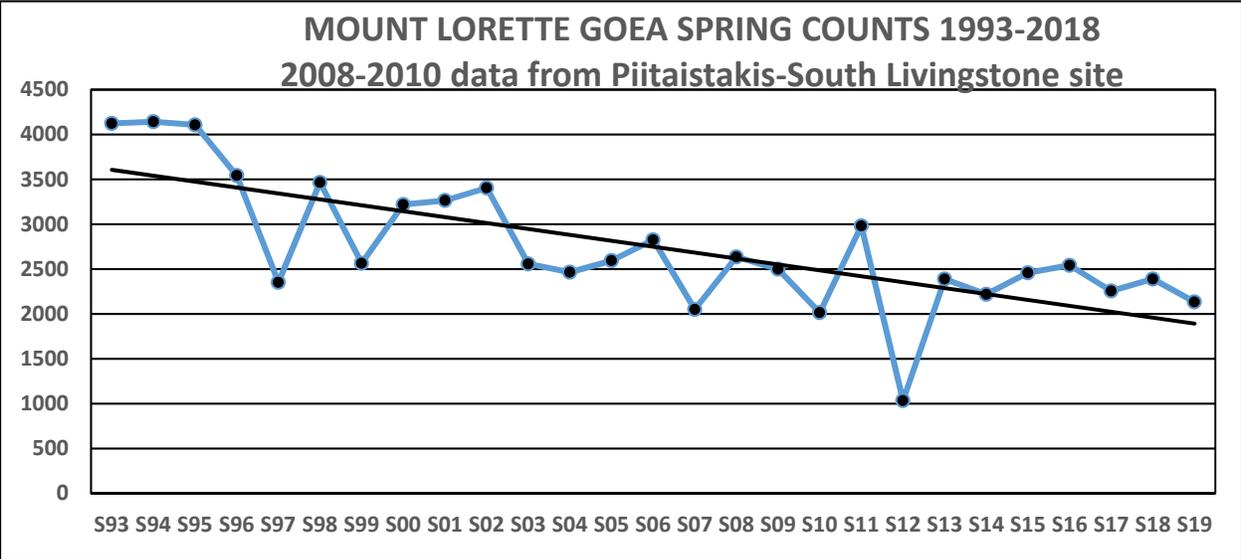


Figure 3C

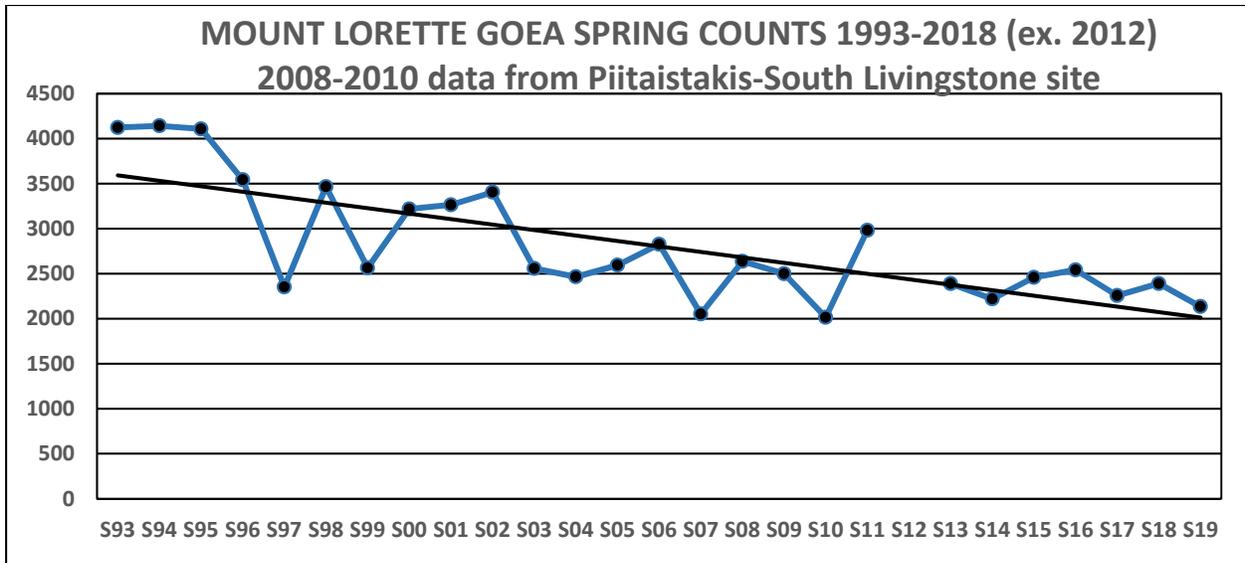


Figure 3D

Most of the decline appears to have taken place between 1995 and 2003⁶ (**Figure 3E**); subsequently the trend is almost horizontal suggesting that the population has remained essentially stable over this 17-year period (**Figure 3F**). This figure uses data from the 2008-10 counts at Piitaistakis-South Livingstone, and omits the remaining Mount Lorette anomalous 2012 low count.

The spring 2019 count does not significantly change any of these trend lines.

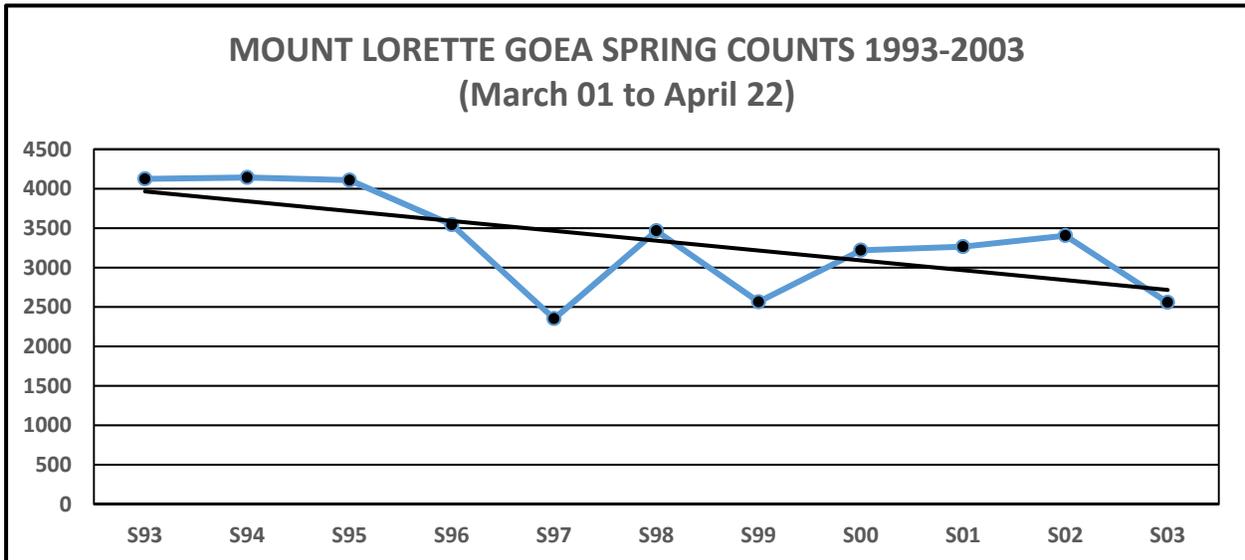


Figure 3E

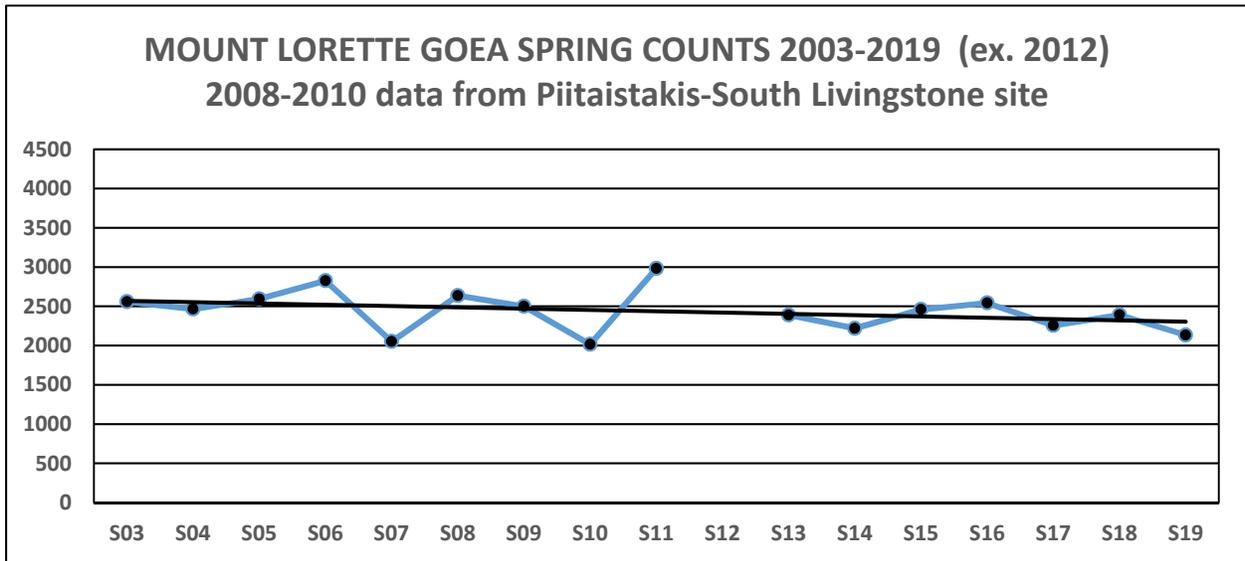


Figure 3F

Golden Eagle Age Analysis

Figure 4 shows the ratio of immature and adult Golden Eagles from 1994 to 2019. This is based on a combination of Mount Lorette and Piitaistakis-South Livingstone data as contemporaneous counts from both sites show a close correlation of ratios. The upper (blue) series show fall data, the lower (orange) series show spring data. The fall data points are plotted above the spring data points of the following year. Both data sets show a remarkable parallelism, with the spring data consistently showing a significant reduction from the previous fall. This probably reflects a combination of winter mortality and possibly a more diffuse migration pattern of young birds in the spring. It is also accentuated by the current shorter count period which will miss juvenile birds that move after April 22. Despite these limitations the trends are consistent and almost certainly reflect the breeding cycles of the northern Snowshoe Hare population ^(1, 2, 3, and 5). This probably peaked around the time counts started at Mount Lorette in 1992, (although age data from the first two years are not reliable enough to be included) and fell to 1995 rising again to a second peak around 1999/2000, that then fell to 2002 before steadily rising to the next peak in 2007. The current cycle probably peaked in the summer of 2017 which is reflected in the highest ever spring ratio of 0.25 recorded in the spring 2018 count. The spring 2019 ratio of 0.15 reflects a similar reduction in the fall ratio between 2017 and 2018. This would indicate that three eight to ten-year cycles have occurred during the life of the project so far. In some years many juvenile

Golden Eagles move during the second half of April and during May which is why the age ratios from the shorter count are lower. It is very gratifying, however, to see that data from the period March 1 to April 22 closely follow the trend established from the full count data (see the 2012 spring report). This suggests that we can successfully continue to monitor these trends by counting from March 1 to April 22, although it is to be hoped that at some time we will be able to resume full counts at the site.

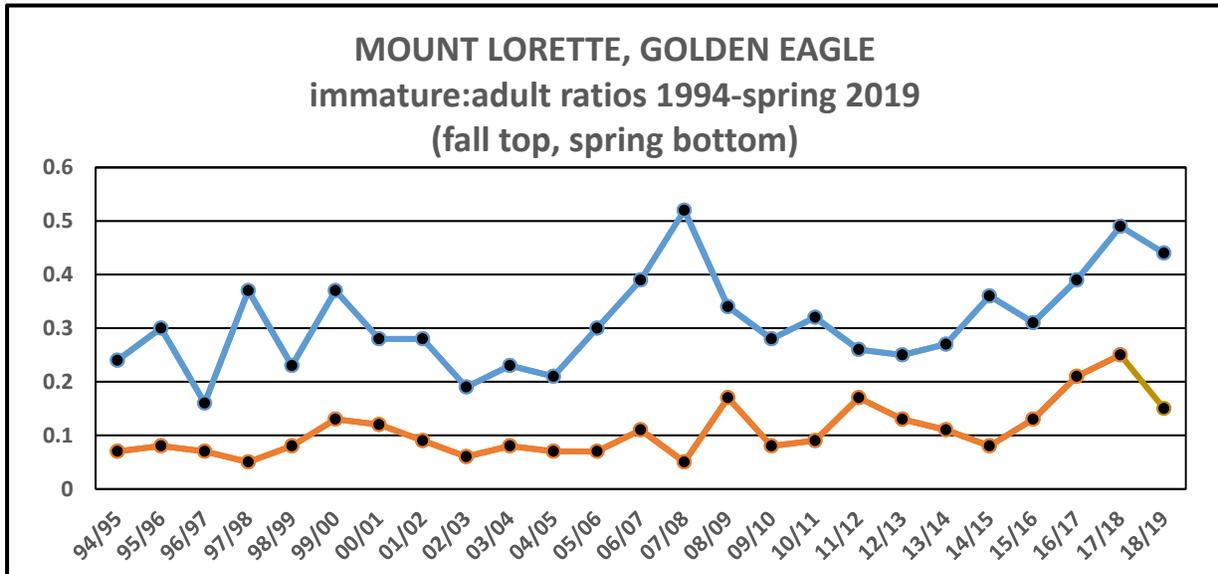


Figure 4

Bald Eagle

Bald Eagle was the only species that migrated in significantly higher than average numbers this season (+14.5%). A total of 209 birds were counted on 38 days between March 3 and April 21 with a high single-day count of 36 on March 28 (**Figure 5**). The number of occurrence days is close to average (+0.8%), but the high count of 36 on March 28 is 71.4% above average and is the second highest ever behind the 42 counted on April 3 1996. The March count of 122 was 9.4% above average (**Table 4B**) and the April count of 87 was 22.5% above average and is the highest since 2007 (**Table 5B**). The flight comprised 153 adults, 25 subadults, 15 juveniles, 10 undifferentiated immature birds and 6 birds of indeterminate age giving an overall immature:adult ratio of 0.33 which is 3.8% below the long-term average ratio. The median passage date for the species was March 30, 2 days later than average; adult birds were 3 days later than average on March 29 and immature birds were coincident with the average passage date on March 31.

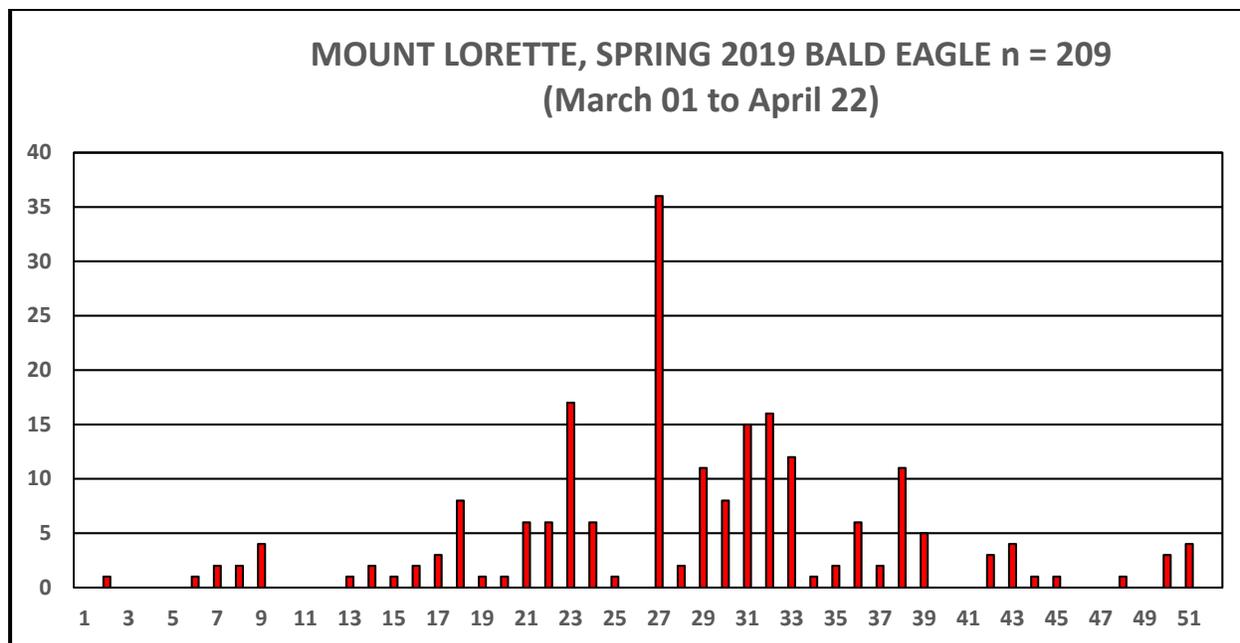


Figure 5

Other species

Turkey Vulture A single bird of undetermined age on April 5 was only the 6th spring record at the site. Previous records for the count period were single birds recorded on April 13, 1993, March 18, 2011 and March 31 2013, and 2 birds seen on April 10 2016.

Osprey

Three birds were recorded: 1 on April 20 and 2 on April 22. The total is 61% higher than average and the first arrival date was 3 days later than average.

Northern Harrier

A total of 5 harriers was recorded on 2 days: 1 on April 1 that was 2 days earlier than the average first-arrival date, and 4 birds on April 21 which is the highest ever spring single-day count at the site. The total is 7.8% above average. The flight comprised 4 adults (3 males and 1 female) and 1 indeterminate bird.

Sharp-shinned Hawk

After a slight recovery in numbers last year (25) following 5 years of low counts (15 to 18 birds) this spring saw another poor total of only 11 birds (1 juvenile and 10u) on 6 days between March

30 and April 22. The total is 54.9% below average and is the 3rd lowest count at the site, the number of occurrence days is 51.6% below average and the first occurrence date is 7 days later than average. Four of the birds were seen on April 21, a high count that is 26.1% below average. Only 1 bird was counted in March, which is 62.7 % below average (**Table 4B**), and 10 in April which is 54% below average (**Table 5B**). The species median passage date of April 21 is 8 days later than average.

Cooper's Hawk

For the second consecutive year only 2 birds were recorded: single indeterminate birds were seen on April 21 and 22, a total that is 69.9% below average which again equals the second lowest count at the site. The earliest occurrence was 19 days later than average.

Northern Goshawk

The total of 18 birds seen on 12 days between March 18 and April 21 was 20.5% below average and the occurrence days were 14.6% below average. The first occurrence was 6 days later than average. The highest daily count was 3 birds on April 8 and 21 which is 13.2% lower than the average single-day count. Six birds moved in March (-46.3%) and 12 in April (+4.8%) (**Tables 4B and 5B**). The count comprised 11 adult, 1 juvenile and 6 indeterminate birds. The median passage date for the species was April 2, 3 days later than average, and for adults was April 6, 10 days later than average.

Broad-winged Hawk

Not recorded this season. The species has been recorded on 5 previous counts including 3 of the last 4 years.

Swainson's Hawk Not recorded this season. The only previous record for the count period was two adult birds (1 light morph and 1 rufous morph) seen on April 19 2017

Red-tailed Hawk

There was a poor count of only 18 birds on 12 days between March 20 and April 22. The count is 41% below average, the number of occurrence days 17.2% below average and the first bird was seen 1 day earlier than average. The highest daily count was 3 on April 12 and 21 which is 48.8% below the average high count. Two birds moved in March (-58.1%) and 16 in April (-38%) (**Tables 4B and 5B**). The flight comprised 16 "Western Red-tailed Hawks" (*B.j.calurus*): 14 adults (13 light and 1 dark morph), and 2 juveniles (1 rufous and 1 dark), 1 indeterminate light morph bird and 1 bird of indeterminate race, morph or age. The overall immature:adult ratio was 0.14. The median passage date of the species and for adult birds was April 12 and 15, 2 and 6 days later than average respectively.

Ferruginous Hawk

Not recorded this season. Previous records for the period are 1 on April 9 1994, single birds on April 6 and 7 1995, and 1 on April 15 2001.

Rough-legged Hawk

A total of 14 birds were counted on 9 days between March 14 and April 20. The count is 27.7% lower than average and the first occurrence is 5 days earlier than average. The highest single-day count was 4 on April 20, which is 29.6% below average. Four birds moved in March (-24.1%) and 10 in April (-29%) (**Tables 4B and 5B**). The median passage date of April 8 was 1 day later than average. The flight comprised 12 light morphs, 1 dark morph and 1 bird of indeterminate morph giving a dark:light ratio of 0.08.

American Kestrel

Not recorded this season, but it has occurred on 13 of 22 previous valid counts within the current observation period.

Merlin

Five birds were recorded on 4 days between March 30 and April 13 with 2 of the birds occurring on April 13. The total is 25.7% below average, the number of count days is 31.8% below average, the high count is 15.8% below average and the first occurrence is 9 days later than average. The count comprised 1 bird of unknown age or sex ascribed to the race *F.c. columbarius* and the other four were of undetermined race, sex or age. The species median passage date of April 2 is 3 days earlier than average.

Gyrfalcon

A single grey morph bird was seen on March 28, 5 days later than the average first occurrence of the species. The total is 35.3% below average.

Peregrine Falcon

Not recorded this season but has occurred on 15 previous counts including all valid counts since 2006.

Prairie Falcon

Single birds were seen on March 19 and 28, a total that is 4.3% below average. The first bird was 6 days earlier than average.

Observers

Principal Observers: Blake Weis (20 days), Caroline Lambert (10 days), Bill Wilson (9 days), George Halmazna (5 days), Cliff Hansen (7 days), Rosemary Power (1 day),

Assistants: Lori Anderson (9 days), Rick Robb (8 days), Dan Parliament (6 days), Graeme Dunlop 5 days, Kathleen Peterson 5 days, Patrick Farley (4 days), Heinz Unger (4 days), Brian McBride (3 days), Cliff Hansen (2 days), Rachel McKay (3 days), Eric Langshaw (3 days), Ruth Morrow (2 days), Doug Pederson (3 days), Rosemary Power (2 days), Glen Webber (2days), Patricia Farley (1 day), Cindy Parliament (1 day), Michael Woertman (1 day).

Acknowledgments: RMERF gratefully extends thanks to the Board, members and supporters of the Rocky Mountain Eagle Research Foundation for their continuing financial and logistical support, and especially for funding received through the Alberta Gaming and Liquor Commission, and from the Calgary Foundation through the Pelzer Family Endowment. We thank Rosemary Power who organized the count and compiled the initial field data from Mount Lorette, and Vance Mattson for compiling his data from the Steeples site. The Rocky Mountain Eagle Research Foundation also gratefully acknowledges the continuing co-operation of the University of Calgary Biogeoscience Institute of the Canadian Rockies and Foothills Field Station at Barrier Lake and the G8 Chair for Wildlife Studies at the University of Calgary.

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Beaver Mines, Alberta

Introduction

Beaver Mines is a small hamlet located about 20 km west of the town of Pincher Creek in southwestern Alberta. It is also where I have lived since 2007 after moving there in order to conduct counts at the Piitaistakis-South Livingstone site. My house is located in a valley on the alignment of the most easterly foothills ridge system that has a NW-SE orientation in this area. In the past I commented in the daily blog on individual days when I observed significant raptor movement from my house in both spring and fall at times when the mountain and foothill ridges to the west are obscured by cloud. During the spring of 2014 these conditions appeared to have prevailed for extended periods so I was able to conduct non-systematic counts on 17 days (78.1 hours) between March 18 and April 17. The count yielded a total of 1092 migrants of 10 species including 110 Bald Eagles and 853 Golden Eagles. In the spring of 2015 I spent a total of 39 days (209 hours) observing from my house and recorded a total of 1798 migrant raptors of 17 species. On only 2 active observation days were no migrants seen, and it appeared that this route is an important spring raptor flyway and not just a poor weather displacement route from the west as I had previously believed. The highest single day count was 463 (including 429 Golden Eagles) on March 19, one day earlier than the maximum movement at Mount Lorette. In 2016 I conducted a full count of 52 days (401.3 hours) between March 1 and April 22 exclusively from my house in Beaver Mines and the count produced a total of 2038 migrant raptors of 17 species. Spring 2017 was the second consecutive full count conducted from my house on 56 days (510.1 hours) between February 25 and April 22. Because of its more southerly location about 200 km south of Mount Lorette I decided to start the count in late February to see if there was any early raptor movement and the last 4 days of February yielded 24 migrants of which 20 were Golden Eagles. A total of 1992 migrants of 18 species were counted, a total that was 3.9% higher than the average of the last 2 years. As with the previous three years the count notably differed from that at Mount Lorette in the variety and numbers of non-eagle species (16 species) which comprised 31.1% (compared to 39% in 2016) of the total count at Beaver Mines compared to 7.5% (14 species) at Mount Lorette. The 2018 count set a new high combined-species record of 2340 migrants of 18 species including record counts of Bald Eagles (355) and Golden Eagles (1533) (**Table 10**).

Spring 2019 is the fifth consecutive complete count at the site that comprised 51 days (631.3 hours) between March 1 and April 22, the days and hours are 1% and 48.4% above the 2015-2018 average respectively.

Weather and General flight dynamics February 25-April 22

The weather is summarized in **Table 9**, and the migration dynamic is illustrated in **Figure 6**. As in the Mount Lorette area the weak El Niño conditions that prevailed during much of last fall's count persisted up to the end of January and produced one of the warmest Januarys on record. By contrast, February saw an influx of very cold arctic air which resulted in record low temperatures

for the month and these conditions persisted into the start of the Beaver Mines count which started with a temperature of -35°C on March 2. When the temperature finally rose to a “high” of 1°C on March 7 it was the first time that the temperature in Beaver Mines had risen above freezing for 33 days; the first day completely above freezing was March 16. The cold weather also extended far to the south in the United States and was accompanied by heavy snow that persisted well into March.

Two full days, March 1 and 24 were lost to poor weather conditions. Cold temperatures and often clear skies persisted to March 7 before which only 4 migrants had been recorded. The temperature gradually rose but was still cool to March 16 with predominantly moderate to strong W-WSW winds which produced a moderate stream of migrants that peaked at 64 birds on March 14. The weather changed dramatically between March 16 and 22 as El Niño conditions appeared to suddenly “switch off”: the temperature rose to 16°C , it was generally cloudless and light NE winds became common.

As a result the migration also “switched off” with the seven-day period producing only 11 migrants in 84.25 hours of observation at a time when raptor, and especially Golden Eagle migration is kicking into high gear. During this period reconnaissance parties moved west to the Continental Divide and east onto the prairies to try to find a stream of migrant raptors, but with no success. It is probably significant that Steeples saw a steady stream of Golden Eagles between March 14 and 24 that culminated in counts of 126 and 92 Golden Eagles on March 23 and 24 respectively (**Table 12, Figures 7 and 8**). During much of March and not uncommonly in April most of the eagle movement at Mount Lorette was to the west of the Hay Meadow observation site on the “western route” located on the Kananaskis Range (Mount Kidd, Mount Bogart, Mount Allan, Mount Collembola and Skogan Pass, and not on the “eastern route” (the Fisher Range, Mount Lorette and Mount McGillivray) which is usually the preferred route for migrating Golden Eagles. Observations at the three sites strongly suggests that in March and probably persisting into early April, the migratory route was strongly shifted to the west in the south (Beaver Mines and Steeples), and by about 10 kilometres in the Lorette area. I suggest that the birds entered British Columbia from the south following the Rocky Mountain Main Ranges, and by-passed the Beaver Mines site, with some using the western Flanks of the Rockies where they were observed above the Steeples Ridge, and then moved north to join the southern end of the Kananaskis Range in the Highwood Pass area over which they moved west of the Hay Meadow site before moving to the NW over Skogan Pass. I speculate that the reason for this shift was the extreme cold and heavy snowfall that enveloped much of the west well into March that slowed or prevented the emergence of ground squirrels in the mountain foothills that are usually a critical pre-migratory food for migrant Golden Eagles. Observation and reports certainly indicated that Richardson’s Ground Squirrels were absent or uncommon over much of their range in SW Alberta, and food may have been easier to find farther to the west.

Between March 23 and April 11 temperatures were general moderate and only occasionally rose above 10°C , there were frequent showers or flurries but little serious precipitation and winds were a frustrating mixture of favourable moderate to strong W-WSW winds when migration occurred and light E-NE upslope winds when the skies were empty. During this period migration was sporadic but suitable conditions produced moderate migration passages including 86 raptors (61 Golden Eagles) on March 25 and a season-high 95 Raptors (71 Golden Eagles) on April 1, that coincided with the peak movement at Mount Lorette. Migration conditions were good for the remainder of the count with the temperature reaching a season-high 19°C on April 19 and

moderate to strong W-WSW winds that produced a steady but only moderate migration that culminated in a count of 79 birds of a site-record 16 species on April 22, the last day of the count. The only species not seen were Ferruginous Hawk (which occurred the previous day) and Gyrfalcon (that was last seen on April 15).

In general temperatures were mainly above seasonal normal with the exception of March 31 to April 8 which were significantly below normal. This period was also characterised by a higher than normal percentage of unfavourable up-slope (E-ESE) winds, and most of the snowfall occurred during this period. The rest of the count, however, was dominated by favourable WSW-W winds that regularly gusted to 100 km/h and cloud conditions were generally favourable for observation. With the exception of March 6-10 when 82 migrants were counted and March 14 when 61 migrants passed, persistent movement did not start until March 19 when 159 migrants were seen and the next 2 days produced a further 325 birds. The cold and snowy weather from the end of March to early April slowed, but did not eliminate the flow and after April 9 movement was generally steady until the end of the count (**Figure 6**).

The final count (**Tables 8 and 10**) (with variance compared to the average of 2015-2018 in parenthesis and new high counts for the site in bold) was 1216 (-40.4%) of 18 species that comprised **6 Turkey Vultures** (+380%), 3 Ospreys (-42.9%), 225 Bald Eagles (-19.6%), 35 Northern Harriers (-31.4%), 47 Sharp-shinned Hawks (-42.2%), 7 Cooper's Hawks (-47.2%), 33 Northern Goshawks (-38.3%), 0 *Accipiter* spp. (-100%), 5 Broad-winged Hawks (-47.4%), 3 Swainson's Hawks 2 (+9.1%), 120 Red-tailed Hawks (-31.2%), 5 Ferruginous Hawks (-9.1%), 30 Rough-legged Hawks (-67.4%), 7 *Buteo* spp. (-52.5%), 642 Golden Eagles (-45.8%), 2 eagle spp. (-20%), 8 American Kestrels (-23.8%), 16 Merlins (-4.9%), 6 Gyrfalcon (=), 6 Peregrine Falcons (-29.4%), **10 Prairie Falcons** (+53.8%), 0 *Falco* spp. (-100%) and 1 unidentified raptor (-69.2%).

The combined species median passage date at Beaver Mines was March 30 and at Mount Lorette was April 1. **Table 11** compares the median passage dates of individual species at the two sites. Despite the fact that the time at the site was the highest ever (531.3 hours +48.4%) but produced the lowest count ever. it may prove to have been one of the most interesting counts that we have done.

Golden Eagle A total of only 642 birds were counted on 42 days between March 2 and April 22, which is by far the lowest count ever at the site and is 45.8% below the 2015-2018 average. The March count was 353, and 289 moved in April. The highest single-day count was 71 on April 1 which is coincident with the highest single-day count at Mount Lorette. The flight comprised 472 adults, 52 subadults, 88 juveniles and 30 unaged birds, giving an immature:adult ratio of 0.3 which is double that of the 0.15 recorded at Mount Lorette but the low numbers, especially in March, and the sporadic nature of the movement make this ratio meaningless. The March count was 353, 64% below the average of the last 4 years, and the April count of 289 was 48.4% above the average of the last 4 years. The high age ratio results from very low numbers of adult birds, not from a high count of immature birds. Comparing the age classes with those at Mount Lorette, the number of immature birds counted there was 178 compared to 140 at Beaver Mines (+27%), but the number of adult birds was 1319 compared to 472 at Beaver Mines (+177.5%). This can again be explained by Golden Eagles probably using routes farther to the west and even west of the Continental Divide especially during March and early April which is when the bulk of the adult movement occurs (see discussion in previous section). The median Passage dates for the

species, adults and immature birds were March 31, March 26 and April 13 respectively, compared to dates of March 30, March 28 and April 3 at Mount Lorette.

Bald Eagle The Bald Eagle count of 225 on 39 days between March 2 and April 22 was 19.6% below the 2015-2018 average. The March count of 131 was 26.4% below average, and the April count of 94 was 4.1% below average. The single-day high count was only 22 on March 23. The flight comprised 170 adults, 22 subadults, 30 juveniles, 1 undifferentiated immature bird and 1 indeterminate bird that gives an immature: adult ratio of 0.31, which is close to the Mount Lorette ratio of 0.33. The median Passage dates for the species, adults and immature birds were March 26, March 25 and April 1 respectively, compared to March 30, March 29 and March 31 at Mount Lorette.

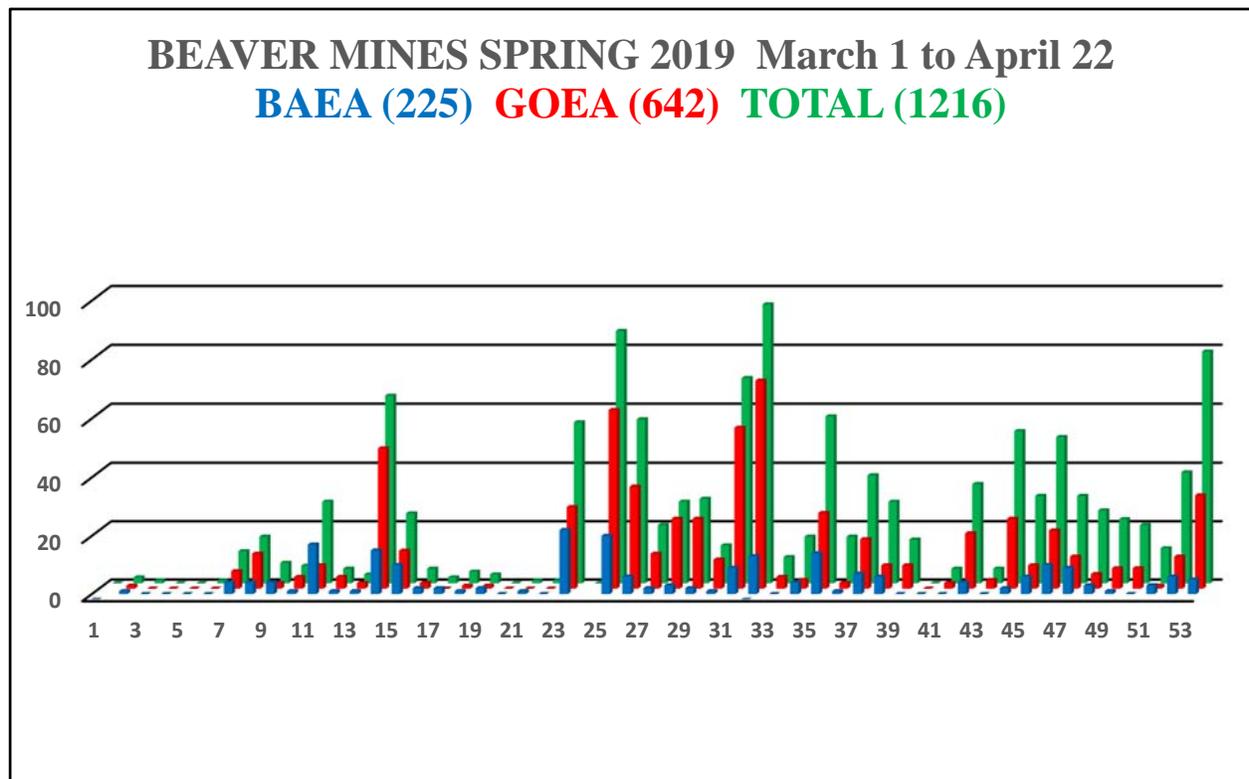


Figure 6

Turkey Vulture A site record 6 birds were counted on three days between April 18 and April 22 when 4 birds were seen. The total is 380% above the 2016-2018 average. The flight comprised 3 adult birds and 3 of undetermined age, and the median passage date was April 22.

Osprey Single birds occurred on April 18 and April 22, and the total is 42.9% below average.

Northern Harrier A total of 35 migrants were counted on 17 days between March 23 and April 22 when 6 birds were seen. The total is 60% below average. Four birds were seen in March and 31 in April. The flight comprised 15 males (11a, 3j and 1u), 18 females (10a, 6j and 2u) and 2 birds of unknown sex or age, giving an immature:adult age ratio of 0.43. The median passage date for the species was April 15, for adults it was April 8 and for immature birds April 16.

Sharp-shinned Hawk A total of 47 birds were counted on 18 days between March 26 and April 22, with a single-day high count of 10 on April 22. The count is 31.6% below average. The flight comprised 9 adults and 38 unaged birds. Only 3 birds were seen in March and 44 in April. The median passage date for the species was April 17 and for adult birds was April 12.

Cooper's Hawk The count of 7 birds comprised 4 adults and 3 unaged birds. Birds occurred on 5 days between April 13 and April 22 and the count is 47.2% below average. The highest daily count was 2 on April 18 and 22. The median passage date for the species was April 18. Mount Lorette also had a poor year for the species recording only 2 birds for the second consecutive year.

Northern Goshawk A total of 33 Northern Goshawks were counted on 21 days between March 15 and April 22 which also saw the single-day high count of 4 birds. The count is 38.3% below average. Thirteen birds moved in March and 20 in April. The flight comprised 24 adults, 1 juvenile and 8 birds of undetermined age giving an immature:adult ratio of 0.04. The median passage dates of the species and adults were April 6 and April 3 respectively.

Broad-winged Hawk A total of 5 birds were counted on 2 days between April 19 and April 22 when 3 birds occurred. The count is 47.4% below the average of the last four years. All the birds were light morphs light morphs: 2 adults and 3 unaged birds. The median passage date of the species was April 22.

Swainson's hawk Two birds were seen on April 21 and 1 on April 22. All birds were light morphs and comprised 1 juvenile and 2 birds of undetermined age. The total is 9.1% below average.

Red-tailed Hawk The total of 120 birds counted on 26 days between March 18 and April 22 was 42.2% below average and is the lowest total for a complete count at the site. Only 9 birds moved in March and 111 in April and the single-day high count was 11 on April 15. The flight comprised 119 "Western" Red-tailed Hawks (*B.j.calurus*): 86 light morphs (85 adults and 1 juvenile) and 19 dark morphs (18 adults and 1 indeterminate); 5 adult dark morph "Harlan's" Red-tailed Hawks (*B.j.harlani*); and 1 indeterminate dark morph bird and 2 birds of indeterminate race, morph or age. The overall immature: adult ratio was 0.01. The median passage date for the species was April 11 and the date for adults was April 10. The median passage date for *calurus* was April 11 and *harlani* was 5 days earlier on April 5.

Ferruginous Hawk A total of 5 birds was counted on 5 days between April 3 and April 21, which is 9.1% above the average of the last four years. All the birds were light morphs: 3 adults, 1 juvenile and one bird of undetermined age. The median passage date for the species was April 18.

Rough-legged Hawk The total of 30 birds was the lowest ever for a complete count at the site and is 67.4% below average. The flight comprised 19 light morphs, 8 dark morphs and 3 indeterminate morphs. Birds occurred on 23 days between March 3 and April 22, with a highest single-day count of just 4 birds on March 14. Fifteen birds moved in March and 15 in April, and the median passage date was March 31.

American Kestrel A total of 8 birds, 4 males, 3 females and 1 of indeterminate sex, were recorded on 6 days between April 13 and April 22, with a single-day high count of 3 on April 17. The total is 23.8% below the average of the last four years. The median passage date was April 17.

Merlin A total of 16 Merlins were recorded, all of the race *F.c.columbarius* and comprising 5 indeterminate males, 8 females (2 adults and 6 indeterminate, and 3 birds of undetermined age or sex. The total is 4.9% above average. The birds were counted on 12 days between March 26 and April 22. Two birds moved in March and 14 in April, and the single-day high count was 4 on April 13. The median passage date for the species was April 14.

Gyrfalcon Six birds were counted on 5 days between March 11 and April 15, 2 of which occurred on March 23. Four birds were seen in March and 2 in April. The count equals the average count of the last four years. The flight comprised 4 grey morph birds (2 adult females and 2 indeterminate), 1 indeterminate black morph and 1 adult male white morph.

Peregrine Falcon A total of 6 Peregrine Falcons were counted on 6 days between March 26 and April 22, a total which is 25% above average. One bird occurred in March and 5 in April. The flight comprised 4 adults (1 male, 1 female and 2 of indeterminate sex) and 2 birds of indeterminate sex or age. The median passage date for the species was April 8.

Prairie Falcon A site-record 10 birds were seen on 9 days between March 11 and April 22, on which date 2 birds occurred. The count is 53.8% above the average of the last three years.

Completing the count of 1216 birds were 7 unidentified *Buteos* (4 dark and 3 indeterminate), 2 unidentified eagles and 1 unidentified large raptor.

Table 11 summarizes the median passage data for both the Mount Lorette and Beaver Mines sites, and **Table 15** compares the proportions of the raptor groups and passage rates at the three sites.

Further details of this count can be found on the spring 2018 blog on our website:
www.eaglewatch.ca.

Acknowledgements All counts were conducted by Peter Sherrington assisted by Hilary Atkinson (48 days), Gord Petersen (5 days), Mark Sherrington (2 days) and Doug and Teresa Dolmen (1 day).

Steeple Ridge extended reconnaissance count, British Columbia

Introduction

In the fall of 2009, Vance Mattson conducted the first extended reconnaissance count at or near the Steeple Ridge which is located on the east side of the Kootenay Valley (Rocky Mountain Trench) 36 km NE of Cranbrook, British Columbia. Three sites were used to monitor raptor movement along, or just north of, the NNW-SSE oriented Steeple Ridge which forms the southern part of the Hughes Range on the western flank of the Rocky Mountains. Of significance is that it is located about 80 km almost due west of the Piitaistakis-South Livingstone and Vicki Ridge/Beaver Mines sites giving the possibility of simultaneously monitoring movement along the eastern and western flanks of the Rocky Mountains at the same latitude. Vance spent 41 partial days (148 hours) at 3 sites between September 18 and November 12, 2009, with 95% of the time being spent between 1300 and 1800 and recorded 453 migrant raptors of 12 species. An extended spring reconnaissance count was conducted at the site for the first time in 2010, and 2018 is the tenth spring count there (**Table 13**).

During the spring 2019 season a total of 42 days (206 hours) was spent in the field. All the observation was conducted at the Bill Nye site with the exception of April 15 when the count was conducted at the South Lakit site. The number of days is 32.7% above the 2010-2018 average and is the second highest in the history of the count; the hours are 56.4% above average and are also the second highest ever.

The **Bill Nye (Scarface)** site is located at 49° 45' 11.10''N, 115° 38' 49.14''W at 1041 metres is named after a prominent 'scar' on the face of the mountain and is a convenient viewing option from Wasa Lake. To access the site from Cranbrook drive north on highway 93/95 past Fort Steele to the south entrance to Wasa Lake, turning right onto Wasa Lake Drive at the Wasa Lake Diner approximately 36 km from Cranbrook. Turn onto Lazy Lake road at 0.4 km then turn right onto an unmarked logging road at 6.9 km (this is before Lazy Lake, and there is a small orange registered trap-line sign posted to a tree at the turnoff. At 1.35 km on this road there is an open viewing area where the forest has been cut. A closer spot, which is the official site, is found by turning right into a clearing at 2.2 km from the main turnoff (a full 2.3 km takes you to the site).

Once you have turned off the Lazy Lake road there are multiple areas to view from. This road is somewhat rough but does not require a 4WD or high-clearance vehicle unless the conditions are excessively snowy or wet. The site offers views of the birds as they pass over, or in front of, the main ridge of Mount Bill Nye (averaging 1856 m) Mount Bill Nye has an elevation of 2648 m, though only the most westerly and visible craggy peak ('Scarface Peak') at 2419 m is visible from the site.

For the **Steeples** site, the government link at:

<http://www.env.gov.bc.ca/bcparks/explore/parkspgs/norbury/> provides GPS, maps and directions. Scroll down and click on the link called "Location Map", then click on the most northerly tree icon (there are several "trees", each for a provincial park) and receive clear directions from your location by clicking on "Get Directions" and then entering your location. The site is at Norbury Provincial Park which is on the east side (turn right when heading south on the Warder-Fort Steele road). You will see a large parking area in front of the lake and the prominent Steeples Ridge will be directly in front of you. If you choose to observe from this location you may wish to walk 5 minutes NE from the parking lot into a field between two tree areas. This will give you privacy and a good view of the Steeples. Note that there is often a nesting pair of Bald Eagles in the trees to the west, so be mindful of their presence and space.

The **South Lakit** site provides views of the birds coming head-on and often at lower elevations. From Cranbrook drive to the Fort Steele gas station, turning right off the main highway onto the Wardner-Fort Steele road. Turn left onto the Wildhorse River FSR (you will see a yellow sign, and note that this turnoff is just 0.3 km from the highway turnoff). The Wildhorse FSR road is gravel, somewhat rough, has many bends, a steep ravine on one side and has some elevation changes. Extreme caution is therefore recommended as well as a vehicle with good tires, *especially in snowy conditions!* At 5.3 km turn left off the Wildhorse FSR onto a side road. You will immediately see a short incline on a rough road. From here you have three options: 1) watch from this location; 2) walk up the hill 0.5 km to a flat area which can be used for viewing, or continue to walk another 0.5 km following the road to a better viewing platform or 3) drive to either of these spots if you have a 4WD vehicle with moderate clearance. The total distance from the highway turnoff to the highest and best viewing area is 6.6 km.

Weather and General flight dynamics

A total of 6 days were lost to inclement weather and a further 11 to teaching commitments. On a further 10 active days observation commenced after 1600 because of teaching commitments. Hourly weather data were not gathered but daily weather summaries were produced. (**Table 14**).

Unlike the sites east of the mountains cold weather only persisted to March 3 but despite reasonable conditions no migrants were seen before March 8 and by March 13 only 24 birds had been recorded. Between March 14 and 24 movement was steady with the passage of 529 migrants of which 154 were Bald Eagles and 356 Golden Eagles. This period accounted for 70.3 % of the total Bald Eagles, 78.2% of the total Golden Eagles and 75.7% of the total migrants

recorded. This pulse ended with a season-high count of 152 birds (a new spring site record ahead the previous record of 133 on March 17, 2017), that comprised 26 Bald and 126 Golden Eagles (which is the second-highest spring count for the species ever at the site, the highest being 133 on March 17, 2017). The following day saw movement of a further 112 raptors (16 Bald and 93 Golden Eagles). With no obvious change in the weather the next 6 days only produced 26 migrants but March 30 to April 02 again produced a secondary migratory pulse of 105 raptors including 37 Bald Eagles and 57 Golden Eagles. After April 2 the remaining 20 days saw only a further 26 migrants including 13 Bald and 8 Golden Eagles. Although 4 days were lost to poor weather during this period and 6 further days saw some form of precipitation, there was very little movement even when conditions appeared to be ideal. March saw movement of 629 raptors of 7 species (+58.7%), but only 70 birds of 6 species moved in April (-24%) (**Figure 7, Table 13**).

Count Summary

Following a record count for the site of 891 migrants of 10 species in 2018 the 2019 count yielded 455 birds of 8 species which is still 34.3% above the 2010-2018 average (**Table 13**). As is usual for spring counts the two eagle species predominated and this year comprised 97.4% of the total. The count was 3 Turkey Vultures (-67.5%), 219 Bald Eagles (+61.7% and the highest count for the site), Northern Harrier 1 (+50%), Sharp-shinned Hawk 2 (-66%), Red-tailed Hawk (-32%), Rough-legged Hawk 3 (-15.6%), Golden Eagle 455 (+31.7%), American Kestrel 1 (-18.2%) and 7 unidentified eagles. Species seen on previous counts but absent this year were Osprey, Northern Goshawk, and Merlin, while Cooper's Hawk, Broad-winged Hawk, Swainson's Hawk, Ferruginous Hawk, Gyrfalcon and Prairie Falcon have never been recorded at the site in the spring (**Table 13**).

Bald Eagle

A record total of 219 Bald Eagles was recorded on 26 days between March 8 and April 22, with a single-day high count of 26 on March 23, and 6 other days had double-digit counts. The total is 61.7% above the 2010-2018 average and is the highest spring count for the site. The March count was a record 190 birds (+93.2%) and 29 birds moved in April (+2%). The flight comprised 123 adults, 16 subadults and 80 juveniles, giving an immature:adult ratio of 0.78 which, as usual, is much higher than the ratios of 0.33 at Mount Lorette and 0.31 at Beaver Mines.

STEEPLES SPRING 2019 March 1 to April 22
Bald Eagle (219) Golden Eagle (455) Total (699)

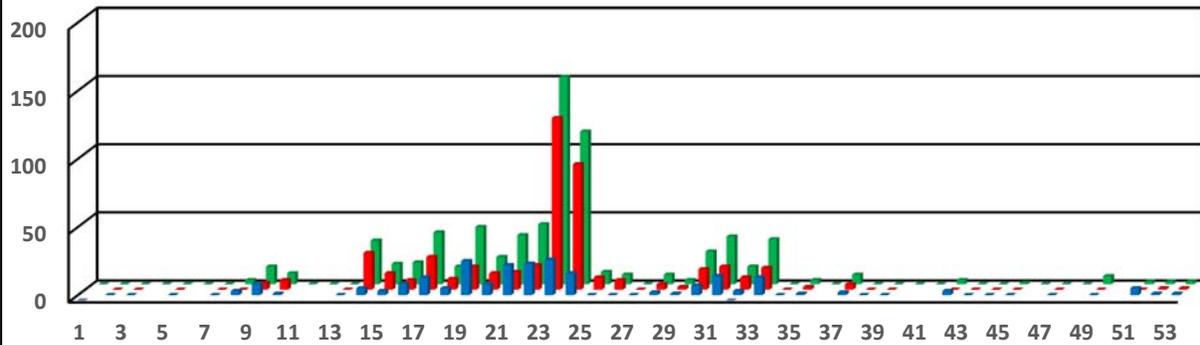


Figure 7

RMERF GOLDEN EAGLE COUNTS SPRING 2019
BEAVER MINES (642) STEEPLES (455) MOUNT LORETTE (2135)

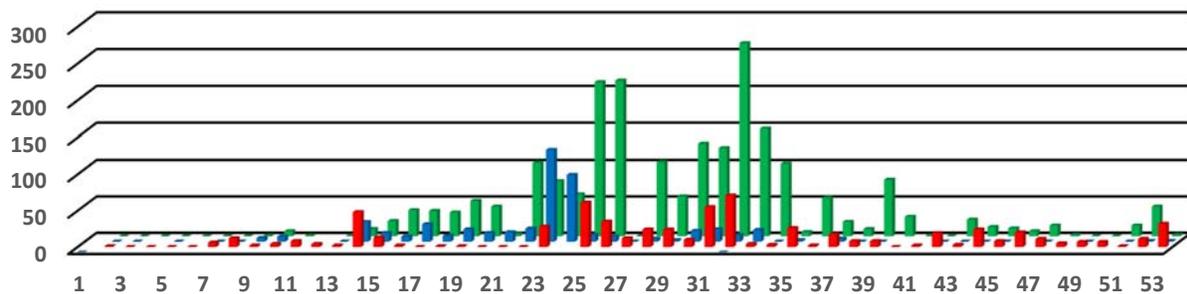


Figure 8

Golden Eagle

The 455 migrant Golden Eagles were recorded on 25 of a possible 42 active field days (59.5%) between March 9 and April 22, with a highest single day count of 126 on March 23 and a second highest count of 92 on the following day. The total is 31.7% above the 2010-2017 average and is the third highest spring count for the site. Twelve days had double-digit counts this season. The flight comprised 401 adults, 2 subadults, 38 juveniles and 14 birds of unknown age giving an immature:adult ratio of 0.09, which compares to a ratio of 0.15 at Mount Lorette and of 0.3 at Beaver Mines.

Golden Eagle

The 455 migrant Golden Eagles were recorded on 25 of a possible 42 active field days (59.5%) between March 9 and April 22, with a highest single day count of 126 on March 23 and a second highest count of 92 on the following day. The total is 31.7% above the 2010-2017 average and is the third highest spring count for the site. Twelve days had double-digit counts this season. The flight comprised 401 adults, 2 subadults, 38 juveniles and 14 birds of unknown age giving an immature:adult ratio of 0.09, which compares to a ratio of 0.15 at Mount Lorette and of 0.3 at Beaver Mines.

Other Species

Turkey Vulture Three birds were seen March 31, a total that is 67.5% below average.

Osprey Not recorded this spring. It has occurred on 6 previous counts.

Northern Harrier A single adult female was seen on March 21; the total is 50% above average.

Sharp-shinned Hawk Only 2 un-aged birds were counted, 1 on March 31 and 1 April 20. The total is 66% below average.

Northern Goshawk Not recorded this spring. It has occurred on 7 previous counts.

Red-tailed Hawk Eight birds were counted on 5 days between March 22 and April 2. The count is 32.1% below average. The flight comprised 6 light morph “Western Red-tailed Hawks” (*B.j.calurus*) (4a, 2u) and 2 adult dark morph “Harlan’s Hawks” (*B.j.harlani*).

Rough-legged Hawk A total of 3 birds (5 light, 1 undetermined morph) were counted on 2 days: 2 on March 24 and 1 on April 2. The count is 15.6% below average.

American Kestrel A single female kestrel was seen on April 14, a total that is 18.2% below average.

Merlin Not recorded this spring, the only previous record being a single bird seen in 2017.

Peregrine Falcon Not recorded this spring, but a total of 8 birds have been seen on 5 previous counts.

Gyrfalcon Never recorded on a spring count.

Prairie Falcon Never recorded at the site.

Completing the count of 699 birds were 2 unidentified eagles.

Observers at Steeples

All counts were conducted by Vance Mattson, assisted by Virginia Rasch on March 16 and 23, by Andrea Heigh on March 15 and by Penny Ohanjanian on March 16

Comparison of three sites by raptor categories

Percentage of raptor categories at the three sites spring, 2019			
	Mount Lorette	Steeple	Beaver Mines
Turkey Vulture	0.04	0.43	0.43
Osprey	0.12	0	0.13
Northern Harrier	0.2	0.14	1.03
Eagles	96.34	97.4	80.8
<i>Accipiters</i>	1.3	0.29	3.4
<i>Buteos</i>	1.42	1.57	8.6
Falcons	0.33	0.14	2.0

It is again interesting to note how closely the Mount Lorette and Steeples sites compare in percentage occurrence of raptor categories, both having an overwhelming dominance of eagle species. At Beaver Mines, although eagles are the most significant element of the migration, harriers, falcons, and especially *Accipiters* and *Buteos* also occur in significant numbers. This results from the fact that at both Mount Lorette and Steeples the birds are migrating above high mountain ridges, whereas at Beaver Mines they are moving along a foothills ridge just east of the mountains.

Figure 8

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.....*AND STILL COUNTING!*