

MOUNT LORETTE, FALL 2011

With notes on the Piitaistakis-South Livingstone, Beauvais Ridge and Steeples, BC sites

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www.eaglewatch.ca

Summary and highlights

This was the 21st consecutive year that some form of fall count has been conducted by RMERF members and was the 20th conducted at Mount Lorette. The combined species count of 3899 is 8.9 % below average, but October 5 saw passage of 578 migrants of which 556 were Golden Eagles, both of which were record fall counts for the site. Eleven species occurred in below average numbers and median passage dates were generally later than average. The Golden Eagle count of 3466 is 4.6% below average and slightly tempers but does not alter the declining trend for the species at the site. A nine-day October reconnaissance count at Piitaistakis-South Livingstone saw the same October 5 peak with 519 birds (453 Golden Eagles) recorded, followed by 508 birds (474 Golden Eagles) on October 6. The hourly passage rate of birds was almost twice that for the same period at Mount Lorette. The highest count at the Steeples Ridge reconnaissance site on the western flanks of the Rocky Mountains near Cranbrook, BC, was also October 5, when 89 raptors (50 Bald and 28 Golden Eagles) were seen in 3 hours. A new late fall and winter count at Beauvais Ridge in SW Alberta found migration persisting well into the early part of 2012, but some of the movement may represent systematic evening roosting flights.

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 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 2500 m with Mt. McDougall rising to 2726 m. Mount Lorette itself is 2487 m 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 (2958 m), Mount Bogart (3144 m) and Mount Allan (2819 m). The observation site is in a cleared area on the valley floor known as the Hay Meadow at about 1433 m. 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, 13 km 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 generally 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 that 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 Crownsnest 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. The period September 20 to November 15 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 2009-10. For the second consecutive year because of logistical considerations no systematic daily count was held this season at the Piitaistakis-South Livingstone site, but full day reconnaissance counts were conducted on 9 weekend dates throughout October with the exception of October 30. This report includes results and comparisons with the reconnaissance counts conducted during October at Piitaistakis-South Livingstone and by Vance Mattson at the Steeples site on the western flank of the Rocky Mountains in British Columbia. In addition I conducted a reconnaissance late migration/roosting count at a new site, Beauvais Ridge, in southwestern Alberta over 46 days between November 25 and February 5, the results of which are also presented in this report.

At Mount Lorette observers spent a total of 55 days (590.77hours) 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. A 9 day (64.76 hour) count at Piitaistakis-South Livingstone (Frank Slide site) was conducted on weekend days throughout October. At the Steeples site in BC Vance Mattson spent 23 partial days (73.5 hours) of a possible 49 days at the site between October 1 and November 15. This is the third consecutive fall season that the count has been held. I spent 46 partial days (102.22 hours) at Beauvais Ridge, a new site in SW Alberta between November 25 and February 5.

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

Mount Lorette, Alberta

Weather

Table 1 summarizes the season's weather. Only 2 days, October 6 and October 7, were completely lost to bad weather, and 3 further days (October 1, November 4 and 12) were curtailed by weather. Rain, snow or flurries occurred on 13 active count days (23.64%) of the count period and the ridges were only significantly occluded on only 4 active days (7.27%). Maximum temperatures ranged from 24C on September 23 and 24 to -5.5C on November 15, while minimum temperatures during active observation ranged from 16.5C on September 23 to -15 on November 6: temperatures were generally above seasonal norms throughout. The reason for this was the prevalence of strong downslope (mainly

SW-SSW) “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 92.7% of active observation days and all other directions only comprised 7.3% of the time. The three most common wind directions were SW (32.72%), SW-SSW (25.45%) and SW-WSW (21.82%). On active observation days ridge wind speeds were strong (>41 km/h) or very strong (>101 km/h) for all or most of the day 36.36% of the time, with gusts exceeding 200 km/h on September 22, 23 and 26, and a total of 19 days (34.55%) had gusts that exceeded 100 km/h. They were moderate to strong (11-101 km/h) 40.0% of the time, moderate (11-40 km/h) 3.64%, light to moderate (1-40 km/h) 9.09%, light (1-10 km/h) 1.82% and calm to light (0-10 km/h) 3.64% of the time. Just three active days (5.45%) were cloudless or had cloud cover <5%, and only 5 days (9.1%) experienced a cloud cover that was not less than 80%.

In summary the weather was characterised by above average temperatures, persistent strong to very strong SSW-W winds, and below average cloud cover, precipitation and ridge occlusion.

General flight dynamics *September 20 to November 15*

Migrant raptors were recorded on 54 of the 55 active field days between September 20 and November 15 with only October 1 failing to yield a migrant (Table 2). A total of 13 days (23.6%), all in October, had a passage of at least 100 migrants. The highest single-day count occurred on October 5, following the two days lost to poor weather, with the passage of 583 birds which is 35.56% above the average highest single-day count for the site, and is the highest fall combined-species daily count ever at the site, the previous high being 578 birds in 2003 (October 14) and 2004 (October 15). The combined species total of 3899 is, however, 8.85% below the long-term average count 15.9%. The combined species median passage date of October 12 is average for the count period September 20-November 15. Similar to last year, despite the weather conditions and the resulting persistence of movement throughout the count period only 3 species occurred in higher than average numbers (Table 3): Osprey 3 (+11.4%), Cooper's Hawk 33 (+39.3%) and Peregrine Falcon 4 (+100%), while 2 Prairie Falcons were average. The other 11 species all occurred in lower than average numbers: Bald Eagle 137 (-50.9%), Northern Harrier 2 (-82.1%), Sharp-shinned Hawk 113 (-20.9%), Northern Goshawk 42 (-14.2%), Red-tailed Hawk 28 (-19.6%), Rough-legged Hawk 41 (-25.7%), Golden Eagle 3466 (-4.6%), American Kestrel 2 (-29.7%), Merlin 6 (-17%) and Gyrfalcon 2 (-38.1%). Turkey Vulture, Broad-winged Hawk, Swainson's Hawk and Ferruginous Hawk were not recorded this season. The persistence of strong ridge winds may have affected the movement of several of the smaller raptor species, and the mildness of the season, reflected in the relatively late median passage dates of some species may suggest that significant passage may have persisted after November 15. This is probably the case for Bald Eagles and Rough-legged Hawks as reflected in the numbers seen at the Beauvais Ridge site after November 25.

The final count was Turkey Vulture 0, Osprey 3, Bald Eagle 137, Northern Harrier 2, Sharp-shinned Hawk 113, Cooper's Hawk 33, Northern Goshawk 42, *Accipiter* sp. 3, Broad-winged Hawk 0, Swainson's Hawk 0, Red-tailed Hawk 28, Ferruginous Hawk 0, Rough-legged Hawk 41, *Buteo* sp. 2, Golden Eagle 3466, eagle sp. 2, American Kestrel 2, Merlin 6, Gyrfalcon 2, Peregrine Falcon 10, Prairie Falcon 2, *Falco* sp. 3, indeterminate raptor 2, for a total of 3899 migrant raptors.

A daily summary of the counts can be found on the Foundation's website.

October summary (Table 4) The month of October sees the maximum fall movement and of the 18 counts conducted by RMERF at Mount Lorette since 1992 (the 1997 count was conducted at Plateau Mountain) 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 (-4.02%) and 324.12 hours (+1.79%) were spent at the site during the month during which time 3483 migrant raptors of 11 species were counted. This total is 4.92% above average and no fewer than 9 species occurred in higher than average numbers during the month: Osprey 1 (+100%), Sharp-shinned Hawk 84 (+14.73%), Cooper's Hawk 28 (+218.7%), Northern Goshawk 38 (+18.49%), Red-tailed Hawk 21 (+75%), Golden Eagle 3168 (+7.41%), Merlin 5 (+27.25%), Gyrfalcon 2 (+16.67%), Peregrine Falcon 6 (+110%). Only 2 species occurred in lower than average numbers: Bald Eagle 90 (-46.3%) and Rough-legged Hawk 31 (-30.7%). Turkey Vulture, Northern Harrier, Broad-winged Hawk, Swainson's Hawk, Ferruginous Hawk, American Kestrel and Prairie Falcon were not recorded during the month.

Golden Eagle We counted a total of 3466 migrating Golden Eagles on 52 days between September 20 and November 15, with the highest single-day count of 556 occurring on October 8 (Figure 1). The total was 4.63% below the long-term average but the high count was 38.6% above average and represented the highest ever daily fall count for the species at the site. A total of 14 days saw passage of at least 100 birds with other high counts being 342 on October 10 and 267 on October 11. The October count of 3168 birds comprised 83.54% of the total count. The flight comprised 2422 adults, 154 subadults, 476 juveniles, 1 undifferentiated immature bird and 413 birds of unknown age yielding an immature:adult ratio of 0.26 and a juvenile:adult/subadult ratio of 0.18. The immature: adult ratio is 7.9% below average. The highest cumulative hourly counts (Figure 2) were 474 (1100-1200), 439 (1400-1500), 415 (1500-1600) and 385 from (1200-1300) MST, while at the daily extremities 12 birds passed between 0700 and 0800 while 18 birds occurred after 1800 (Figure 2). The highest single-hour passage was 121 between 1300 and 1400 on October 8, while the same day saw 115 and 107 birds move 1500-1600, and 1700-1800 respectively, and 104 birds occurred between 1100 and 1200 on October 10. The species median passage date of October 12 is average, while adults and immature birds were 3 days earlier and 3 days later than average on October 14 and October 8 respectively.

MOUNT LORETTE, FALL 2011

GOLDEN EAGLE n = 3466

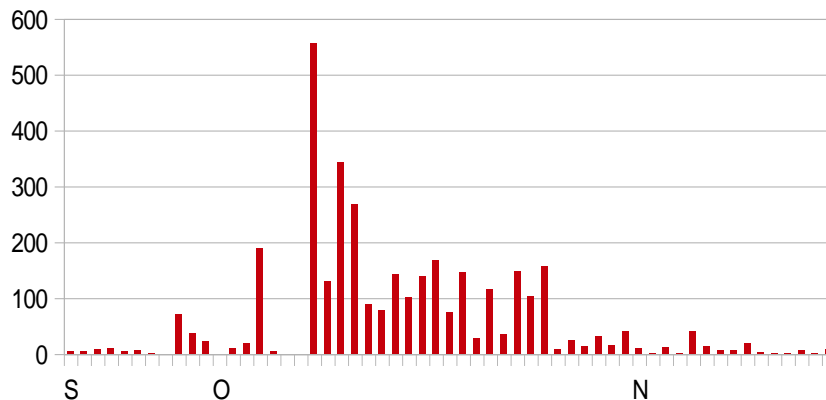


Figure 1

MOUNT LORETTE, FALL 2011

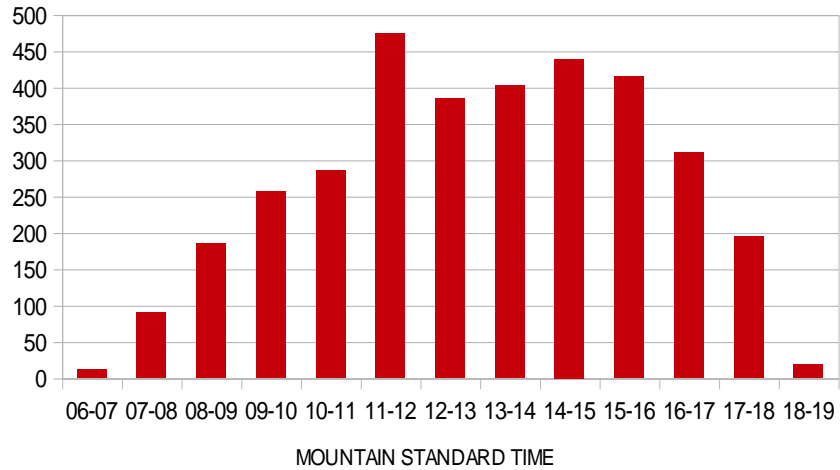


Figure 2

Fall Golden Eagle Trend

Figure 3 shows the linear trend of all counts from 1993-2011 excluding 2002, while Figure 4 shows the trend excluding 2002 and the short counts of 2006, 2007 and 2008. Both show a clear diminishing trend with the removal of the short counts (Fig. 4) ameliorating but not significantly altering the trend. This trend is also seen in spring counts at the site.

Mount Lorette Golden Eagle trend 1993-2011

September 20 to November 15

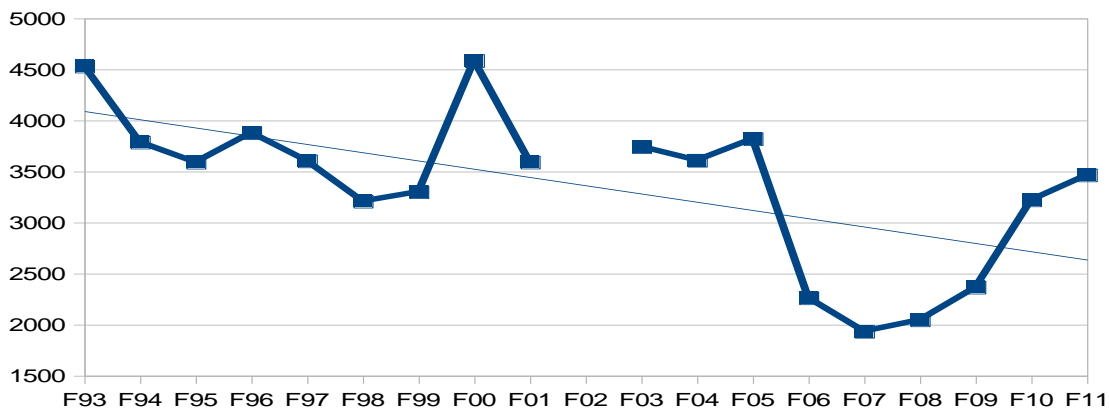


Figure 3

Mount Lorette Golden Eagle trend 1993-2011

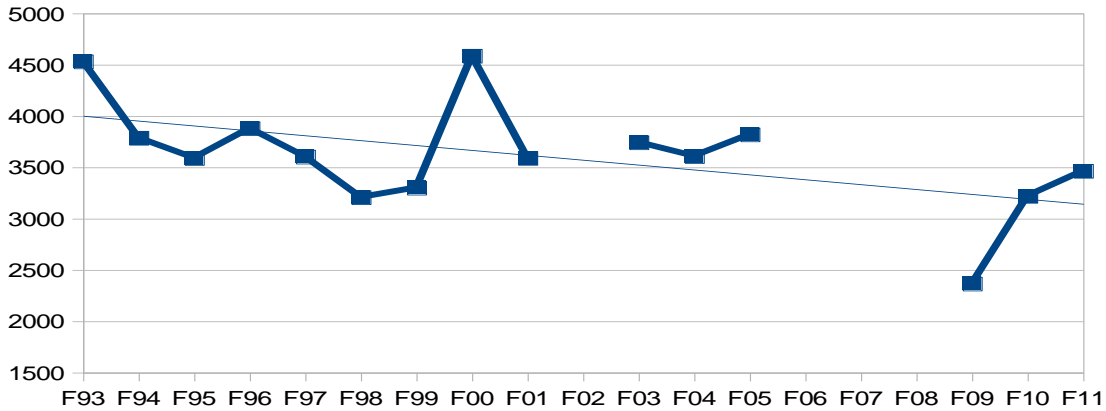


Figure 4

Eagle Age Analysis

Figure 5 shows the trend of fall immature:adult ratios since 1994. Note that the 1997 count was at Plateau Mountain and the 2006-9 counts were at Piitaistakis-South Livingstone with the rest conducted at Mount Lorette. There is a generally increasing trend to 1999, followed by a decrease to 2002, then a steady increase to 2008 followed by a fall to 2011. This trend (which is paralleled by the spring trend) 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 marked the start of the declining phase of the hare cycle, 9 or 10 years after the previous peak and the 2011 ratio continues this trend.

GOLDEN EAGLE: FALL AGE RATIOS 1994-2011

Lorette 94-96, 98-05, 10-11; Plateau Mountain 97; Piitaistakis 06-09

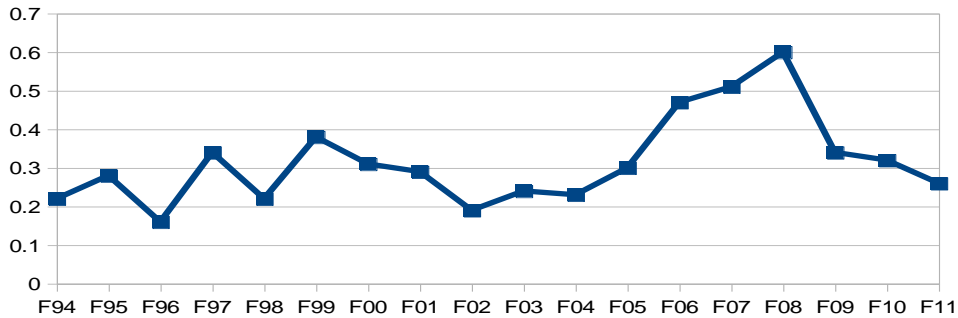


Figure 5

Bald Eagle

The count of 137 birds seen on 38 days between September 20 and November 15 was 59.9% below average and was the second lowest count ever for the period ahead only of the 100 counted in 2009. The three lowest fall counts at the site have occurred in the last three years. The highest single-day count was 12 on October 25, which is 53.57% below the average high count and is the lowest maximum daily fall count ever. The flight comprised 87 adults, 9 subadults, 13 juveniles, 27 undifferentiated immature birds and 1 bird of unknown age giving an immature:adult ratio of 0.56 which is 5.2% below the average ratio. The species median passage date for the species, for adults and for immature birds all fell on October 24, which is 2 days later, equal to, and 5 days later than average respectively. The low counts of the last three years may result from the mildness of the weather during the count period and especially the lack of the southward passage of arctic cold fronts which tend to accelerate the southward movement of the species as water bodies to the north freeze. The idea that on mild years the species migrates later appears to be born out by the high numbers of southward-bound Bald Eagles seen after November 25 at the new Beauvais Ridge count that is discussed later in the report.

Osprey Three Ospreys were counted on 3 days, September 25, October 3 and November 5, the latter being the first record of the species for November and by far the latest ever recorded at the site. This again probably is a reflection of the above average temperatures prevailing to the north of the site that allowed the bird to linger. The count is 11.43% above average for the period.

Northern Harrier Only 2 birds, 1 adult male and 1 adult female, were recorded on September 28 and 30 which is the lowest ever count for the period and 82.7% below average.

Sharp-shinned Hawk A total of 113 birds counted on 33 days between September 20 and November 4 was the highest count for the period at the site since 2004, but was still 20.89% below the long-term average. The highest single-day count was 14 on October 24 which is 36.59% below the average high count. The flight comprised 32 adults, 16 juveniles and 65 birds of unknown age yielding an immature:adult ratio of 0.5, which is 15% above average, although as usual the high percentage of unaged birds means that age ratio figures must be used with caution. The median passage date for the species was October 10, 9 day later than average, adult birds were on the average date of October 4 and juvenile birds were 4 days later than average on September 29.

Cooper's Hawk After 6 years of low counts for this species, this year 33 birds were counted on 20 days between September 23 and November 5. This is the second highest total for the period after the 46 counted in 1993, and is 38.83 above average. The highest single-day count was 7 on October 8, which is 56.9% above the average maximum count. The flight comprised 14 adults, 6 juvenile and 13 birds of unknown age yielding an immature:adult ratio of 0.43, which is 25.9% below average, but the same caveat mentioned for the previous species applies. The median passage date for the species was October 10, 11 days later than average, the adult median passage date was October 4, 4 days later than average as was the date for immature birds on October 3.

Northern Goshawk A total of 42 migratory goshawks were counted on 19 days between September 24 and November 5. The total is 14.15% below average for the site. The highest single-day count was 6 on October 9. The total comprised 27 adults, 6 juveniles and 8 unaged birds giving an immature:adult ratio of 0.26, which is just 1.6% below average. The median passage date for the species was 1 day later than average on October 13, adults were 2 days later than average on October 13, and immature birds were 3 days later than average on October 9.

Broad-winged Hawk For the first time ever this species was not recorded during the count period at the site.

Swainson's Hawk The species was not recorded. There have only been 6 previous records of the species on 5 separate years during the count period, the last being in 2005

Red-tailed Hawk A total of 28 birds were counted on 15 days between September 25 and November 11, a count that is 19.65% below average. The highest single-day count was 6 on October 8 which is 17% below average. The flight comprised 26 birds ascribable to *B.j.calurus*, 19 of which were light morphs (10 adults, 8 juveniles and 1 bird of indeterminate age), 1 was a rufous (intermediate) morph adult and 8 were dark morphs (3adults, 1juveniles and 1 indeterminate). One bird was an adult dark morph *B.j. harlani*, and 1 bird was un-assignable to race, morph or age. The overall immature:adult ratio was 0.6 which is 18.2% above average. The species median passage date of October 8 was 10 days later than average, adult median passage was October 13, 16 days later than average and juveniles were 11 days later than average on October 8.

Ferruginous Hawk This species was not recorded. Single birds have been recorded during the count period on only 6 years since 1992.

Rough-legged Hawk The count of 41 birds on 18 days between September 28 and November 10 was the highest count for the period since 2006 but was still 25.7% below average The highest single-day count was 9 on October 10, which is 16.4% below the average high count, and the median passage date of October 16 was 3 days later than average. The flight comprised 26 light morphs and only 2 dark morphs giving a dark:light ratio of 0.08, 71.8% below average.

American Kestrel Just 2 birds, a male on September 25 and a bird of unknown sex on September 30, were recorded. The total is 29.73% below average for the period.

Merlin A total of 6 merlins were seen on 4 days between October 10 and 17, 3 of which occurred on October 11. All birds were ascribed to the race *F.c.columbarius*, but only one adult male was identified beyond that.

Gyr Falcon Single adult grey morph birds were recorded on October 17 and 26. The total is 31.6% below average.

Peregrine Falcon The total of 10 birds counted on 8 days between September 25 and October 17 is the 2nd highest for the count period, just one less than the 11 counted in 2004, and is 100% above average. Two birds passed on both September 26 and October 5. The flight comprised 3 adults, 1 juvenile and 6 birds of indeterminate age, and the median passage date of October 4 was 1 day earlier than average.

Prairie Falcon Only 2 birds were recorded, 1 on October 6 and 1 on October 9, and the total is average for the site.

Observers at Mount Lorette

Principal Observers Cliff Hansen (16 days), George Halmazna (11.5 days), Bill Wilson (8 days), Jim Davis (5 days), Terry Waters (5 days), Alan Hingston (3.5 days), Joel Duncan (3 days), Peter Sherrington (2 days), Doug Pedersen (1 day) with the assistance of Cliff Hansen (10 days), Kevin Barker (7 days), Chris Hunt (5 days), Anita Walker (3 days), Doug Pedersen (2 days), Terry Waters (2

days), and Joel Duncan, Brian McBride, Jim St Laurent, Fiona Waters, Julian Waters and Michael Woertman (1 day each).

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Piitaistakis-South Livingstone (Frank Slide site), Alberta

Introduction

The Piitaistakis-South Livingstone site is located at the southern culmination of the north-south oriented Livingstone Range, which is itself the southernmost range of a series of Front Range ridges that originates near the Yukon/BC border in NE British Columbia. The site is north of Bellevue and east of Frank, both towns in the Municipality of The Crowsnest Pass in SW Alberta. The map reference is 0691258 5498619 and the elevation of the site is 1900 m above sea level. Starting in 1998 reconnaissance counts of 3 to 9 days were conducted at the site in the fall by Doug and Teresa Dolmen, and a single day count there on October 8 2000 yielded 1071 Golden Eagles. Four complete fall counts were conducted there between 2006 and 2009 with 2007 producing a combined-species count of 8289 birds that included 700 Bald Eagles and 5445 Golden Eagles. In 2007 we decided to add the name Piitaistakis to South Livingstone, the name that we had used previously, to recognize the traditional Piikani (Blackfoot) name for the ridge which means, appropriately, Place of the Eagles. The last complete count on the ridge was conducted in the spring of 2010 after which logistical considerations made further counts at the site impracticable and it was decided to again make Mount Lorette the principal observing site. In the spring of 2011 we developed a new site at a lower elevation near the Frank Slide Interpretative Centre which was easy to access and afforded excellent views of the Piitaistakis ridge. The observation site, which we called the Frank Slide site, is located at 0688840 5497960 at 1442 m (compared to the ridge site which is at 1900 m), is about 700m NE of the NE corner of the Interpretive Centre's parking lot and involves only a 54 m elevation gain. The site is 2 km almost due west of the observation site on the Piitaistakis Ridge. A test count was conducted there on March 18 when 9 hours of observation yielded 288 migrants, 13 Bald Eagles and 275 Golden Eagles, with all birds being aged with a high degree of confidence. For the fall 2011 migration we decided to conduct counts there on Saturdays and Sundays throughout October, both to provide data for a comparison with the Mount Lorette count, and to allow members of the general public to experience the eagle migration.

Weather Conditions were generally favourable both for migration and observation with temperature highs ranging from 17C on October 2 to 5C on October 29, and with a lowest minimum temperature of 0C on October 15. Winds throughout were mainly moderate to strong W-WNW and cloud conditions ranged from 0-100% mainly cumulus, altostratus and cirrus which, on most days, produced good or excellent observing conditions. Only on October 1 and 22 were the ridges significantly draped in cloud but both days yielded at least some movement of 20 and 44 birds respectively, but on October 22 a combination of thick stratus cloud cover, light rain and high flying birds made aging of birds with any confidence impossible. The only precipitation experienced was light rain on October 1, but 2 days of

heavy rain preceding the count on October 8 probably set up the conditions both here and at Mount Lorette and Steeples for season-high counts.

Count Summary (Table 5) During the month of October observers spent 9 days (64.76 hours) at the Frank Slide site between October 1 and October 29 during which time they recorded 1564 migrant raptors of 11 species: 1 Osprey, 31 Bald Eagles (18a, 6sa,6j,1u), 84 Sharp-shinned Hawks (12a,1j,71u), 14 Cooper's Hawks (3a,11u), 16 Northern Goshawks (15a,1u), 9 unidentified accipiters, 23 Red-tailed Hawks: *B.j.calurus* 18 (17 light morphs: 14a,1j,2u, and 1 juvenile dark morph); *B.j.harlandi* (4 dark morphs : 1a,1j,2u, and 1 adult light morph), 4 Rough-legged Hawks (1 light, 3 dark morphs), 1 unidentified dark morph *Buteo*, 1366 Golden Eagles (745a,86sa,156j,379u), 2 unidentified eagles, 3 Merlins [*F.c.columbarius*] (1a,2u), 2 adult Peregrine Falcons, 3 unidentified falcons and 4 unidentified raptors.

Comparison of counts at Piitaistakis-South Livingstone and Mount Lorette (Table 5) There was a fairly close concordance between the overall numbers (Figure 6a) and Golden Eagle numbers (Figure 6b) at the two sites with the exception of October 9 when Piitaistakis saw the passage of 508 raptors (474 Golden Eagles) while Lorette had only 141 (129 Golden Eagles). The previous day, October 8, both sites (along with Steeples on a smaller scale) experienced spectacular movements of raptors with observers at Lorette counting a fall site record high 583 birds (556 Golden Eagles) while Piitaistakis had 519 birds (453 Golden Eagles). The two-day totals were 724 raptors (685 Golden Eagles) at Lorette and 1027 raptors (927 Golden Eagles) at Piitaistakis. Over the 9 days the combined species total at Piitaistakis was 1564 raptors of 10 species while Lorette recorded 1247 raptors of 8 species, but the passage rate of birds at Piitaistakis (24.15/hour) was almost twice that at Lorette (12.29/hour). The comparison of species numbers at the 2 sites (Figure 7) is fairly close except for Sharp-shinned Hawk (Piitaistakis 83, Lorette 23) and Red-tailed Hawk (Piitaistakis 24, Lorette 7), which accords with the situation we found when comparing full counts at Piitaistakis 2006-9 with the comparative counts at Lorette. The Golden Eagle immature:adult ratios were somewhat higher at Piitaistakis (0.32) compared to Lorette (0.26), but the discrepancy largely results from the difference in the numbers of unaged birds at the two sites: 379 at Piitaistakis, 119 at Lorette. On October 22 most of the 54 Golden Eagles appeared to be adults, but the thick cloud cover, rain and high flight made confident aging very difficult in most cases, and it was decided to classify all the birds as "unaged". If we had applied the original field age-determinations to the calculation the ratios would have been essentially the same at both sites!

Observers at Piitaistakis-South Livingstone

Principal Observers Peter Sherrington (8 days), Vance Mattson (1 day), assisted by Raymond Toal (8 days), Denise Coccioloni-Amatto (6 days), David Thomas (6 days), Keith McClary (4 days), Doug and Teresa Dolman (3 days), Hilary Atkinson, Phil Nicholas (2 days) and Dan Lee, Pat Lucas, Scott Palmer, Mark Sherrington, Bill Tice, Nel van Kamer, Patricia Wagenaar (1 day)

Acknowledgments

RMERF gratefully acknowledges the efforts of David Thomas in producing an annotated photographic panorama of the site for the use of visitors, for publicising the count to members of the general public and for guiding them to the site. We also acknowledge the support and cooperation of the staff of the Frank Slide Interpretive Centre and especially to Monica Field.

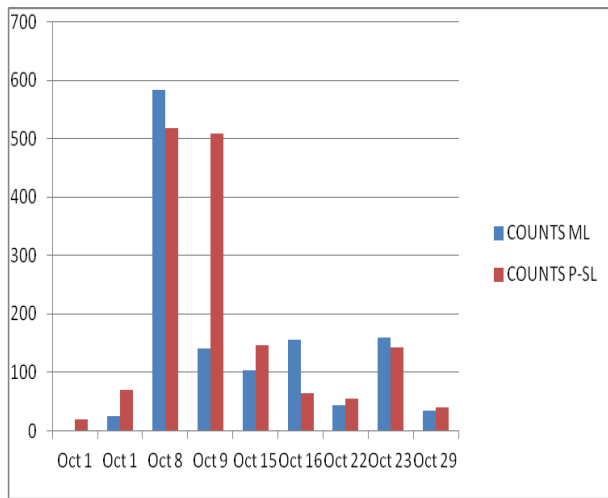


Figure 6a

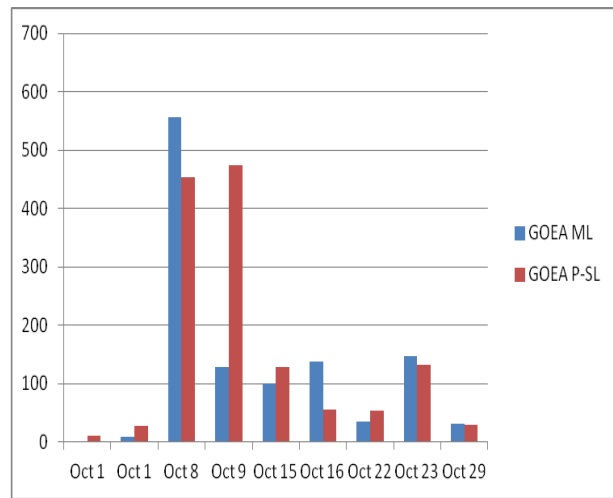


Figure 6b

Comparison of counts at Pitaistakis and Mount Lorette, 2011, October 1,2,8,9,15,16,22,23,29

	Pitaistakis	Mount Lorette
Days	9	9
Hours	64.76	101.46
Turkey Vulture	0	0
Osprey	1	0
Bald Eagle	31 (18a,6sa,6j,1u), imm:a 0.67	22 (15a,5sa,1j,1imm), imm:a 0.47
Northern Harrier	0	0
Sharp-shinned Hawk	84 (12a,1j,71u)	23 (5a,3j,15u)
Cooper's Hawk	14 (3a,11u)	13 (9a,2j,2u)
Northern Goshawk	16 (15a,1u)	16 (10a,2j,4u)
<i>Accipiter</i> sp	10	1
Broad-winged Hawk	0	0
Swainson's Hawk	0	0
Red-tailed Hawk (<i>calurus</i>)	18 (14a,2j,2u)	7 (4a,1j,2u)
Red-tailed Hawk (<i>harlani</i>)	5 (2a,1j,2u)	0
Ferruginous Hawk	0	0
Rough-legged Hawk	4 (1 light, 3 dark)	12 light
<i>Buteo</i> sp.	1	2
Golden Eagle	1366(745a,86sa,156j,379u), imm:a 0.32	1148 (816a,52sa,61j,119u), imm:a 0.26
eagle sp.	2	1
American Kestrel	0	0
Merlin	3 (1a,2u)	0
Gyrfalcon	0	0
Peregrine Falcon	2a	1a
Prairie Falcon	0	0
<i>Falco</i> sp.	3	1
Raptor sp.	4	0
TOTAL	1564	1247
Passage rate, raptors/hour	24.15	12.29

Figure 7

Steeple Ridge extended reconnaissance count, British Columbia (Vance Mattson)

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) 25 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 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. 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 Steeple Ridge (the location of the Steeple 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 Steeple 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.

2011 was the third successive year that Vance has conducted a fall reconnaissance count at the site. (Table 6). This season 22 days were spent at the Scarface (Bill Nye) site and 1 day at the South Lakit site between October 1 and November 15. Ninety-five percent of observation hours occurred between 1300 and 1800. The 23 days, 73.5 hours spent in the field are 38.7% and 49.9% lower than the previous two years, with 9 days being lost to adverse weather conditions and a further 14 days lost to previous commitments.

Weather

A total of 9 days (October 1, 3-7, 10-12) were completely lost to adverse weather conditions in addition to the 14 days lost owing to prior commitments (October 15, 17,19, 20, 26, November 3, 4, 7, 9, 10, 11, 12, 14, 15) although the weather on these days was probably conducive to raptor movement. Although systematic weather data were not gathered, the following observations were made. The temperature high for the count was 19C on October 2 and maximum temperatures mainly remained between 13C

and 10C until Oct 27 after which they were mainly single digit temperatures falling to highs of 2C after November 2. It was generally difficult to assess wind velocities at ridge level and on 43.5% of active days no direction was assessed. West winds prevailed 39.1% of the time, W-SW winds 8.7% and W-NW and N winds each 4.3% of the time. Velocities were assessed as light 34.8% of the time, moderate 21.7%, light to moderate 17.4%, strong 17.4% and unknown 8.7%. Only 1 active day (4.3%) had cloudless skies, cloud cover of 10-40% occurred 30.4% of the time, and 50-80% and 90-100% were both 26.1%. Fog occurred on one day (4.3%) and on 2 days (8.7%) the cloud cover was not noted. No precipitation was experienced and the ridges were partially obscured on 34.8% of active observation days.

General flight dynamics As in the past two years, the raptor movement on the Western side of the Rockies appears to be highly sporadic, with peak movement periods typically occurring after the clearing of heavy overcast conditions extending over a few days, followed by longer periods of relatively minor to no movement. This year the peaks (of days observed) occurred on October 8 and 9, with 122 raptors moving (46% of the yearly observed total) after five days of heavy overcast conditions, and again in early November, with 58 birds (22%) moving between November 1 and 6. These peak periods are roughly similar to what has been observed in the past. In summary, as in the previous two years, no obvious pattern between moving raptors and weather conditions was discerned, with raptors moving on both sunny and cloudy, and days of calm, light, moderate or strong winds; however, raptors this season tended to move mainly on calm days. Raptors also migrated when ridges were partially obscured by moving at lower elevations.

Count Summary (Table 7) The count produced a total of 263 migrant raptors of 9 species with a high single day count of 89 birds on October 8. Of this total 93 (35.7%) were Golden Eagles and 130 (49.4%) were Bald Eagles. Including the single unidentified eagle, eagle species together comprised 85.2% of the total flight which is similar to the 92.5% eagles recorded at Mount Lorette, although there Golden Eagles (3466) greatly outnumbered Bald Eagles (137). Other migrants were Osprey 1, Sharp-shinned Hawk 15 (6 adults, 9 indeterminate), Northern Goshawk 2 adults, Red-tailed Hawk 18 (15 *calurus*: 10 light morph (8 adult, 2 juvenile and 1 indeterminate), 5 dark morphs (3 adult, 1 juvenile and 1 indeterminate), 1 adult dark morph *harlani*, and 2 birds of undetermined race, morph or age), Rough-legged Hawk 1 light morph, 1 indeterminate eagle, 1 female American Kestrel and 1 adult Peregrine Falcon. Turkey Vulture, Northern Harrier, Cooper's Hawk and Merlin which have been recorded in the past were not seen this year. By comparing the passage rates/hour of the commonest occurring birds Sharp-shinned Hawks were 9.2% above the average of the last 2 years, Red-tailed Hawks (whose total of 18 was the highest fall count at the site) were 349.7% above average while Rough-legged Hawks (1: the lowest count so far) were 80.9% below average.

Golden and Bald Eagles

The 93 migrant Golden Eagles were recorded on 17 of a possible 23 active field days (73.9%) with a highest single day count of 28 on October 8; the second highest count was 16 on October 9 and the only other double-digit day was November 5 when 13 birds were seen. The flight comprised 60 adults, 6 subadults, 20 juveniles and 7 birds of indeterminate age giving an immature:adult ratio of 0.43. A total of 130 migrant Bald Eagles were recorded on 17 days (73.9%) with a high single day count of 50 on October 8. The flight comprised 76 adults, 22 subadults, 28 juveniles, and 4 birds of indeterminate age giving an immature:adult ratio of 0.66 which is much higher than the 0.33 at Mount Lorette. The age ratios of both eagle species are considerably higher than those at Mount Lorette which were 0.26 (Bald Eagle) and 0.56 (Golden Eagle) respectively. Because of the shorter count both eagle totals were the lowest yet recorded, but comparing the passage rate/hour with the average of the last two years

(Table 7) Bald Eagles were 53.9% above average and Golden Eagles were only 4.2% below average.

Observer at Steeples

All counts were conducted by Vance Mattson.

Beauvais Ridge, Alberta (Peter Sherrington)

(Table 8) Twice during October I observed migrating raptors from the deck of Phil Hazelton's home on the Gladstone Valley road about 4 km SSE of Beaver Mines [0704855W 5476339N, at 1380 m elevation]. On both occasions the birds moved from the west or northwest before flying to the south immediately east of downslope cloud and snow squalls. These were clearly birds had been migrating south down the Livingstone Range (over the Piitaistakis-South Livingstone site) and the Carbondale Ridge system to the south, that had been displaced to the east by low cloud and snow over the high mountains of the North Waterton Main Ranges that were in their line of flight.

On October 11 most of the mountains of the northern Waterton Main Ranges and the Continental Divide west of Prairie Bluff Mountain were obscured by cloud and snow/rain showers swept down by strong SW winds. Between 1254 and 1415 I observed 51 Golden Eagles that soared high to the S and SE of the house before they glided high to the south towards Prairie Bluff (Corner) Mountain. On two occasions 8 birds were seen soaring together in close proximity. These birds had apparently been displaced to the east from the Beaver Mines Lake/Carbondale Ridge area over which they normally migrate after moving south from the Livingstone Range. Other raptors seen moving with the Golden Eagles were 1 Bald Eagle, 1 Sharp-shinned Hawk, 1 dark-morph Broad-winged Hawk and 3 Red-tailed Hawks. Late in the morning of October 20 thick cloud enveloped the Livingstone Range to the NNW, the Continental Divide to the west and most of the mountains of the northern Waterton Main Ranges to the south. Between 1230 and 1530 there was a significant movement of Golden Eagles and a few other raptors. Most of the birds flew from the W or WNW before soaring near the eastern edge of the downslope squall-line and then glided high to the south towards Prairie Bluff (Corner) Mountain, the north-easternmost peak in the Waterton Range and the only one that was consistently clear during this period. Movement was very steady with half-hourly Golden Eagle counts between 1230 and 1500 of 7, 15, 10, 15 and 16 birds. After 1500 the Waterton Range to the south substantially cleared and only 3 more Golden Eagles were seen before I left at 1530. In addition to 64 Golden Eagles (39a,9sa,3j,13u) the three-hour count also yielded 2 Bald Eagles (1sa,1j), 1 unaged Cooper's Hawk and 2 Rough-legged Hawks. Both days were excellent demonstrations of eastward displacement of raptor flights by downslope adverse weather conditions This is analogous to the situation at Mount Lorette where raptor movement from the Fisher Range to Mount Lorette is displaced eastward to the high foothills ridges of Lusk Creek by downslope cloud and precipitation.

On November 25 I was watching the spectacular daily afternoon and evening roosting movement of Common Ravens flying from the north into the mountains from the plains when I became aware of numbers of raptors embedded in the stream of ravens. In contrast to the displacement movement noted above all the raptors appeared from the north and moved to the S or SE over a line of hills immediately east of Phil's house located SW and S of Beauvais Lake. The highest part of this ridge is about 1700 m high. I observed for 1.75 hours and recorded 8 Bald Eagles, 3 Rough-legged Hawks, 7 Golden Eagles and 1 Prairie Falcon. This was not surprising as our fall counts at Mount Lorette and Piitaistakis have often extended to December 12 (and on one year to December 18) and have yielded reasonable numbers of migrants during this time. This movement, however, did not appear to be connected to the Front Range migrations monitored by these counts, but appeared to coming directly from the north with the birds probably proximately originating from the north-south oriented lower Oldman River and Todd

Creek valley area some 23 km to the north. The Oldman River is well known for its concentrations of Bald Eagles during spring and fall migration periods. After leaving the Beauvais Ridge the birds appeared to move to the SSE or SE which would make them pass to the east of Prairie-Bluff (Corner) Mountain and thence to the south immediately east of the Waterton Main Ranges. I decided that this was interesting and that it merited further investigation and so spent a couple of hours each afternoon watching the ridge, fully expecting the movement to diminish into December. This was not been the case (Table 8). Between November 25 and January 13 I was at the site on 41 of a possible 49 days, with the exception of January 15 missed 16 days between January 14 and 31, and counted 4 more days up to February 5. The 46 days (102.22 hour, an average of 2.2 hours/day) yielded a remarkable count of 922 raptors of 10 species at an overall rate of 9.02 birds/hour. The final count was Bald Eagle 571, Northern Harrier 3, Northern Goshawk 6, Red-tailed Hawk 5 (2 *calurus*, 3 *harlani*), Rough-legged Hawk 274, Golden Eagle 49, Merlin 3, Gyrfalcon 1 and Prairie Falcon 9. These numbers are surprisingly high, but even more surprising was that one of the most sustained movements was December 26-30 during which time 175 migrants, including

135 Bald Eagles were recorded. The passage of so many Bald Eagles (571: 61.9% of the flight) and Rough-legged Hawks (274: 29.7% of the flight) was not totally surprising as well below average counts of both species during the fall count at Mount Lorette suggested late movement ascribed to the very mild autumn and winter, although the corollary to this has been an even greater prevalence of very strong W-SW winds. No major Arctic Front passed until January 15 when temperatures were between -35C and -40C for a week, but apart from this cold spells were short-lived and the temperature rarely fell below -12C. Snowfall east of the mountains was well below average and that which fell was quickly removed by warm downslope winds.

At first I believed that most if not all of the birds recorded were migrants and this was supported by the gradual disappearance from the record of species such as Northern Harrier and Red-tailed Hawk (last records December 4) and Northern Goshawk (last record December 15), but as the count continued I began to suspect that at least some of the birds were moving into the mountains (along with the ravens) to roost overnight. This was certainly the case in early February where a distinctly plumaged subadult Bald Eagle was recorded at almost the same time on successive days, and on February 5 (the last day of my count) when 11 Bald Eagles (3 adults and 8 subadults) that had glided from the north all soared high over the ridge between 1645 and 1655 before gradually descending in the late evening light to disappear behind the ridge presumably to roost in the nearby valley of Mill Creek.

This count raises a number of questions future counts will be needed to clarify the dynamic of the movement.

Table 8 also includes the daily numbers of roosting Common Ravens that move to the south along the ridge, and counts of migrating Canada Geese (including 1 Cackling Goose on December 8) that may also have been migrating well into the new year.

Observer at Beauvais Ridge

All counts were conducted by Peter Sherrington.

Acknowledgment

Many thanks to Phil Hazelton for allowing me to use his deck as a viewing platform, and for his logistical support, especially the provision of hot drinks on cold days.

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Table 6 Steeples summary fall counts 2009-2011

Table 7 Steeples daily counts October 1 to November 15

Table 8 Beauvais Ridge November 25 2011 to February 5 2012

Table 2
Mount Lorette, Alberta, autumn 2011
September 20 to November 15

Date	HRS	TV	OS	BE	NH	SS	CH	NG	BW	SW	RT	FH	RL	GE	AK	ML	GY	PG	PR	UA	UB	UE	UF	UU	TOTAL
2011-09-20	12	0	0	2	0	1	0	[1]	0	0	[1]	0	0	5	0	0	0	0	0	0	0	0	0	0	8
2011-09-21	12	0	0	0	0	1	0	0	0	0	[1]	0	0	5	0	0	0	0	0	0	0	0	0	0	6
2011-09-22	11.83	0	0	0	0	0	0	0	0	0	[1]	0	0	8	0	0	0	0	0	1	0	0	0	0	9
2011-09-23	12.5	0	0	0	0	2	1	0	0	0	[1]	0	0	10	0	0	0	0	0	0	0	0	0	0	13
2011-09-24	13	0	0	0	0	4	0	1	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	9
2011-09-25	12.5	0	1	4	0	5	0	2	0	0	3	0	0	6	1	0	0	1	0	0	0	0	0	0	23
2011-09-26	13.16	0	0	0	0	8	0	0	0	0	1	0	0	1	0	0	0	2	0	0	0	0	0	0	12
2011-09-27	12	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
2011-09-28	12.25	0	0	2	1	1	0	0	0	0	0	0	1	70	0	0	0	0	0	0	0	0	0	1	76
2011-09-29	11	0	0	1	0	1	1	0	0	0	0	0	0	37	0	0	0	1	0	0	0	0	0	0	41
2011-09-30	12.33	0	0	1	1	0	1	0	0	0	1	0	0	23	1	0	0	0	0	0	0	0	0	0	28
September	134.6	0	1	11	2	25	3	3	0	0	5	0	1	169	2	0	0	4	0	1	0	0	0	1	228
2011-10-01	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011-10-02	12.33	0	0	3	0	5	2	3	0	0	0	0	0	9	0	0	0	0	0	1	1	0	1	0	25
2011-10-03	12.33	0	1	0	0	4	1	0	0	0	0	0	0	18	0	0	0	1	0	0	0	0	0	0	25
2011-10-04	12	0	0	2	0	7	0	1	0	0	1	0	0	189	0	0	0	1	0	0	0	0	0	0	201
2011-10-05	9.25	0	0	5	0	7	2	0	0	0	2	0	0	5	0	0	0	2	0	0	0	0	0	0	23
2011-10-06	NO OBSERVATION																								0
2011-10-07	NO OBSERVATION																								0
2011-10-08	12.75	0	0	4	0	5	7	2	0	0	6	0	1	556	0	0	0	0	0	0	1	1	0	0	583
2011-10-09	12.5	0	0	2	0	2	1	6	0	0	0	0	0	129	0	0	0	1	0	0	0	0	0	0	141
2011-10-10	12.08	0	0	6	0	10	1	2	0	0	0	0	9	342	0	1	0	0	0	0	0	0	0	0	371
2011-10-11	11.25	0	0	3	0	3	3	2	0	0	0	0	1	267	0	3	0	0	0	0	0	0	1	0	283
2011-10-12	11.08	0	0	0	0	2	2	0	0	0	2	0	0	89	0	0	0	0	0	0	0	0	0	0	95
2011-10-13	11	0	0	2	0	2	1	4	0	0	1	0	0	78	0	0	0	0	0	0	0	0	0	0	88
2011-10-14	11.75	0	0	0	0	0	1	0	0	0	2	0	0	143	0	0	0	0	0	0	0	0	0	0	146
2011-10-15	11.42	0	0	0	0	1	2	0	0	0	0	0	0	101	0	0	0	0	0	0	0	0	0	0	104
2011-10-16	12.5	0	0	5	0	0	1	4	0	0	0	0	7	138	0	0	0	0	0	0	0	0	0	0	155
2011-10-17	11.42	0	0	5	0	0	0	2	0	0	0	0	1	167	0	1	1	1	0	0	0	0	0	0	178
2011-10-18	11.75	0	0	1	0	1	1	0	0	0	2	0	0	74	0	0	0	0	0	0	0	0	0	0	79
2011-10-19	11.75	0	0	3	0	2	0	0	0	0	2	0	1	145	0	0	0	0	0	0	0	0	0	0	153
2011-10-20	11.25	0	0	3	0	0	0	1	0	0	0	0	0	27	0	0	0	0	0	0	0	0	0	0	31
2011-10-21	10.25	0	0	3	0	1	1	0	0	0	2	0	0	116	0	0	0	0	0	0	0	0	1	0	124
2011-10-22	11.71	0	0	[2]	0	8	0	[1]	0	0	1	0	0	35	0	0	0	0	0	0	0	0	0	0	44
2011-10-23	12.25	0	0	6	0	2	0	1	0	0	0	0	3	148	0	0	0	0	0	0	0	0	0	0	160
2011-10-24	11.25	0	0	10	0	14	1	5	0	0	0	0	5	102	0	0	0	0	0	0	0	0	0	0	137
2011-10-25	11.5	0	0	12	0	5	0	1	0	0	0	0	1	156	0	0	0	0	0	0	0	0	0	0	175
2011-10-26	10.75	0	0	[1]	0	0	1	[1]	0	0	[1]	0	0	8	0	0	1	0	0	0	0	0	0	1	11
2011-10-27	11	0	0	7	0	0	0	[2]	0	0	0	0	0	24	0	0	0	0	0	0	0	0	0	0	31
2011-10-28	10.5	0	0	0	0	2	0	1	0	0	0	0	1	14	0	0	0	0	0	0	0	0	0	0	18
2011-10-29	11	0	0	2	0	0	0	[2]	0	0	0	0	1	32	0	0	0	0	0	0	0	0	0	0	35
2011-10-30	10.5	0	0	2	0	1	0	2	0	0	0	0	0	15	0	0	0	0	0	0	0	1	0	0	21
2011-10-31	10	0	0	4	0	0	0	1	0	0	0	0	0	41	0	0	0	0	0	0	0	0	0	0	46
October	324.1	0	1	90	0	84	28	38	0	0	21	0	31	3168	0	5	2	6	0	1	2	2	3	1	3483
2011-11-01	7.5	0	0	3	0	1	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	14
2011-11-02	10.25	0	0	0	0	1	0	[1]	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	3
2011-11-03	10	0	0	2	0	1	0	0	0	0	0	0	0	12	0	0	0	0	0	1	0	0	0	0	16
2011-11-04	5	0	0	1	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	4
2011-11-05	7.5	0	1	10	0	0	2	1	0	0	1	0	3	41	0	0	0	0	0	0	0	0	0	0	59
2011-11-06	10.58	0	0	9	0	0	0	0	0	0	0	0	0	13	0	0	0	0	1	0	0	0	0	0	23
2011-11-07	10	0	0	1	0	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	0	0	0	0	8
2011-11-08	10	0	0	1	0	0	0	0	0	0	0	0	2	6	0	0	0	0	0	0	0	0	0	0	9
2011-11-09	9.5	0	0	4	0	0	0	0	0	0	0	0	1	18	0	0	0	0	1	0	0	0	0	0	24
2011-11-10	9.42	0	0	[1]	0	0	0	0	0	0	0	0	1	3	0	1	0	0	0	0	0	0	0	0	5
2011-11-11	10.33	0	0	2	0	0	0	[1]	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
2011-11-12	6.58	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
2011-11-13	9.75	0	0	2	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	9
2011-11-14	6.5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
2011-11-15	9.17	0	0	1	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	9
November	132.1	0	1	36	0	4	2	1	0	0	2	0	9	129	0	1	0	0	2	1	0	0	0	0	188
TOTALS	590.8	0	3	137	2	113	33	42	0	0	28	0	41	3466	2	6	2	10	2	3	2	2	3	2	3899
Date	HRS	TV	OS	BE	NH	SS	CH	NG	BW	SW	RT	FH	RL	GE	AK	ML	GY	PG	PR	UA	UB	UE	UF	UU	TOTAL

Table 3

MOUNT LORETTE SUMMARY TOTALS, September 20 - November 15, 1993-1996, 1998-2001, 2003-2005, 2009-2011

	days	hrs.	TV	OS	BE	NH	SS	CH	NG	BW	SW	RT	FH	RL	GE	AK	ME	GY	PG	PR	UA	UB	UE	UF	UU	T
1993	55	474.8	0	2	455	13	217	46	82	5	0	47	1	59	4532	1	4	8	4	1	2	0	0	1	0	5480
1994	56	516.8	0	0	294	7	175	29	25	15	0	39	0	37	3788	2	15	2	5	4	1	2	1	0	0	4441
1995	54	463.3	0	2	296	27	251	31	11	5	2	52	0	67	3591	4	12	3	4	2	1	3	0	1	0	4365
1996	53	485.6	0	2	271	11	173	23	8	25	0	32	1	65	3881	8	9	0	5	2	0	4	0	0	0	4520
1998	52	483.2	1	1	174	12	80	20	28	14	0	59	1	82	3209	8	2	5	5	1	6	2	0	1	3	3714
1999	57	596.6	0	4	193	13	134	21	25	18	1	32	0	67	3302	1	6	5	8	1	5	1	1	2	7	3847
2000	57	623.6	0	2	510	15	175	25	140	3	0	17	0	68	4587	1	12	2	2	1	7	0	1	1	6	5575
2001	57	646.5	0	4	330	11	183	18	101	3	0	43	0	52	3592	2	9	5	6	0	4	2	0	3	0	4368
2003	55	615.6	0	3	258	4	131	25	59	1	1	40	0	33	3744	3	8	1	5	1	11	2	2	0	10	4342
2004	57	658.7	0	4	338	15	125	26	57	5	1	14	0	70	3610	2	8	9	11	4	10	1	4	1	16	4331
2005	57	662.1	0	3	242	6	89	19	41	6	1	16	1	78	3821	2	3	1	2	3	14	2	2	2	8	4362
2009	46	492.3	0	4	100	5	57	10	25	1	0	18	0	16	2367	1	4	1	4	2	3	0	1	1	3	2623
2010	55	577.2	0	4	165	6	67	15	34	1	0	44	1	23	3222	2	2	0	4	4	16	9	12	1	10	3642
2011	55	590.8	0	3	137	2	113	33	42	0	0	28	0	41	3466	2	6	2	10	2	3	2	2	3	2	3899
TOTAL	766	7887	1	38	3763	147	1970	341	678	102	6	481	5	758	50712	39	100	44	75	28	83	30	26	17	65	59509
Av 93-10	54.7	561.3	0.1	2.7	278.9	11.2	142.8	23.7	48.9	7.8	0.5	34.8	0.4	55.2	3634.3	2.8	7.2	3.2	5.0	2.0	6.2	2.2	1.8	1.1	4.8	4277.7
11 cf Av	0.6	5.3	-100.0	11.4	-50.9	-82.1	-20.9	39.3	-14.2	-100.0	-100.0	-19.6	-100.0	-25.7	-4.6	-29.7	-17.0	-38.1	100.0	0.0	-51.3	-7.1	8.3	178.6	-58.7	-8.9

to Nov 9

Table 4

OCTOBER SUMMARY TOTALS, MOUNT LORETTE (excluding 1992,1997,2002,2006,2007)

	days	hrs.	TV	OS	BE	NH	SS	CH	NG	BW	SW	RT	FH	RL	GE	AK	ME	GY	PG	PR	UA	UB	UE	UF	UU	T
1993	30	263.8	0	0	342	6	119	9	60	5	0	7	0	46	3347	0	2	3	3	0	0	0	0	1	0	3950
1994	30	284.8	0	0	187	5	75	14	14	14	0	16	0	22	3404	0	6	1	4	1	0	2	0	0	0	3765
1995	29	254.3	0	0	125	6	174	8	8	3	0	25	0	51	3052	3	8	3	2	2	0	1	0	1	0	3472
1996	31	313.6	0	0	193	8	70	10	5	8	0	13	0	63	3552	2	5	0	1	2	0	3	0	0	0	3935
1998	30	287.5	0	0	95	4	40	4	10	3	0	14	0	61	2837	2	0	1	4	0	0	1	0	1	1	3078
1999	31	336.1	0	1	126	6	85	10	21	15	0	9	0	58	2752	0	2	5	6	1	3	0	1	2	3	3106
2000	31	353.4	0	1	337	7	112	15	110	3	0	12	0	65	3817	1	7	1	1	1	1	0	0	1	3	4495
2001	31	354.4	0	0	208	8	126	9	66	3	0	23	0	48	2903	0	4	3	4	0	2	1	0	2	0	3410
2003	30	342.5	0	0	150	3	60	5	42	0	0	11	0	31	3216	0	3	0	2	1	5	2	1	0	5	3537
2004	31	358.1	0	0	175	3	49	8	34	4	1	5	0	63	2588	1	4	6	4	3	9	0	1	0	9	2967
2005	31	369.4	0	1	188	4	44	10	32	1	0	6	1	73	3297	1	2	0	0	2	5	1	2	1	5	3676
2008	30	314.4	0	1	66	7	25	10	18	3	0	4	0	12	2047	1	6	0	1	1	2	6	13	4	7	2234
2009	29	307.2	0	1	77	2	19	3	13	1	0	2	0	13	1831	0	4	1	4	0	3	0	2	1	2	1979
2010	29	318.5	0	2	78	4	27	8	16	1	0	21	1	20	2648	1	2	0	4	3	11	8	9	1	5	2870
2011	29	324.1	0	1	90	0	84	28	38	0	0	21	0	31	3168	0	5	2	6	0	1	2	2	3	1	3483
TOTAL	452	4782	0	8	2437	73	1109	151	487	64	1	189	2	657	44459	12	60	26	46	17	42	27	31	18	41	49957
Av 93-10	30.2	318.4	0.0	0.5	167.6	5.2	73.2	8.8	32.1	4.6	0.1	12.0	0.1	44.7	2949.4	0.9	3.9	1.7	2.9	1.2	2.9	1.8	2.1	1.1	2.9	3319.6
11 cf Av	-4.0	1.8	#DNV/0!	100.0	-46.3	-100.0	14.7	218.7	18.5	-100.0	-100.0	75.0	-100.0	-30.7	7.4	-100.0	27.3	16.7	110.0	-100.0	-65.9	12.0	-3.4	180.0	-65.0	4.9

Table 5
Piitaistakis-South Livingstone, October 2011

Date	HRS	TV	OS	BE	NH	SS	CH	NG	BW	SW	RT	FH	RL	GE	AK	ML	GY	PG	PR	UA	UB	UE	UF	UU	TOTAL
2011-10-01	6.33	0	0	1	0	4	0	1	0	0	3	0	0	11	0	0	0	0	0	0	0	0	0	0	20
2011-10-02	6.5	0	0	0	0	24	4	3	0	0	4	0	0	28	0	1	0	0	0	3	0	0	0	2	69
2011-10-03	NO OBSERVATION																								0
2011-10-04	NO OBSERVATION																								0
2011-10-05	NO OBSERVATION																								0
2011-10-06	NO OBSERVATION																								0
2011-10-07	NO OBSERVATION																								0
2011-10-08	8.67	0	1	9	0	31	6	2	0	0	11	0	0	453	0	0	0	0	0	4	0	0	0	2	519
2011-10-09	7.67	0	0	4	0	13	3	2	0	0	3	0	4	474	0	1	0	1	0	1	1	0	1	0	508
2011-10-10	NO OBSERVATION																								0
2011-10-11	NO OBSERVATION																								0
2011-10-12	NO OBSERVATION																								0
2011-10-13	NO OBSERVATION																								0
2011-10-14	NO OBSERVATION																								0
2011-10-15	8	0	0	3	0	7	0	3	0	0	0	0	0	128	0	0	0	0	0	1	0	2	2	0	146
2011-10-16	7.25	0	0	2	0	3	1	1	0	0	1	0	0	56	0	0	0	0	0	0	0	0	0	0	64
2011-10-17	NO OBSERVATION																								0
2011-10-18	NO OBSERVATION																								0
2011-10-19	NO OBSERVATION																								0
2011-10-20	NO OBSERVATION																								0
2011-10-21	NO OBSERVATION																								0
2011-10-22	5.67	0	0	0	1	0	0	0	0	0	0	0	0	54	0	0	0	0	0	0	0	0	0	0	55
2011-10-23	7.67	0	0	5	0	0	0	1	0	0	1	0	0	133	0	1	0	2	0	0	0	0	0	0	143
2011-10-24	NO OBSERVATION																								0
2011-10-25	NO OBSERVATION																								0
2011-10-26	NO OBSERVATION																								0
2011-10-27	NO OBSERVATION																								0
2011-10-28	NO OBSERVATION																								0
2011-10-29	7	0	0	6	0	2	0	3	0	0	0	0	0	29	0	0	0	0	0	0	0	0	0	0	40
2011-10-30	NO OBSERVATION																								0
2011-10-31	NO OBSERVATION																								0
October	64.76	0	1	30	1	84	14	16	0	0	23	0	4	1366	0	3	0	3	0	9	1	2	3	4	1564
Date	HRS	TV	OS	BE	NH	SS	CH	NG	BW	SW	RT	FH	RL	GE	AK	ML	GY	PG	PR	UA	UB	UE	UF	UU	TOTAL

Mount Lorette, Alberta, October 2011
Comparative dates to P-SL

Date	HRS	TV	OS	BE	NH	SS	CH	NG	BW	SW	RT	FH	RL	GE	AK	ML	GY	PG	PR	UA	UB	UE	UF	UU	TOTAL
2011-10-01	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011-10-02	12.33	0	0	3	0	5	2	3	0	0	0	0	0	9	0	0	0	0	0	1	1	0	1	0	25
2011-10-03	NO OBSERVATION																								0
2011-10-04	NO OBSERVATION																								0
2011-10-05	NO OBSERVATION																								0
2011-10-06	NO OBSERVATION																								0
2011-10-07	NO OBSERVATION																								0
2011-10-08	12.75	0	0	4	0	5	7	2	0	0	6	0	1	556	0	0	0	0	0	0	1	1	0	0	583
2011-10-09	12.5	0	0	2	0	2	1	6	0	0	0	0	0	129	0	0	0	1	0	0	0	0	0	0	141
2011-10-10	NO OBSERVATION																								0
2011-10-11	NO OBSERVATION																								0
2011-10-12	NO OBSERVATION																								0
2011-10-13	NO OBSERVATION																								0
2011-10-14	NO OBSERVATION																								0
2011-10-15	11.42	0	0	0	0	1	2	0	0	0	0	0	0	101	0	0	0	0	0	0	0	0	0	0	104
2011-10-16	12.5	0	0	5	0	0	1	4	0	0	0	0	7	138	0	0	0	0	0	0	0	0	0	0	155
2011-10-17	NO OBSERVATION																								0
2011-10-18	NO OBSERVATION																								0
2011-10-19	NO OBSERVATION																								0
2011-10-20	NO OBSERVATION																								0
2011-10-21	NO OBSERVATION																								0
2011-10-22	11.71	0	0	[2]	0	8	0	[1]	0	0	1	0	0	35	0	0	0	0	0	0	0	0	0	0	44
2011-10-23	12.25	0	0	6	0	2	0	1	0	0	0	0	3	148	0	0	0	0	0	0	0	0	0	0	160
2011-10-24	NO OBSERVATION																								0
2011-10-25	NO OBSERVATION																								0
2011-10-26	NO OBSERVATION																								0
2011-10-27	NO OBSERVATION																								0
2011-10-28	NO OBSERVATION																								0
2011-10-29	11	0	0	2	0	0	0	[2]	0	0	0	0	1	32	0	0	0	0	0	0	0	0	0	0	35
2011-10-30	NO OBSERVATION																								0
2011-10-31	NO OBSERVATION																								0
October	101.5	0	0	22	0	23	13	16	0	0	7	0	12	1148	0	0	0	1	0	1	2	1	1	0	1247
Date	HRS	TV	OS	BE	NH	SS	CH	NG	BW	SW	RT	FH	RL	GE	AK	ML	GY	PG	PR	UA	UB	UE	UF	UU	TOTAL

Compare Mount Lorette and Piitaistakis-South Livingstone, October 2011

	HRS	TV	OS	BE	NH	SS	CH	NG	BW	SW	RT	FH	RL	GE	AK	ML	GY	PG	PR	UA	UB	UE	UF	UU	TOTAL
P-SL	64.76	0	1	30	1	84	14	16	0	0	23	0	4	1366	0	3	0	3	0	9	1	2	3	4	1564
ML	101.5	0	0	22	0	23	13	16	0	0	7	0	12	1148	0	0	0	1	0	1	2	1	1	0	1247

Table 7
Steeple, British Columbia, autumn 2011
October 01 to November 15

Date	HRS	TV	OS	BE	NH	SS	CH	NG	BW	SW	RT	FH	RL	GE	AK	ML	GY	PG	PR	UA	UB	UE	UF	UU	TOTAL
2011-10-01	NO OBSERVATION																							0	
2011-10-02	2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011-10-03	NO OBSERVATION																							0	
2011-10-04	NO OBSERVATION																							0	
2011-10-05	NO OBSERVATION																							0	
2011-10-06	NO OBSERVATION																							0	
2011-10-07	NO OBSERVATION																							0	
2011-10-08	3	0	0	50	0	6	0	1	0	0	3	0	1	28	0	0	0	0	0	0	0	0	0	0	89
2011-10-09	5.5	0	0	3	0	5	0	0	0	0	7	0	0	16	1	0	0	1	0	0	0	0	0	0	33
2011-10-10	NO OBSERVATION																							0	
2011-10-11	NO OBSERVATION																							0	
2011-10-12	NO OBSERVATION																							0	
2011-10-13	1.5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	
2011-10-14	3.5	0	0	1	0	3	0	1	0	0	5	0	0	8	0	0	0	0	0	0	0	0	0	0	18
2011-10-15	NO OBSERVATION																							0	
2011-10-16	5	0	0	8	0	1	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	13
2011-10-17	NO OBSERVATION																							0	
2011-10-18	5	0	0	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
2011-10-19	NO OBSERVATION																							0	
2011-10-20	NO OBSERVATION																							0	
2011-10-21	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
2011-10-22	5	0	0	7	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	12
2011-10-23	3.5	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
2011-10-24	1.5	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	5
2011-10-25	2	0	0	16	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	19
2011-10-26	NO OBSERVATION																							0	
2011-10-27	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011-10-28	3.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011-10-29	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2011-10-30	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011-10-31	1.5	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
October	54.5	0	0	94	0	15	0	2	0	0	18	0	1	67	1	0	0	1	0	0	0	1	0	0	200
2011-11-01	4	0	0	29	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	31
2011-11-02	2	0	0	1	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	6
2011-11-03	NO OBSERVATION																							0	
2011-11-04	NO OBSERVATION																							0	
2011-11-05	4.5	0	1	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	14
2011-11-06	3.5	0	0	4	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	7
2011-11-07	NO OBSERVATION																							0	
2011-11-08	2.5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
2011-11-09	NO OBSERVATION																							0	
2011-11-10	NO OBSERVATION																							0	
2011-11-11	NO OBSERVATION																							0	
2011-11-12	NO OBSERVATION																							0	
2011-11-13	2.5	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
2011-11-14	NO OBSERVATION																							0	
2011-11-15	NO OBSERVATION																							0	
November	19	0	1	36	0	0	0	0	0	0	0	0	0	26	0	0	0	0	0	0	0	0	0	0	63
TOTALS	73.5	0	1	130	0	15	0	2	0	0	18	0	1	93	1	0	0	1	0	0	0	1	0	0	263
Date	HRS	TV	OS	BE	NH	SS	CH	NG	BW	SW	RT	FH	RL	GE	AK	ML	GY	PG	PR	UA	UB	UE	UF	UU	TOTAL

Table 8
Beauvais Ridge, Alberta, autumn and winter 2011
2011 November 25 to 2012 February 05

Date	HRS	TV	OS	BE	NH	SS	CH	NG	BW	SW	RT	FH	RL	GE	AK	ML	GY	PG	PR	UA	UB	UE	UF	UU	TOTAL	raptors/hr	CAGO	CORA
2011-11-25	1.75	0	0	8	0	0	0	0	0	0	0	0	3	7	0	0	0	0	1	0	0	0	0	0	19	10.86	0	312
2011-11-26	2	0	0	24	0	0	0	1	0	0	0	0	7	1	0	0	0	0	0	0	0	0	0	0	33	16.50	0	254
2011-11-27	1.33	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0.75	0	87	
2011-11-28	2.5	0	0	21	0	0	0	0	0	1	0	3	1	0	1	0	0	0	0	0	0	0	0	27	10.80	0	306	
2011-11-29	4	0	0	9	0	0	0	1	0	0	0	9	2	0	0	0	0	0	0	0	0	0	0	21	5.25	0	157	
2011-11-30	1.75	0	0	14	2	0	0	0	0	1	0	25	2	0	0	0	0	0	0	0	0	0	0	44	25.14	103	343	
November	13.33	0	0	76	2	0	0	2	0	2	0	48	13	0	1	0	0	1	0	0	0	0	0	145	10.88	103	1459	
2011-12-01	3.5	0	0	18	0	0	0	0	0	0	0	7	2	0	0	0	0	0	0	0	0	0	0	27	7.71	0	210	
2011-12-02	1.75	0	0	21	0	0	0	0	0	1	0	8	1	0	0	0	0	0	0	0	0	0	0	31	17.71	8	279	
2011-12-03	4	0	0	17	0	0	2	0	0	0	0	11	2	0	0	0	0	0	0	0	0	0	0	32	8.00	0	109	
2011-12-04	3	0	0	1	1	0	0	0	0	1	0	9	0	0	0	0	0	0	0	0	0	0	0	12	4.00	179	358	
2011-12-05	3.5	0	0	4	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	10	2.86	0	97	
2011-12-06	NO OBSERVATION																							0				
2011-12-07	NO OBSERVATION (Weather)																							0				
2011-12-08	1.5	0	0	0	0	0	0	[1]	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3	2.00	99	51	
2011-12-09	1.75	0	0	6	0	0	0	0	0	0	0	7	4	0	0	0	0	0	0	0	0	0	0	17	9.71	0	48	
2011-12-10	2.75	0	0	7	0	0	0	0	0	0	0	11	2	0	0	0	0	1	0	0	0	0	0	21	7.64	0	111	
2011-12-11	NO OBSERVATION (Weather)																1							1				
2011-12-12	2.25	0	0	0	0	0	0	0	0	0	0	6	[1]	0	0	0	0	0	0	0	0	0	0	6	2.67	7	81	
2011-12-13	1.25	0	0	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	6	4.80	0	61	
2011-12-14	3.16	0	0	7	0	0	0	0	0	0	0	8	1	0	0	0	0	0	0	0	0	0	0	16	5.06	6	318	
2011-12-15	2.5	0	0	11	0	0	0	1	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	18	7.20	0	108	
2011-12-16	2	0	0	4	0	0	0	0	0	0	0	7	4	0	0	0	0	0	0	0	0	0	0	15	7.50	0	196	
2011-12-17	2	0	0	19	0	0	0	0	0	0	0	4	[1]	0	0	0	0	0	0	0	0	0	0	23	11.50	0	216	
2011-12-18	NO OBSERVATION (Weather)																							0				
2011-12-19	NO OBSERVATION																							0				
2011-12-20	1.5	0	0	33	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	36	24.00	0	142	
2011-12-21	2.5	0	0	5	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	0	0	0	0	10	4.00	0	522	
2011-12-22	1.33	0	0	19	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	25	18.80	0	134	
2011-12-23	NO OBSERVATION																							0				
2011-12-24	0.92	0	0	14	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0	0	0	0	0	19	20.65	0	178	
2011-12-25	1.5	0	0	9	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	12	8.00	0	290	
2011-12-26	2.58	0	0	22	0	0	0	0	0	0	0	6	3	0	0	0	0	0	0	0	0	0	0	31	12.02	0	483	
2011-12-27	2.5	0	0	30	0	0	0	0	0	0	0	9	1	0	0	0	0	0	0	0	0	0	0	40	16.00	0	246	
2011-12-28	2.5	0	0	29	0	0	0	0	0	0	0	10	1	0	0	0	0	1	0	0	0	0	0	41	16.40	0	456	
2011-12-29	2.75	0	0	35	0	0	0	0	0	0	0	2	[1]	0	0	0	0	1	0	0	0	0	0	38	13.82	0	248	
2011-12-30	2.5	0	0	19	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	25	10.00	0	231	
2011-12-31	2.25	0	0	14	0	0	0	0	0	0	0	7	1	0	0	0	0	0	0	0	1	0	0	23	10.22	0	145	
December	57.74	0	0	347	1	0	0	4	0	0	2	0	150	27	0	0	1	0	5	0	0	1	0	538	9.32	299	5318	
2012-01-01	NO OBSERVATION																							0				
2012-01-02	2.5	0	0	10	0	0	0	0	0	0	0	13	2	0	0	0	0	0	0	0	0	0	0	25	10.00	0	376	
2012-01-03	2.67	0	0	17	0	0	0	0	0	1	0	7	2	0	0	0	0	1	0	0	0	0	0	28	10.49	0	217	
2012-01-04	2.33	0	0	5	0	0	0	0	0	0	0	10	1	0	0	0	0	1	0	0	0	0	0	17	7.30	0	146	
2012-01-05	NO OBSERVATION (Weather)																							0				
2012-01-06	2.16	0	0	12	0	0	0	0	0	0	0	5	2	0	0	0	0	0	0	0	0	0	0	19	8.80	26	185	
2012-01-07	2.25	0	0	15	0	0	0	0	0	0	0	7	[1]	0	1	0	0	0	0	0	0	0	0	23	10.22	0	102	
2012-01-08	2.33	0	0	16	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	20	8.58	0	220	
2012-01-09	2.5	0	0	10	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	16	6.40	0	212	
2012-01-10	NO OBSERVATION (Weather)																							0				
2012-01-11	2.33	0	0	3	0	0	0	0	0	0	0	3	[1]	0	0	0	0	0	0	0	0	0	0	6	2.58	0	128	
2012-01-12	1.75	0	0	10	0	0	0	0	0	0	0	6	1	0	0	0	0	0	0	0	0	0	0	17	9.71	0	193	
2012-01-13	2.42	0	0	12	0	0	0	0	0	0	0	4	1	0	0	0	0	1	0	0	0	0	0	18	7.44	0	297	
Jan 14-24	NO OBSERVATION																											
2012-01-25	1.16	0	0	3	0	0	0	0	0	0	0	0	[2]	0	0	0	0	0	0	0	0	0	0	3	2.59	0	62	
January	24.4	0	0	113	0	0	0	0	0	0	1	0	65	9	0	1	0	0	3	0	0	0	0	192	7.87	26	2138	
2012-02-01	1.67	0	0	9	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	12	7.19	0	46	
2012-02-02	NO OBSERVATION																							0				
2012-02-03	2.5	0	0	2	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	5	2.00	221	251	
2012-02-04	1.5	0	0	7	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	11	7.33	0	77	
2012-02-05	1.08	0	0	17	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	19	17.59	1	170	
February	6.75	0	0	35	0	0	0	0	0	0	0	11	0	0	1	0	0	0	0	0	0	0	0	47	6.96	222	544	
TOTALS	102.2	0	0	571	3	0	0	6	0	0	5	0	274	49	0	3	1	0	9	0	0	1	0	922	9.02	650	9459	
Date	HRS	TV	OS	BE	NH	SS	CH	NG	BW	SW	RT	FH	RL	GE	AK	ML	GY	PG	PR	UA	UB	UE	UF	UU	TOTAL	raptors/hr	CAGO	CORA
Av hrs/day																												