

MOUNT LORETTE, FALL 2010
with notes on the Steeples, BC site



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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) 70km due west of Calgary and immediately north-east 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 Mt. McDougall rising to 2726m. Mount Lorette itself is 2487m and is a continuation of the Fisher Range 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 about 1433m. The site allows 360° 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 Mount Lorette and the north end of the Fisher Range. 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 that fall and yielded 2661 migrant raptors of which 2044 were Golden Eagles. Subsequently full-season fall counts (averaging 88 days, 865 hours) were conducted annually at Mount Lorette to 2005 with the exception of 2007 when a full count was conducted at Plateau Mountain and 2002 when serious illness to a key member of the team reduced the count to just 14 days. From 2006 to 2009 the principal fall observation site was moved to the Piitaistakis-South Livingstone location close to the Municipality of the Crowsnest Pass in SW Alberta, during which time extended comparison counts were conducted at Mount Lorette during the main period of Golden Eagle migration. The Lorette counts in 2006, 2007 and 2008 lasted for 32 days, 25 days and 30 days respectively and are considered to be too short for statistical comparison with previous counts from which data from a standard count period September 20 to November 15 have been recalculated. The only exception is 2009 where a 46-day count from September 20 to November 9 has been included. This period captured an average of 97% of the total Golden Eagle count at Mount Lorette between 1992 and 2005. Long-term averages of several other raptor species, however, will

differ more widely from full count statistics where significant movement usually occurs before September 20 (eg Red-tailed Hawk) or after November 15 (eg Bald Eagle). In this report data variances (number, median passage dates, age ratios) are given for the period September 20 to November 15 for averages of the 12 years 1993-1996, 1998-2001, 2003-2005 and 2009. Because of logistical considerations no count was held this season at the Piitaistakis-South Livingstone site, and the report concerns only the count at Mount Lorette and the 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 55 days (577.18 hours) of a possible 57 days at the site between September 20 and November 15, the days and hours being 0.61% and 3.08% above average respectively. At the Steeples reconnaissance count in BC Vance Mattson spent 35 days (145.5 hours) of a possible 49 days at the site between October 1 and November 15. This is the second consecutive fall season that the count has been held.

Detailed daily summaries of each day can be accessed on a blog published on the RMERF website www.eaglewatch.ca

Mount Lorette

Weather

Only 2 days, October 15 and October 26, were completely lost to bad weather, and only the first day of the count, September 20, was severely curtailed by weather. Rain, snow or flurries occurred on only 10 days (17.5%) of the count period and the ridges were only significantly occluded on 6 days (10.5%). Maximum temperatures ranged from 25C on October 1 to 1.5C on 9 and 11 November, while minimum temperatures during active observation ranged from 15C on September 27 to -10 on October 17, so temperatures were generally above seasonal norms throughout. The reason for this was the prevalence of strong downslope (SSW-W) "Chinook" winds throughout much of the count. Ridge wind information was taken from the Environment Canada weather station (Nakiska Ridgetop) situated 4 km west of the Hay Meadow site on Olympic Summit (Mount Allan) at 2543 m. These data indicated that winds from the SSW-W prevailed for 85.5% of active observation days and all other directions only comprised 14.5% of the time. On active observation days ridge wind speeds were strong (>41 km/h) for 43.6% of the time and were moderate to strong (11-41+ km/h) 34.5% of the time. Moderate (11-40 km/h) and light to moderate (1-40 km/h) winds each occurred 9.1% of the time while calm-light (0-10 km/h) and light-strong (1-41+ km/h) were each recorded only 1.8% of the time. On 27 (49.1%) days ridge winds gusted above 100 km/h and 10 of these days (18.2%) had gusts exceeding 150 km/h. Very strong ridge winds were particularly prevalent between October 27 and November 15 with 16 of 20 days (80%) experiencing winds gusting above 100 km/h which peaked at 216 km/h on November 1 and 200 km/h on November 6. Six days (10.5%) were cloudless or had cloud cover <5%, and 11 days (19.3%) experienced cloud cover between 80 and 100%.

General flight dynamics *September 20 to November 15*

Migrant raptors were recorded on 53 of the 55 active field days between September 20 and November 15 with a total of 9 days, all in October, having a passage of at least 100 migrants. The highest single-day count occurred on October 5 with the passage of 407 birds which is 5.8% below the average highest single-day count. The combined species total of 3642 is 15.9% below the long-term average for the site and the combined species median passage date of October 10 is 3 days earlier than average. Despite the generally favourable weather conditions and the resulting persistence of movement throughout the count period only one species, Red-tailed Hawk, occurred in significantly higher than average numbers (44, +29.1%) although Osprey (4) and Ferruginous Hawk (1) and Prairie Falcon (4) all equaled their highest counts for the period. All other species occurred in below average numbers:

Bald Eagle 165 (-42.8%), Northern Harrier 6 (-48.2%), Sharp-shinned Hawk 67 (-55.1%), Cooper's Hawk 15 (-38.6%), Northern Goshawk 34 (-32.2%), Broad-winged Hawk 1 (-88.1%), Rough-legged Hawk 23 (-60.2%), Golden Eagle 3222 (-12.2%), American Kestrel 2 (-31.4%), Merlin 2 (-73.9%) and Peregrine Falcon 4 (-15.8%). Turkey Vulture, Swainson's Hawk and Gyrfalcon were not recorded this season.

The final count was Turkey Vulture 0, Osprey 4, Bald Eagle 165, Northern Harrier 6, Sharp-shinned Hawk 67, Cooper's Hawk 15, Northern Goshawk 34, *Accipiter* sp. 16, Broad-winged Hawk, Swainson's Hawk 0, Red-tailed Hawk 44, Ferruginous Hawk 1, Rough-legged Hawk 23, *Buteo* sp. 9, Golden Eagle 3222, eagle sp. 12, American Kestrel 2, Merlin 2, Gyrfalcon 0, Peregrine Falcon 4, Prairie Falcon 4, *Falco* sp. 1, indeterminate raptor 10, for a total of 3642 migrant raptors.

October summary The month of October sees the maximum fall movement and of the 18 counts conducted by RMERF at Mount Lorette since 1992 all but 4 have included the whole of October excepting up to 2 days lost because of poor weather conditions. The years 1992, 2002, 2006 and 2007 had a significant number of non-weather days lost and are not included in the following comparison that involves the average of the 14 complete October counts at the site, with variance from average in parentheses. A total of 29 days (-4.31%) and 318.5 hours (+0.16%) were spent at the site during the month during which 2870 migrant raptors of 15 species were counted. This total was 14.43% below average and represents the third lowest October combined species count at the site, higher than only 2008 (2234), and 2009 (1979) which was a count severely affected by poor weather conditions. The 2 Ospreys were the highest counted on a complete count (although 3 were recorded in 2006), and the only other species occurring in above average numbers were Red-tailed Hawk (20: +85.7%), Ferruginous Hawk (1: only the second October record), American Kestrel (1: +18.2%), Peregrine Falcon (4: +44.4%) and Prairie Falcon (3 : +179%). The 2648 Golden Eagles recorded were 10.9% below average following very low October counts for the species in 2008 (2047) and 2009 (1831). Compared to the average of full October counts 1993-2005 (the last year of full-season counts at the site) this year's count was 16.2% below average and would have been the second lowest count compared to counts in this period, higher only than the 2588 counted in 2004. All other species were below average: Bald Eagle 78 (-55.3%), Northern Harrier 4 (-24.6%), Sharp-shinned Hawk (27 (-64.8%), Cooper's Hawk 8 (-9.57%), Northern Goshawk 16 (-52%), Broad-winged Hawk 1 (-79.4%), Rough-legged Hawk 20 (-57.1%), and Merlin 2 (-50.9%). Gyrfalcon was unrecorded for only the 5th time in the 14 full October counts conducted at the site.

Golden Eagle We counted a total of 3222 migrating Golden Eagles on 52 days between September 21 and November 14, with the highest single-day count of 374 occurring on October 5 (Figure 1). The total was 12.18% below the long-term average and the high count was 7.3% below average. A total of 9 days saw passage of at least 100 birds with other high counts being 288 on October 7 and 254 on October 10. The October count of 2648 birds comprised 82.2% of the total count. The flight comprised 2062 adults, 205 subadults, 445 juveniles and 510 birds of unknown age yielding an immature:adult ratio of 0.32 and a juvenile:adult/subadult ratio of 0.196%. The immature: adult ratio is 14.63% above average, and it is interesting to note that both ratios are almost identical to those recorded at Piitaistakis-South Livingstone last year. The highest cumulative hourly counts were 430 from 1200 to 1300, 407 from 1600 to 1700, 414 from 1500 to 1600 and 396 from 1300 to 1400 MST, while at the daily extremities 68 birds passed between 0700 and 0800 while 33 birds occurred after 1800 (Figure 2). The highest single-hour passage was 121 between 1600 and 1700 on October 5, while the same day saw 84 and 77 birds move 1500-1600, and 1800-1900 respectively, and 78 birds occurred between 1100 and 1200 on October 7. The species median passage date of October 10 is 2 days earlier than average, while adults and immature birds were 3 days and 1 day earlier on October 11 and October 7 respectively.

MOUNT LORETTE, FALL 2010

GOLDEN EAGLE n = 3222

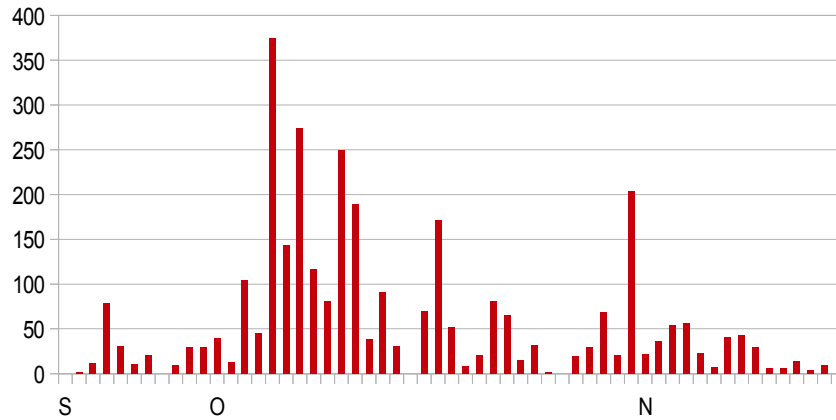


Figure 1

MOUNT LORETTE, FALL 2010

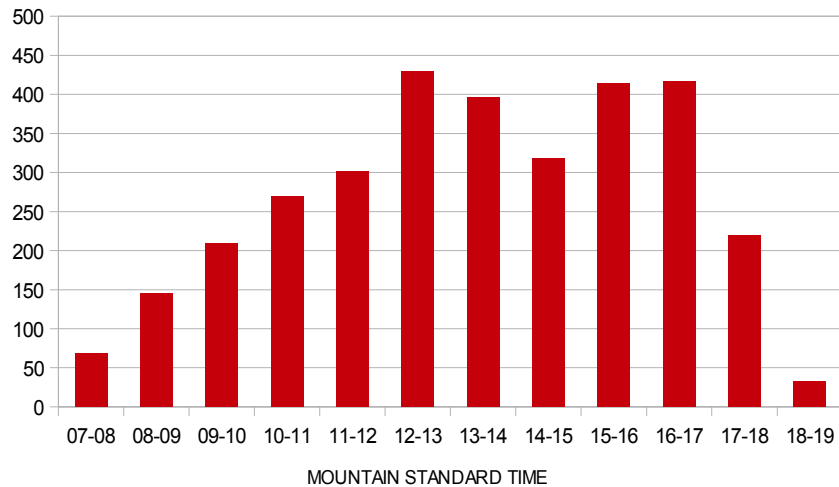


Figure 2

Fall Golden Eagle Trend

Complete fall counts were conducted at Mount Lorette from 1993 to 2001 and 2003 to 2005 with only a reconnaissance count being conducted in 2002. From 2006 to 2009 a shortened count has been conducted at Mount Lorette and the data compared to the equivalent period count at Piitaistakis-South Livingstone. By applying the ratio of Golden Eagles counted in the sample period to the final Golden Eagle count at Piitaistakis-South Livingstone to the sample count at Mount Lorette the following full count totals at Mount Lorette were projected:

2006 (September 20 to October 26) Piitaistakis: sample 3348, total count 4400

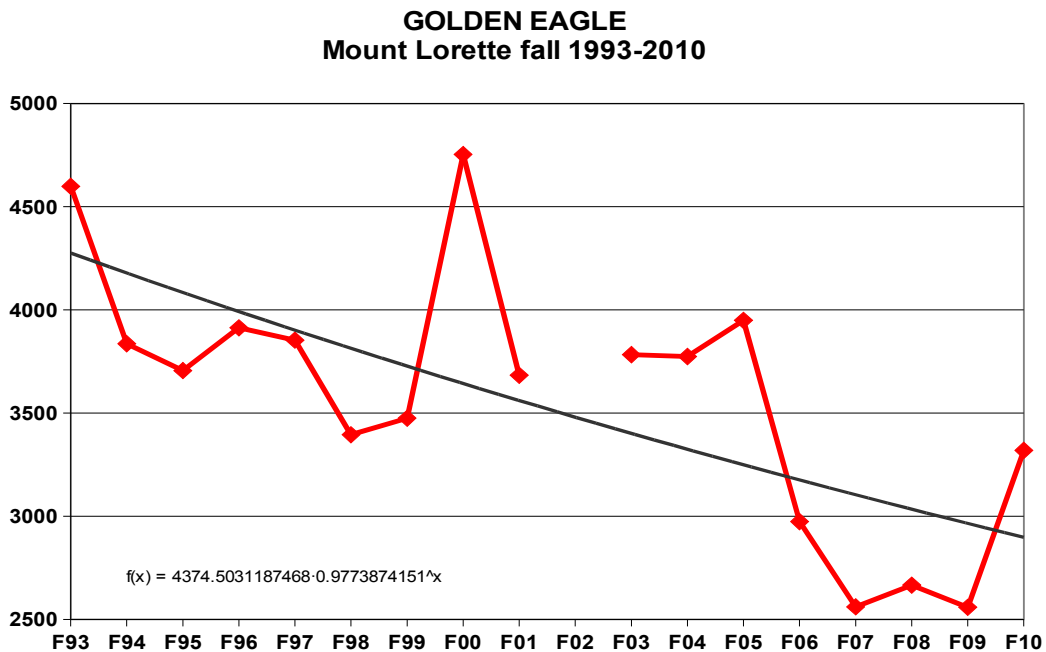
Mt. Lorette: sample 2263, projected total count **2974**

2007 (September 27 to October 25) Piitaistakis: sample 4152, total count 5345
Mt. Lorette: sample 1953, projected total count **2561**

2008 (October 2 to October 31) Piitaistakis: sample 3999, total count 5209
Mt. Lorette: sample 2047, projected total count **2666**

2009 (September 20 to November 9) Piitaistakis: sample 3973, total count 4293
Mt. Lorette: sample 2367, projected total count **2559**

Figure 3 shows a general declining fall trend for Golden Eagles at Mount Lorette from 1993 (the first full fall count at the site) to 1999, followed by an anomalous spike in 2000 returning to general 1996-1997 levels until 2005 and then apparently declining steeply to 2007 with apparently stable numbers to 2009. The 2010 Golden Eagle count which is adjusted to 3319 to represent what would be expected for a full-season count for the species (+3%), represents the highest count since 2006 but does not significantly affect the overall declining trend noted above.



Eagle Age Analysis

Figure 4 shows the trend of immature:adult ratio analysis of both spring (green) and fall (red) data

since 1995. Note that 2006-9 fall counts and the 2008-9 spring counts were conducted at Piitaistakis-South Livingstone with the rest conducted at Mount Lorette. The fall counts are plotted above the following year's spring count to graphically compare the age ratios. Both spring and fall trends strongly indicate a generally increasing trend to 1999, followed by a decrease to 2002, then a steady increase to fall 2008. Adding the fall 2009 Piitaistakis-South Livingstone age ratio of 0.34 gives a sharp decrease to the fall trend. These trends almost certainly reflect the population cycles of the northern Snowshoe Hare population. It is interesting to note that the fall 2000 spike in numbers (Figure 3) occurred a year after the apparent peak in the snowshoe hare cycle and may represent a more complete southward movement of a population at its peak resulting from an increasing dearth of a fall and winter prey species. This also raises the possibility that part of the apparent decline may result from progressively more birds wintering north of the counting sites as hare numbers recover ("shortstopping"), but even allowing for this it appears that numbers counted during the second cycle (i.e. after 2000) are significantly lower than the first (<1993-1999). It appears that fall 2009 marks the start of the declining phase of the hare cycle, 9 or 10 years after the previous peak and the 2010 ratio appears to continue this trend.

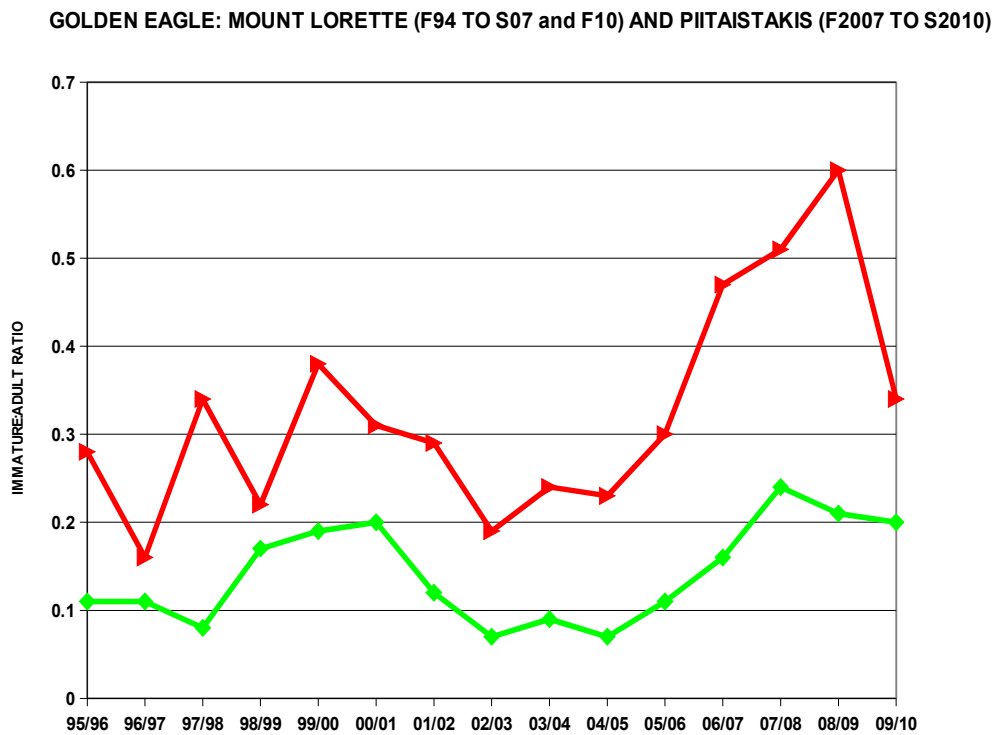


Figure 4

Bald Eagle The count of 165 birds on 42 days between September 21 and November 14 was 42.8% below average and was the second lowest count ever for the period ahead only of the 100 counted last year. The highest single-day count was 20 on September 30, which is 24% below the average high count. The flight comprised 123 adults, 13 subadults, 13 juveniles, 15 undifferentiated immature birds and 1 bird of unknown age giving an immature:adult ratio of 0.33, 39.9% below the average ratio. The

species median passage date was October 18, that for adults was October 21 and for immatures October 12, which are 4, 4 and 7 days earlier than average respectively.

Osprey The 4 Ospreys counted on 3 days between September 9 and October 5 equaled the highest count for the period (along with 4 other years) and is 54.8% above average. Two of the birds occurred on September 26.

Northern Harrier Only 6 birds (2 adult males, 1 adult female, 1 undifferentiated female/juvenile, 1 juvenile and 1 indeterminate bird) were recorded on 4 days between September 23 and October 5, when 3 of the birds occurred. The total is 48.2% below average. The median passage date for the species was October 5 which equals the long-term average date.

Sharp-shinned Hawk The total of 67 birds counted on 27 days between September 21 and November 11 was the second lowest count for the period (ahead of 57 last year) and 55.1% below average. The flight comprised 19 adults, 5 juveniles and 43 birds of unknown age yielding an immature:adult ratio of 0.26, 42.1% below average although the high percentage of unaged birds recorded at the site means that age ratio figures must be used with caution. The median passage date for the species was October 1, 1 day earlier than average, adult birds were 1 day later than average on October 4 and juvenile birds were 6 days later than average on the same date.

Cooper's Hawk This species also had its second lowest count for the period ahead of the 11 counted last year, with only 15 birds passing on 11 days between September 23 and November 10. The total is 38.8% below average and the highest daily count that occurred on four days was only 2 birds. The flight comprised 7 adults, 1 juvenile and 7 birds of unknown age yielding an immature:adult ratio of 0.14, 77.95% below average, but the same caveat mentioned for the previous species applies. The median passage date for the species was September 28, 7 days later than average, while the adult median passage date was September 30, 5 days later than average.

Northern Goshawk A total of 34 goshawks moved on 20 days between September 23 and November 12: the total is 32.2% below average for the site. The highest single-day count was 6 on September 30. The total comprised 21 adults, 3 juveniles and 10 unaged birds giving an immature:adult ratio of 0.14, 49.2% lower than average. The median passage date for the species was 1 day later than average on October 12, and adults moved on the average date of October 11.

Broad-winged Hawk An adult light morph bird seen on October 5 was the only record of the species which was 88.1% below the average count.

Swainson's Hawk The species was not recorded and there have only been 6 previous records of the species on 5 separate years during the count period.

Red-tailed Hawk The total of 44 birds counted on 19 days between September 21 and October 29 was the 4th highest count for the period and 29.1% above average. The highest single-day count was 14 on September 30 which is 110% above the average high count and equals the previous single-day count in 1998. The flight comprised 40 birds ascribable to *B.j.calurus*, 33 of which were light morphs (23 adults, 2 juveniles and 8 of indeterminate age), 2 were rufous (intermediate) morphs (1 adult, 1 juvenile) and 8 were dark morphs (2 adults, 2 juveniles and 1 indeterminate). One bird was an adult dark morph *B.j.harlandi*, and 1 bird was an adult "Kridler's Hawk" (*B.j.borealis* var *krideri*). One dark-morph bird was not assignable to a subspecies, and 1 bird was un-assignable to race, morph or age. The overall immature:adult ratio was 0.18 which is 66.36% below average. The species median passage

date of September 30 was 2 days later than average, adult median passage was September 27, 3 days later than average and juveniles were 4 days later than average on September 30.

Ferruginous Hawk An adult light morph bird seen on September 30 was the only record of the species and is only the 5th ever to be recorded within the count period.

Rough-legged Hawk A total of 23 birds recorded on 16 days between September 30 and November 4 was the second lowest ever for the period ahead of the 16 counted last year, and is 60.2% less than average. The highest single-day count was 4 on October 14, which was also the species median passage date, 3 days earlier than average.

American Kestrel Just 2 birds, a female on September 26 and a male on October 5, were recorded, and the total is 31.4% below average for the period.

Merlin Single merlins were seen on October 5 and 10 which equals 1998 as the lowest ever count for the period at the site. Both birds were of indeterminate age and sex, but one was ascribed to the subspecies *F.c.columbarius*.

Gyr Falcon For only the second time (the other being in 1996) the species was unrecorded during the count period.

Peregrine Falcon A total of 4 birds were counted on 4 days between October 3 and October 22. The flight comprised 2 adults and 2 birds of indeterminate age. The count is 21.3% below average.

Prairie Falcon The total of 4 birds seen on 3 days between September 25 and October 18 equaled previous high counts for the species in 1994 and 2004, and is 118.2% above the average count.

Observers at Mount Lorette

Principal Observers Cliff Hansen (12.5 days), Terry Waters (9 days), Bill Wilson (8 days), Ron Dutcher (7 days), Joel Duncan (6 days), George Halmazna (5.5 days), Jim Davis (3 days), Peter Sherrington (3 days), Doug Pedersen (1 day) with the assistance of Mike Ashby (2 days), Kevin Barker (4 days), Laurie Deavitt (1 day), Joel Duncan (1 day), Graham Dunlop (2 days), Dick and Lenora Flynn (1 day), Cliff Hansen (5 days), Chris Hunt (6 days), Trish Hunt (1 day), Ed McCullough (2 days), Doug Pedersen (1 day), Peter and Susan Roxburgh (1 day), Joan Saunders (6 days), Malcolm Talbot (1 day), John Van Vees (1 day), Erik Vokes (1 day), Nancy Waters (3 days), Jennifer Waters (3 days), Terry Waters (1 day).

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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 Steeples Ridge which is located on the east side of the Kootenay Valley (Rocky Mountain Trench) 25 km NE of Cranbrook, British Columbia. Three sites were used to monitor raptor movement along, or just north of, the NNW-SSE oriented Steeples 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 W of the Piitaistakis-South Livingstone site 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 with 95% of the time being spent between 1300 and 1800 and recorded 453 migrant raptors of 12 species.

A second extended spring reconnaissance count was conducted at the site for the first time earlier this year, and 2010 was the second extended fall count. This season 2 sites were occupied: 31 days at Scarface (Bill Nye) and 4 days at South Lakit. Details of the site are as follows:

Scarface/Bill Nye (49° 45' 11.10"N, 115° 38' 49.14"W, 1041m)

The Scarface site (named due to a prominent 'scar' on the face of the mountain), is a convenient option from Wasa Lake. Following Lazy Lake Road east toward Lazy Lake, the site is located south of an unmarked back road approximately 10km from the Lazy Lake Road turn off on Wasa Lake Park Drive on the southern edge of Wasa Lake. The site is located about 5km southeast from the back road turnoff, although it may require detailed instructions and a 4WD to arrive there.

The site offers views of the birds as they pass over, or in front of, the ridge though can cause neck strain from the relatively high angle of observation as the site nestles up against the steep wall of 'Scarface Peak'. 'Scarface Peak' (2400m) is the most westerly and visibly craggy peak of Mount Bill Nye (2600m).

South Lakit (49° 35' 45.45"N, 115° 35' 30.50"W, 1080m)

The South Lakit Site is located approximately 6km north on the Fort Steele-Wildhorse Forest Service Road and is accessed from Wardner-Fort Steele Road. The Wardner-Fort Steele Road joins Highway 93 near Wardner in the southeast to Highway 93 near Fort Steele in the northwest. This road also runs along the east side of the Kootenay River with the Steeples Ridge (the location of the Steeples Site) immediately to the east. The Wildhorse Forest Service road is located just east of the Fort Steele Gas Station at the junction of Highway 93. The site itself is located off the Wildhorse Road, and sits at the southern base of the Lakit Range, with Lone Peak to the SSE and the Steeples Range commencing just beyond this point.

Observation from this site, especially in the fall, is very favourable as the birds generally appear at low altitudes as they follow the natural descent of the Lakit Range, which descends from 2400m to just 1300m at the "Mound" at its Southern end. The site itself is located just south of the Mound.

During the fall 2010 season Vance Mattson conducted a 35 day (145.5 hour) extended reconnaissance count out of a possible 44 days between October 1 and November 13. Thirty-one days were spent at the Scarface/Bill Nye site and 4 at the South Lakit site, and 95% of the observations were conducted between 1300 and 1800.

Weather

A total of 6 days (October 3, 26, 29, November 1, 7, 15) were completely lost to adverse weather conditions and 6 other days (October 2, 13, 17-19, November 14), were lost owing to prior commitments although the weather on these days appeared to be conducive to movement with the exception of November 14. Although systematic weather data were not gathered, the following

observations were made. The temperature high for the count was 22C on October 1 and maximum temperatures remained between 12C and 18C until Oct 22 after which they were mainly single digit temperatures falling to 3C to 4C highs after November 9. The most common ground wind direction on active days was W (25.7%) followed by calm (22.9%) and SW 8.6%; S-SW, C-W, W-NW, S and N were each 5.7% and SE, S-SE and variable were each 2.9%. Calm-moderate winds occurred 31.4% of active days, moderate 22.9%, calm 22.9%, light-moderate 8.6%, calm-light 5.7% and light, moderate to strong and strong each 2.9%. It was generally difficult to assess wind velocities at ridge level. Cloudless skies were experienced on 26.5% of active days, days with less than 50% cloud cover occurred 17.6% of the time, 50-90% 26.5%, and 100% cloud cover 19.4%. Light rain or showers occurred on only 11.8% of days and the ridges were partially obscured on 26.5% of active observation days. Overall migration and observation conditions were good.

General flight dynamics

There was little obvious relationship between weather and amount of raptor movement except that calm conditions generally produced fewer raptors. Two of the three highest count days (October 10 and 30) saw raptors moving into moderate to strong S winds. Two peak periods during migration were noted: October 10-12 and, October 30-November 2 that produced 104 and 119 raptors respectively and accounted for 56% of entire raptor movement. The first peak coincides with a similar peak last year between Oct 8-10 (113 migrants), while the second peak is roughly comparable to a substantial portion of last year's total raptor movement that occurred between October 29 and November 4 (90 migrants). In total, Oct 4 to Oct 12 in 2010 produced a steady and proportionally substantial raptor movement (43% of total raptor movement: 173 of 399 raptors), followed by a much slower period until Oct 30th, when movement in larger numbers resumed. It should be noted, however, that four full days were missed during this period (Oct 17-19, in addition to Oct 13). Based on the last two years' observations it appears that raptor movement on the western flank of the Rocky Mountains occurs in sporadic bursts, as opposed to the steadier bell-curve-like pattern on the eastern Front Ranges.

Count Summary

The count produced a total of 399 migrant raptors of 8 species with a high single day count of 53 birds on October 9. Of this total 162 (40.6%) were Golden Eagles and 191 (47.9%) were Bald Eagles. Including 4 unidentified eagles, eagle species together comprised 88.5% of the total flight which is similar to the 93% eagles recorded at Mount Lorette, although there Golden Eagles (3222) greatly outnumber Bald Eagles (165). Other migrants were Osprey 1 (recorded on the remarkably late date of November 4), Northern Harrier 2 adult males, Sharp-shinned Hawk 18 (7 adults, 1 juvenile, 10 indeterminate), Northern Goshawk 2 adults, Red-tailed Hawk 7 (6 *calurus*: 5 light morph (4 adult, 1 juvenile), 1 adult dark morph; and 1 indeterminate dark morph *harlani*), Rough-legged Hawk 8 (6 light morph, 2 dark) and unidentified *Buteo* 4. Turkey Vulture, Cooper's Hawk, American Kestrel and Merlin which were recorded on last year's count were not seen this year.

Golden and Bald Eagles

The 162 migrant Golden Eagles were recorded on 25 of a possible 35 active field days (71.4%) with a highest single day count of 28 on October 31, but the second highest count was 17 on October 30 and only 3 other days had double-digit counts. The flight comprised 117 adults, 9 subadults, 27 juveniles and 9 birds of indeterminate age giving an immature:adult ratio of 0.31 and a juvenile:adult ratio of 0.21. A total of 191 migrant Bald Eagles were recorded on 26 days (74.3%) with a single day count of 39 on October 20. The flight comprised 124 adults, 23 subadults, 40 juveniles, 2 undifferentiated immature birds and 2 birds of indeterminate age giving an immature:adult ratio of 0.52 which is much higher than the 0.33 at Mount Lorette.

