

MOUNT LORETTE, SPRING 2011
with notes on the Steeples, BC site



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Summary and highlights

This was the 20th consecutive year that a spring count has been held at Mount Lorette, and is the 4th consecutive extended (but incomplete) count at the site. The count period was March 1 to April 22, a week longer than for 2008-2010 (March 1-April 15), and the statistics in this report are normalized to this longer period for all spring counts at the site. Data from the 2008-2010 counts are now considered to be anomalously low and are excluded from the long-term statistical and trend analyses. The count of 2982 Golden Eagles is the highest at the site since 2002, but is still 4.2% below the long-term average and is 28.4% below the average of the 1993-5 counts; the strong declining trend for the species since 1996 is essentially unaffected. A second extended spring reconnaissance count at Steeples Ridge in BC on the western flanks of the Rocky Mountains near Cranbrook, BC, again yielded significantly higher age ratios for Golden Eagles than at Mount Lorette, which possibly suggest different breeding ranges for eagles moving on the western and eastern flanks of the Rockies.

Introduction

The Mount Lorette site is located in the Kananaskis Valley in the Front Ranges of the Rocky Mountains (50°58'N 115°08'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 spring counts were conducted annually at Mount Lorette to 2007, with an average time spent at the site of the 15 counts being 79.9 days (863.5 hours). From 2006 to 2009 the princi-

pal 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 were conducted between March 01 and April 15 and comprised 44 days, 46 days and 48 days of active observation respectively. Table 1 summarizes all the spring counts since 1993 conducted at Mount Lorette to date while Table 2 summarizes the counts for a standardized count period of March 01-April 15. It is clear from these tables that the counts conducted in 2008, 2009 and 2010 are anomalously low compared to all previous counts and the spring 2011 count. The combined species count for the years 2008, 2009 and 2010 (with comparison for Golden Eagle in parentheses) are only 39% (39%), 30.5% (29.4%) and 40% (43.7%) of the average 1993-2007 and the 2011 counts. By contrast the fourth lowest spring count at the site in 2007 is 68.2% (65.6%) of average. The anomalous nature of the three counts probably results from a combination of poor weather conditions and, in some cases, observer inexperience, but whatever the cause it seems prudent at this time to exclude these counts from the statistical comparisons of the spring 2011 count with the long-term averages 1993-2007.

The spring 2011 count was conducted between March 01 and April 22, one week longer than those from 2008-2010. Table 3 summarizes the counts conducted at Mount Lorette for the period March 1 to April 22 (excluding 2008-2010), while Table 4 summarizes the percentage differences between the two shorter count periods and the average of full counts conducted between 1993 and 2007. The combined species count for the period March 01-April 22 increases to 93.6% of the complete count long-term average from 89.4% for the period March 01-April 15, while days (hours) in the field go from 55.6% (55.8%) to 63.8% (65%) of average. Average counts for Golden Eagle increase from 93.6% to 96.7%, while Bald Eagle increases from 82.6% to 89.3% of the full-season count averages. More dramatic is the increase with the extra week of species that move later in the season with 9 species (Osprey, Northern Harrier, Sharp-shinned Hawk, Cooper's Hawk, Red-tailed Hawk, Rough-legged Hawk, American Kestrel, Merlin and Peregrine Falcon) showing a significant increase of over 30% compared to the shorter count period. Earlier-moving species such as Northern Goshawk and Gyrfalcon show lower increases while the latest-moving species such as Broad-winged Hawk and Swainson's Hawk are essentially unaffected by the longer count. The longer extended count period also significantly increases the number of juvenile birds recorded for several species which allows for more meaningful immature:adult ratio comparisons to be made in some cases. It must be remembered, however, that most juvenile movement takes place in late April and May so comparisons made from shorter count data must be treated with caution.

In summary this report gives data variances (number, median passage dates, age ratios) for the period March 01-April 22 2011 with averages for the same period of the 15 years 1993-2007.

Once again because of logistical considerations no count was held this season at the Piitaistakis-South Livingstone site, and so this 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 48 days (556.07 hours) of a possible 53 days at the site between March 01 and April 22, the days and hours being 3.6% below average and 1.4% above average respectively. At the Steeples reconnaissance count in BC Vance Mattson spent 28 days (118.5 hours) of a possible 49 days at the site between March 3 and April 18. This is the second consecutive spring 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.eagle-watch.ca

Mount Lorette

Weather

The winter in the mountains to the start of the count reflected La Niña Pacific Ocean water conditions that produced higher than average snowfalls and lower than average temperatures with only brief periods of warm, clear weather. Had the count started in mid February the weather would have permitted only a few days of observation during the month. These conditions also prevailed throughout much of the count period. A total of 5 days were completely lost to adverse weather (heavy snow on March 1, 2, 4, 10 and April 2) and the count on April

6 was restricted to 6 hours because of the weather. Thirty-one active observation days (64.6%) experienced some snow, snow showers or flurries so for the complete count period 75% of days experienced some form of snow. The observation site had continuous snow cover throughout the count period and the depth of snow was essentially the same on April 22 as it was at the beginning of March. The coldest temperature was -22C early on March 8 and the warmest was only 8C experienced on March 13, 15 and April 2. The coldest daily maximum temperature was -13C on March 7. On 9 active observation days (18.75%) the temperature failed to rise above freezing while on only 6 days (12.5%) the temperature did not fall below freezing.

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 W-SSW prevailed on 37 days (77.1%), those in the quadrant N-E (mainly N-NE) prevailed on 8 days (16.67%), and the winds were variable on 3 days (6.25%). More specifically SW winds were the most common (17 days, 35.4%) followed by SW-SSW (10 days, 20.8%). On active observation days ridge wind speeds were moderate to strong (11-41+ km/h) 29.2% of the time and strong (>41 km/h) for 22.9% of the time but very strong gusts were rare and the maximum velocity was only 150 km/h recorded on March 14. Moderate winds (11-40 km/h) occurred on 14.6% of active days, light to moderate (1-40 km/h) winds occurred 20.8% of the time while calm-light winds (0-10 km/h) occurrence was 10.4%. One day (2.1%) had winds that varied between light and strong. Generally ridge wind velocities were lower than the average for the count period. Only 2 days (3.8%) had a cloud cover between 0 and 10% all day, while 17 days (32.1%) experienced cloud cover between 80 and 100%.

In summary, the period March 1-7 was cold with frequent heavy snow, March 8-17 was relatively warm with strong SW ridge winds and frequent snow showers and flurries, March 17-27 was cool with light to moderate mainly SSW-SW ridge winds with common snow events, March 27-April 15 was warmer with moderate to strong SW ridge winds and snow or flurries occurring on most days, April 16-18 saw a return to cooler conditions and April 19-22 saw a slight warming trend but snow continued to fall.

General flight dynamics March 01 to April 22

A total of 3362 migrant raptors of 15 species were counted on 48 active observation dates between March 3 and April 22 (Table 5). The combined species total was 2.1% below the long-term average for the period March 1 to April 22 at the site. Not surprisingly, because of the weather, the migration was slow to get underway and by March 11 only 20 migrant raptors had been counted. The first significant movement occurred on March 12 with the passage of 74 raptors, 73 of which were Golden Eagles and the following day 117 birds moved (103 Golden Eagles). Peak movement was March 18 to March 29 when 12 days saw the movement of 2299 raptors of which 2182 birds were Golden Eagles. On many days during this period birds often moved in significant numbers in abject weather conditions and on several occasions flew just below cloud-base when the tops of the ridges were obscured by cloud. Fairly strong movement persisted into early April with the last 100+ day occurring on April 4, and movement was persistent to the end of the count with the last 50+ day being April 20. The highest daily count was 452 on March 24 which is 10.1% above the long-term average highest count for the site, and despite the weather at least one migrating raptor was seen on every active observation day. The combined species median passage date was March 22, which is 4 days later than average for the period March 1-April 22.

Of the 14 species that regularly occur during the period, 4 had counts that were well above average (Sharp-shinned Hawk (+58.0%), Red-tailed Hawk (+65.4%), Rough-legged Hawk (+156.4%) and Peregrine Falcon (+114.3%, non-significant) while 2 were slightly above average (Northern Harrier (+7.1%) and Cooper's Hawk (+9.1%). Three species were slightly below average (Bald Eagle (-1.7%), Golden Eagle (-4.2%) and American Kestrel (-6.3%) while 5 occurred in numbers that were significantly below average (Osprey (-51.6%), Northern Goshawk (-29.9%), Merlin (-45.0%), Gyrfalcon (-28.6%) and Prairie Falcon (-16.7%). A Turkey Vulture was recorded for just the second time during the period of the count, no Ferruginous Hawk was recorded (it has occurred in three previous counts for the period), and Broad-winged Hawk and Swainson's Hawk remain unrecorded for the count period.

The final count was Turkey Vulture 1, Osprey 1, Bald Eagle 192, Northern Harrier 5, Sharp-shinned Hawk 41, Cooper's Hawk 8, Northern Goshawk 17, Accipiter sp. 1, Broad-winged Hawk 0, Swainson's Hawk 0, Red-

tailed Hawk 45, Ferruginous Hawk 0, Rough-legged Hawk 40, Buteo sp. 6, Golden Eagle 2982, eagle sp. 13, American Kestrel 1, Merlin 4, Gyrfalcon 1, Peregrine Falcon 2, Prairie Falcon 2, Falco sp. 0, indeterminate raptor 0, for a total of 3362 migrant raptors.

Detailed daily summaries of weather and flight dynamics can be found on the spring 2011 blog on the RMERF website www.eaglewatch.ca

Golden Eagle

Observers counted a total of 2982 migrating Golden Eagles on 43 days between March 1 and April 22, with the highest single-day count of 437 occurring on March 24 (Figure 1). The total was 4.2% below the long-term average and the high count was 8.7% above average. A total of 10 days saw passage of at least 100 birds with other high counts being 318 on March 29, and 293 on March 26. The flight comprised 2417 adults, 46 subadults, 171 juveniles and 345 birds of unknown age yielding an immature:adult ratio of 0.09. The immature: adult ratio is 5.0% above average. The highest cumulative hourly counts (all times are Mountain Standard Time) were 393 from 1400 to 1500, 380 from 1600 to 1700 and 373 from 1300 to 1400, while at the daily extremities 60 birds passed between 0700 and 0800 and 53 birds occurred after 1800 (Figure 2). The highest single-hour passages were 151 between 1100 and 1200 and 112 between 1200 and 1300 on March 24, while the most remarkable hour was 52 birds that were counted between 0600 and 0700 on March 29. The species median passage date of March 24 is 2 days later than average: adults were 3 days later than average on March 21 and immature birds were 5 days earlier on April 9.

Figure 1

Figure 2

Spring Golden Eagle Trend

Figure 3

Figure 3 shows the trend of Golden Eagle counts at the Mount Lorette site since 1993 for the period March 1 to April 22. As this period captures about 97% of the total Golden Eagle movement it is essentially identical to the trend derived from using data from complete counts. For reasons discussed in the Introduction, the years 2008, 2009 and 2010 that yielded anomalously very low counts are omitted. The spring 2011 Golden Eagle count was the highest at the site since 2002 which is encouraging after 8 years of low counts, but it should be noted that it is still 4.2% below the long-term average for the site and is 28.4% below the average of the 1993-5 counts. The average count for the years 1993-2002 is 3419 which makes the current count 14.7% below that average. Furthermore, if the years 1997 and 1999 are discounted (both years had low counts because of persistent strong downslope winds that pushed much of the movement to the east) this season's count is 22.7% below the 1993-2002 count without 1997 and 1999. Figure 3 still shows a significant declining trend since 1995 that this year's count slightly tempers but does not change. The future of this population of migratory Golden Eagles is still of serious concern.

Golden Eagle Age Analysis

Figure 4

Figure 4 shows the ratio of immature and adult Golden Eagles from 1994 to 2011. The top line (red) plots data from complete counts from Mount Lorette to 2007 and from the Piitaistakis-South Livingstone site 2007-2010. The lower line (blue) plots age data from Mount Lorette for the period March 1 to April 22. Data from 2009 and 2010 are included as they conform to the trend established at the contemporaneous full counts at Piitaistakis-

South Livingstone, but data from the 2008 Lorette count are anomalous and are excluded here. The trend from complete counts almost certainly reflect the population cycles of the northern Snowshoe Hare population. This probably peaked around the time counts started at Mount Lorette (1992, although age data from the first few years counts there are not reliable enough to be included) and fell to 1995 rising again to a second peak around 2000/01, that then fell to 2003 before rising to the latest peak in 2008 with the ratio falling over the next two years. This would indicate that two more or less eight-year cycles have occurred during the life of the project so far. Many immature Golden Eagles (subadults and juveniles) move north in the second half of April and during May which is why the age ratios from the shorter count are lower. It is very gratifying, however, to see that data from the period March 1 to April 22 closely follow the trend established from the full count data. This suggests that we can successfully continue to monitor these trends by counting from March 1 to April 22, although it is to be hoped that at some time we will be able to resume full counts at the site. The age ratio from the current count suggests that breeding success is beginning to increase again with numbers beginning to rise towards the next peak which is expected be around 2016.

Bald Eagle

The count of 192 Bald Eagles made on 37 days between March 6 and April 22 (Figure 5) was just below average (-1.7%). The highest daily count was 17 birds on April 8 which is 24.6% below the average high count for the period. The flight comprised 130 adults, 9 subadults, 24 juveniles 28 undifferentiated immature birds and 1 bird of unknown age giving an overall immature:adult ratio of 0.47 which is 37.7% above the average ratio and is the second highest recorded at the site after 0.48 in 2001. The median passage date for the species was March 29, 2 days earlier than average, the adult bird median coincided with the average date of March 27 while immatures were 4 days later than average on April 1.

Figure 5

Turkey Vulture

An adult Turkey Vulture soaring over the northern end of the Fisher Range at 1839 on March 18 in company with 11 adult Golden Eagles was only the second recorded at the site within this count period. It was also by far the earliest, the other record being from April 13, 1993. The bird was well observed and described by the three observers at the site.

Osprey

The only Osprey recorded occurred on April 18, 1 day later than the average first occurrence date at the site. The count is 51.6% below average for the period.

Northern Harrier

The first of 5 Northern Harriers recorded occurred on March 3, 33 days earlier than the average first occurrence and 21 days earlier than the previous earliest occurrence (March 24, 1995). The count is 7.1% higher than average for the period and the median passage date of April 14 is 10 days earlier than average, largely resulting from the occurrence of the early bird.

Sharp-shinned Hawk

The count of 41 birds on 15 days between March 18 (8 days earlier than average) and April 22 was the second highest for the period and just 3 behind the 45 counted in 1994. The highest daily counts were 7 on April 18 and 19. The flight comprised 18 adults, 2 juveniles and 21 unaged birds giving an age ratio of 0.11. The median passage date for the species and for adults was April 18, both 5 days later than average.

Cooper's Hawk

A total of 8 Cooper's Hawks were seen on 6 days between March 16 (16 days earlier than the average first occurrence) and April 20, with both April 13 and 20 yielding 2 birds. The flight comprised 5 adults, 1 juvenile and 2 indeterminate birds giving an age ratio of 0.2. The median passage dates for the species and adults were 3 and

5 days earlier than average on April 13 and 14 respectively.

Northern Goshawk

The total of 17 birds seen on 14 days between March 16 (5 days later than average) and April 22 was 29.9% lower than average; a maximum of 2 birds were seen to move on 3 days. The flight comprised 16 adults and 1 juvenile giving an immature:adult ratio of 0.06, and the species median passage date on March 30 was coincident with the long-term average date.

Broad-winged Hawk

Not recorded this season. The only previous records for the period were single birds seen on April 21 1994 and April 13 1996.

Swainson's Hawk

This late migrant has never been recorded during this count period.

Red-tailed Hawk

The count of 45 birds equals 2007 as the second highest total for the period and is only 1 less than the highest count of 46 in 1999. Birds were counted on 14 days between March 31 (8 days later than average) and April 22 with 7 birds occurring on April 13 and 20. The flight comprised 41 "Western Red-tails" (*B.j.calurus*): 36 light morphs (33 adults, 2 juveniles, 1 indeterminate), 5 dark morphs (4 adults, 1 indeterminate); 1 adult "Krider's Red-tail" (*B.j.borealis* var *krideri*); 2 adult dark-morph "Harlan's Red-tails" (*B.j.harlani*), and 1 indeterminate dark morph bird. The combined immature:adult ratio of 0.05 is 6.7% below average for the period. The median passage dates of both the species and adults were 6 days later than average on April 8 and 7 respectively.

Ferruginous Hawk

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

Rough-legged Hawk

The count of 40 birds was by far the highest for the period at the site and 156.4% above average. Birds moved on 18 days between March 9 (13 days earlier than the average first occurrence) and April 22 with a single-day high count of 8 birds on April 18. The median passage date for the species was April 9, 5 days later than average, and the ratio of dark to light morph birds was 0.13 compared to a long-term average of 0.17.

American Kestrel

The only bird recorded was a male on April 18 which is 2 days later than the average first occurrence. The total is only 6.3% below average as this late migrant often does not occur during the shortened count period.

Merlin

Only 4 birds were seen on 4 days between April 5 (15 days later than average) and April 18, a total that is 45% below average. All birds were assigned to the race *columbarius* and comprised 2 adult males and 2 birds of indeterminate age and sex.

Gyr Falcon

The only record was an adult grey morph bird seen on March 28, 4 days later than the average first record for the season. The count is 28.6% below average.

Peregrine Falcon

Two birds, 1 adult and 1 of indeterminate age, were seen on March 28 (12 days earlier than average) and 16 April. The count is 114.3% of average as birds normally move later than April 22.

Prairie Falcon

Single birds were recorded on March 28 (5 days later than average) and April 4 and the total of 2 is 16.7% below average.

Principal Observers at Mount Lorette

George Halmazna (16 days), Bill Wilson (7 days), Joel Duncan (6.33 days + 1 partial day), Jim Davis (5 days + 3 partial days), Peter Sherrington (5.33 days), Terry Waters (5 days + 1 partial day), Cliff Hansen (3.33 days + 3 partial days), Brian McBride (2 days), Doug Pedersen (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 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. 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.

An extended spring reconnaissance count was conducted at the site for the first time in 2010, and 2011 was the second count there (Table 6). This season 2 sites were occupied: 27 days at Scarface (Bill Nye) and 1 day 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 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 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 spring 2011 season Vance Mattson conducted a 28 day (118.5 hours) extended reconnaissance count out of a possible 49 days between March 1 and April 18 (Table 7). Twenty-seven days were spent at the Scarface/Bill Nye site and 1 at the South Lakit site. Between 2.5 and 6 hours at an average of 4.1 hours a day were spent at the site with most observations conducted between 1300 and 1800.

Weather

A total of 10 days (March 1, 2, 9, 10, 15, 19, 21, 22, April 6, 7) were completely lost to adverse weather conditions when the ridges were obscured on heavily overcast days that produced snow and rain. A further 11 days (March 27-April 2, April 11, 14, 15, 17), were lost owing to prior commitments although the weather on these days appeared to be mainly conducive to raptor movement. The 7 days lost at the end of March and early April probably accounts for most of the difference in the numbers of total raptors and of Golden Eagles compared to last year’s count (Table 6).

Hourly weather data were not gathered but daily weather summaries were produced. The temperature high for the count was 11C on April 13 and the lowest maximum daily temperature was 1C on March 7 and 8. Average high temperatures on active observation days in March were 5.25C and 8.8C in April.

Ridge winds were assessed at mainly SW on 42.3% of active observation days; they were probably light to calm of no assessable direction 34.6% of the time; blew between S and SE 19.2% of the time and were N-NW on one day (3.8%). Ridge wind speeds were assessed as strong 56% of the time, calm to light 32% of the time, generally coinciding with days where the ridges were obscure or partly obscured by cloud, and moderate 12% of the time. Only one day (April 8) was completely cloudless, and 34.6% of active days saw cloud cover (mainly altostratus and cumulus) between 80% and 100%. The remainder (61.53) had cloud cover that ranged from 30% to 100%, and 73% of active days were assessed as sunny to partly sunny. On active observation days the ridges were completely clear 69.2% of the time, were partially obscured 19.2% of the time and were completely obscured on 3 days (11.5%).

General flight dynamics

As with previous reconnaissance counts at the site there was again little obvious relationship between weather and amount of raptor movement. Raptors moved on both sunny and cloudy days, calm days and days with strong and moderate winds from various directions. Raptors also migrated when ridges were partially obscured, by moving below cloud base at lower elevations. The highest count days/periods were March 11 and 12 (each 52 birds) and March 23 (80 birds, 1 day earlier than the highest daily count at Mount Lorette) each of which followed two days of snow and low overcast conditions. Three days of active observation (March 24 and April 16 and 18) failed to produce a single migrant raptor, and 9 further days (32%) produced counts in single figures.

Count Summary

The count produced a total of 573 migrant raptors of 8 species with a high single day count of 80 birds on March 23. Of this total 395 (68.9%) were Golden Eagles and 147 (25.7%) were Bald Eagles. Including 2 unidentified eagles, eagle species together comprised 94.9% of the total flight which is almost identical to the 94.8% eagles recorded at Mount Lorette, although there Golden Eagles (2982) greatly outnumbered Bald Eagles (192). Other migrants were Turkey Vulture 12 adults, Northern Harrier 1 adult female, Sharp-shinned Hawk 5 adults, Northern Goshawk 2 adults, Red-tailed Hawk 7 calurus light morphs (6 adults, 1 indeterminate) and Rough-legged Hawk 2 (1 light and 1 dark morph). Osprey and Peregrine Falcon that were recorded on last

year's count were not seen this year.

Golden and Bald Eagles

The 395 migrant Golden Eagles were recorded on 24 of a possible 28 active field days (85.7%) with a highest single day count of 69 on March 23 and with the second highest count of 39 on March 12. A total of 13 days (46.4%) had double-digit counts. The flight comprised 316 adults, 10 subadults, 43 juveniles and 26 birds of indeterminate age giving an immature:adult ratio of 0.17. This is significantly higher than the 0.09 recorded at Mount Lorette which may, as noted in last spring's report suggest a different provenance for the birds, although it might also result from the shorter and more sporadic nature of the observations here.

A total of 147 migrant Bald Eagles were recorded on 22 days (78.6%) with a single day high count of 25 on March 26. A total of 5 days saw counts in double figures (17.9%). The flight comprised 83 adults, 29 subadults, 29 juveniles, 1 undifferentiated immature bird and 5 birds of indeterminate age giving an immature:adult ratio of 0.71 compared to a ratio of 0.33 at Mount Lorette.

Principal Observer at Steeples

Vance Mattson

Appendix (separate attachment)

List of Tables

Table 1 Mount Lorette. Summary of total spring counts 1993-2011

Table 2 Mount Lorette. Summary of spring counts 1993-2011, March 01-April 15

Table 3 Mount Lorette. Summary of spring counts 1993-2011 (excluding 2008-10), March 01-April 22

Table 4 Mount Lorette. Percentage differences between the two shorter count periods and the average of complete counts 1993-2007.

Table 5 Mount Lorette. Daily count numbers, spring 2011

Table 6 Steeples. Summary of spring counts 2010-2011

Table 7 Steeples. Daily count numbers, spring 2011

TABLE 1																										
Mount Lorette, spring counts 1993-2011																										
YEAR	DAYS	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
1993	48	392.66	1	5	169	4	39	19	54	0	0	34	0	4	4140	0	9	0	3	4	0	1	0	3	0	4489
1994	70	648.72	0	7	229	12	62	23	44	2	0	50	1	22	4213	2	2	3	0	14	2	1	0	0	0	4689
1995	65	581.96	0	10	176	9	73	11	46	1	0	43	2	25	4143	5	17	1	6	6	0	0	0	0	0	4574
1996	80	728.28	0	12	266	13	106	20	25	3	3	23	0	15	3671	7	8	1	4	4	3	2	0	0	0	4186
1997	75	680.55	1	7	224	7	53	12	21	1	0	35	0	15	2461	9	9	1	1	3	2	4	0	4	0	2870
1998	72	650.43	0	8	164	16	40	10	9	2	1	34	0	30	3613	6	7	1	1	2	1	4	0	2	0	3951
1999	90	907.03	1	8	210	17	155	44	14	5	2	82	1	18	2817	16	8	0	1	4	2	1	0	0	3	3409
2000	85	933.36	1	21	237	14	74	21	11	0	2	30	1	26	3436	13	11	1	1	2	0	4	3	0	8	3917
2001	90	1037.22	0	6	276	9	56	18	32	4	0	50	2	26	3525	6	12	3	4	0	5	2	4	0	2	4042
2002	82	914.09	0	12	265	7	77	8	33	0	0	32	0	21	3518	8	11	4	2	2	3	1	1	2	5	4012
2003	86	939.17	2	6	209	12	39	9	12	4	0	34	1	17	2591	7	9	2	2	0	5	2	1	0	6	2970
2004	86	1068.28	0	7	200	8	58	12	23	0	0	39	0	11	2539	2	8	0	3	3	1	1	2	2	6	2925
2005	94	1237.94	1	28	235	10	82	25	57	2	1	28	2	28	2667	9	10	3	3	2	3	3	6	1	7	3213
2006	93	1213.58	2	11	234	7	61	18	27	1	1	28	0	26	2918	4	16	1	2	0	9	3	8	0	3	3380
2007	83	1018.94	4	8	212	6	62	18	27	1	1	70	0	17	2141	9	20	3	2	5	8	0	0	1	6	2621
2008	44	493.34	0	0	86	1	1	1	2	0	0	3	0	1	1171	0	2	0	1	0	3	2	3	2	3	1282
2009	40	450	0	0	76	0	6	5	7	0	0	6	0	3	882	0	1	0	0	1	4	1	5	1	1	999
2010	46	518.99	0	0	88	1	1	0	21	0	0	14	0	7	1160	0	1	1	0	1	1	2	13	0	1	1312
2011	48	556.07	1	1	192	5	41	8	17	0	0	45	0	40	2982	1	4	1	2	2	1	6	13	0	0	3362
TOTALS	1377	14971	14	157	3748	158	1086	282	482	26	11	680	10	352	54588	104	165	26	38	55	53	40	59	18	51	62203

TABLE 2																										
Mount Lorette, spring counts March 01-April 15																										
YEAR	DAYS	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
1993	38	313.77	1	1	159	2	32	12	47	0	0	26	0	4	3930	0	7	0	2	2	0	1	0	3	0	4229
1994	45	422.25	0	1	210	5	14	6	37	0	0	24	1	10	3949	0	1	2	0	10	2	1	0	0	0	4273
1995	42	401.47	0	0	150	1	10	2	41	0	0	19	2	15	4006	0	8	0	1	3	0	0	0	0	0	4258
1996	44	415.7	0	2	226	5	17	3	20	1	0	13	0	7	3397	0	3	0	0	3	3	1	0	0	0	3701
1997	41	388.3	0	0	198	1	7	1	13	0	0	18	0	10	2269	1	4	1	0	2	2	1	0	1	0	2529
1998	45	394.53	0	0	130	2	13	0	7	0	0	15	0	19	3401	0	5	1	0	2	0	1	0	1	0	3597
1999	44	465.8	0	0	175	8	8	6	8	0	0	39	0	14	2495	0	6	0	0	2	1	1	0	0	1	2764
2000	41	467.83	0	0	193	2	14	5	7	0	0	11	0	22	3050	1	3	0	0	1	0	3	2	0	2	3316
2001	43	503.96	0	0	198	3	2	2	11	0	0	13	1	17	3098	1	6	3	0	0	0	0	4	0	1	3360
2002	45	503.3	0	0	226	2	22	2	18	0	0	17	0	7	3252	2	7	3	0	1	3	0	0	2	5	3569
2003	42	482.29	0	0	170	3	7	2	10	0	0	20	0	12	2536	1	4	2	0	0	2	1	1	0	0	2771
2004	44	552.46	0	1	163	1	15	2	16	0	0	28	0	9	2432	0	6	0	2	1	0	1	1	2	3	2683
2005	46	595.73	0	0	166	1	11	1	43	0	0	8	0	4	2570	0	4	3	0	0	0	1	6	0	4	2822
2006	46	594.26	0	0	176	3	26	9	19	0	0	18	0	22	2794	0	9	1	1	0	2	3	8	0	2	3093
2007	46	566.04	0	0	175	2	16	3	11	0	0	29	0	12	1972	0	8	3	1	2	0	0	0	0	1	2235
2008	44	493.34	0	0	86	1	1	1	2	0	0	3	0	1	1171	0	2	0	1	0	3	2	3	2	3	1282
2009	40	450	0	0	76	0	6	5	7	0	0	6	0	3	882	0	1	0	0	1	4	1	5	1	1	999
2010	46	518.99	0	0	88	1	1	0	21	0	0	14	0	7	1160	0	1	1	0	1	1	2	13	0	1	1312
2011	41	468.82	1	0	174	3	18	6	14	0	0	29	0	23	2920	0	3	1	1	2	1	5	12	0	0	3213
TOTALS	823	8998.84	2	5	3139	46	240	68	352	1	0	350	4	218	51284	6	88	21	9	33	24	25	55	12	24	56006

TABLE 3																										
Mount Lorette, spring counts March 01-April 22 (excluding 2008-2010)																										
YEAR	DAYS	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
1993	43	369.42	1	3	167	3	37	19	51	0	0	31	0	4	4124	0	8	0	3	4	0	1	0	3	0	4459
1994	52	495.91	0	4	218	10	45	18	41	1	0	36	1	20	4142	0	1	3	0	11	2	1	0	0	0	4554
1995	46	459.55	0	4	164	1	31	6	44	0	0	32	2	18	4108	1	11	0	3	6	0	0	0	0	0	4431
1996	50	492.52	0	4	238	8	28	4	20	1	0	18	0	11	3543	0	5	0	1	3	3	1	0	0	0	3888
1997	48	460.3	0	2	212	4	16	5	16	0	0	21	0	12	2352	2	7	1	0	2	2	1	0	1	0	2656
1998	52	458.48	0	0	149	6	20	4	7	0	0	21	0	29	3466	0	7	1	1	2	0	1	0	2	0	3716
1999	50	529.35	0	0	184	10	9	6	9	0	0	46	0	15	2565	1	6	0	0	2	1	1	0	0	1	2856
2000	48	554.58	0	1	204	5	28	7	9	0	0	14	0	24	3219	5	5	1	0	1	0	3	3	0	4	3533
2001	50	586.79	0	1	237	4	29	7	25	0	0	30	1	21	3265	2	8	3	1	0	0	0	4	0	2	3640
2002	52	587.62	0	1	240	4	32	5	25	0	0	25	0	9	3405	2	7	3	0	1	3	1	0	2	5	3770
2003	49	569.78	0	1	184	5	10	4	12	0	0	24	0	14	2558	1	5	2	0	0	5	1	1	0	3	2830
2004	51	646.87	0	6	173	1	24	7	20	0	0	32	0	11	2465	1	8	0	3	2	0	1	2	2	4	2762
2005	53	697.4	0	1	182	2	16	2	44	0	0	15	0	8	2594	0	6	3	0	0	1	1	6	0	4	2885
2006	53	694.25	0	2	190	4	31	10	22	0	0	18	0	24	2826	0	12	1	1	0	5	3	8	0	3	3160
2007	50	622.62	0	1	189	3	32	6	19	0	0	45	0	14	2051	1	13	3	1	2	1	0	0	0	3	2384
2008																										
2009																										
2010																										
2011	48	556.07	1	1	192	5	41	8	17	0	0	45	0	40	2982	1	4	1	2	2	1	6	13	0	0	3362
T 93-07	747	8225.44	1	31	2931	70	388	110	364	2	0	408	4	234	46683	16	109	21	14	36	23	16	24	10	29	51524
Av 93-07	49.8	548.4	0.1	2.1	195.4	4.7	25.9	7.3	24.3	0.1	0.0	27.2	0.3	15.6	3112.2	1.1	7.3	1.4	0.9	2.4	1.5	1.1	1.6	0.7	1.9	3434.9
	-3.6	1.4	1400.0	-51.6	-1.7	7.1	58.5	9.1	-29.9	-100.0	###	65.4	-100.0	156.4	-4.2	-6.3	-45.0	-28.6	114.3	-16.7	-34.8	462.5	712.5	-100.0	-100.0	-2.1

TABLE 4																										
Mount Lorette, comparison of spring count periods 1993-2011 (excluding 2008-2010)																										
YEAR	DAYS	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
A Full counts	1247	13508	14	157	3498	156	1078	276	452	26	11	657	10	341	51375	104	161	25	37	53	45	35	38	15	46	58610
B March 01-April 15	693	7536.51	2	5	2889	44	232	62	322	1	0	327	4	207	48071	6	84	20	8	31	16	20	34	9	19	52413
C March 01-April 22	795	8781.51	2	32	3123	75	429	118	381	2	0	453	4	274	49665	17	113	22	16	38	24	22	37	10	29	54886
% diff B cf A	55.6	55.8	14.3	3.2	82.6	28.2	21.5	22.5	71.2	3.8	0.0	49.8	40.0	60.7	93.6	5.8	52.2	80.0	21.6	58.5	35.6	57.1	89.5	60.0	41.3	89.4
% diff C cf A	63.8	65.0	14.3	20.4	89.3	48.1	39.8	42.8	84.3	7.7	0.0	68.9	40.0	80.4	96.7	16.3	70.2	88.0	43.2	71.7	53.3	62.9	97.4	66.7	63.0	93.6
% diff C cf B	114.7	116.5	100.0	640.0	108.1	170.5	184.9	190.3	118.3	200.0	###	138.5	100.0	132.4	103.3	283.3	134.5	110.0	200.0	122.6	150.0	110.0	108.8	111.1	152.6	104.7
Bold numbers indicate species showing a significant increase of at least 30% for the period March 01-April 22 compared to March 01-April 15																										

2011-04-02	NO OBSERVATION																						0		
2011-04-03	13.83	0	0	9	0	0	0	0	0	0	4	0	1	77	0	0	0	0	0	0	0	0	91		
2011-04-04	14	0	0	8	1	4	0	0	0	0	1	0	0	89	0	0	0	0	1	0	0	0	104		
2011-04-05	11.08	0	0	1	0	2	0	[1]	0	0	[1]	0	0	[1]	0	1	0	0	0	0	0	0	4		
2011-04-06	8.5	0	0	1	0	0	1	1	0	0	2	0	3	14	0	0	0	0	0	0	0	0	22		
2011-04-07	14	0	0	1	0	1	0	0	0	0	1	0	0	5	0	1	0	0	0	0	0	0	9		
2011-04-08	13.5	0	0	7	0	1	1	0	0	0	0	0	0	49	0	0	0	0	0	0	0	0	58		
2011-04-09	10	0	0	2	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	9		
2011-04-10	13.83	0	0	5	0	1	1	2	0	0	[1]	0	0	32	0	0	0	0	0	0	0	0	41		
2011-04-11	8.16	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4		
2011-04-12	13	0	0	5	0	2	0	[2]	0	0	[1]	0	0	45	0	0	0	0	0	1	0	0	53		
2011-04-13	11.5	0	0	3	0	2	2	2	0	0	7	0	4	10	0	1	0	0	0	0	1	1	33		
2011-04-14	10	0	0	4	0	0	0	[1]	0	0	5	0	2	2	0	0	0	0	0	0	0	1	14		
2011-04-15	11	0	0	0	0	0	0	0	0	0	2	0	2	2	0	0	0	0	0	0	0	0	6		
2011-04-16	11.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1		
2011-04-17	12.5	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2		
2011-04-18	14	0	1	3	1	7	0	1	0	0	1	0	8	10	1	1	0	0	0	0	0	0	34		
2011-04-19	12	0	0	5	0	7	0	[1]	0	0	4	0	1	23	0	0	0	0	0	0	0	0	40		
2011-04-20	12.5	0	0	6	0	5	2	1	0	0	7	0	5	25	0	0	0	0	0	0	1	1	53		
2011-04-21	12	0	0	3	0	2	0	0	0	0	2	0	1	[2]	0	0	0	0	0	0	0	0	8		
2011-04-22	13	0	0	1	0	2	0	1	0	0	2	0	1	4	0	0	0	0	0	0	0	0	11		
April	250.65	0	1	68	3	36	7	8	0	0	43	0	31	428	1	4	0	1	1	1	2	3	0	638	
Total	556.07	1	1	192	5	41	8	17	0	0	45	0	40	2982	1	4	1	2	2	1	6	13	0	3362	
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 6																											
Steeple, BC, spring counts 2010-2011																											
YEAR	DAYS	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	
2010	48	213.5	13	2	218	2	7	0	8	0	0	20	0	7	534	2	0	0	1	0	0	0	2	0	0	816	
2011	28	118.5	12	0	147	1	5	0	2	0	0	7	0	2	395	0	0	0	0	0	0	0	2	0	0	573	
TOTALS	76	332	25	2	365	3	12	0	10	0	0	27	0	9	929	2	0	0	1	0	0	0	4	0	0	1389	

TABLE 7																											
Steeple, British Columbia, spring 2011																											
March 03 to April 18 (28 days, 118.5 hours)																											
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	SITE	
2010-03-01	NO OBSERVATION																								0		
2010-03-02	NO OBSERVATION																									0	
2010-03-03	5.5	0	0	4	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	9	SF
2010-03-04	4	0	0	5	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	11	SF
2010-03-05	5	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	SF
2010-03-06	5	0	0	9	0	0	0	0	0	0	0	0	0	21	0	0	0	0	0	0	0	0	0	0	0	30	SF
2010-03-07	4.5	0	0	11	0	0	0	0	0	0	0	0	0	21	0	0	0	0	0	0	0	0	0	0	0	32	SF
2010-03-08	3.5	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	SF
2010-03-09	NO OBSERVATION																								0		
2010-03-10	NO OBSERVATION																									0	
2010-03-11	5.5	0	0	18	0	0	0	0	0	0	0	0	0	33	0	0	0	0	0	0	0	1	0	0	0	52	SF
2010-03-12	5.5	0	0	13	0	0	0	0	0	0	0	0	0	39	0	0	0	0	0	0	0	0	0	0	0	52	SF
2010-03-13	5	0	0	5	0	0	0	1	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	23	SF
2010-03-14	4.5	0	0	8	0	0	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	25	SF
2010-03-15	NO OBSERVATION																								0		
2010-03-16	5	0	0	3	0	0	0	0	0	0	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	25	SF
2010-03-17	4.5	0	0	1	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	6	SF
2010-03-18	6	0	0	1	0	0	0	0	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	26	SF
2010-03-19	NO OBSERVATION																								0		
2010-03-20	6	0	0	4	0	0	0	1	0	0	0	0	0	34	0	0	0	0	0	0	0	0	0	0	0	39	SF
2010-03-21	NO OBSERVATION																								0		
2010-03-22	NO OBSERVATION																									0	
2010-03-23	4	0	0	10	0	0	0	0	0	0	0	0	0	69	0	0	0	0	0	0	0	1	0	0	0	80	SF
2010-03-24	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	0	SF
2010-03-25	2.5	0	0	1	0	0	0	0	0	0	0	0	1	10	0	0	0	0	0	0	0	0	0	0	0	12	SF
2010-03-26	4	0	0	25	0	3	0	0	0	0	2	0	0	30	0	0	0	0	0	0	0	0	0	0	0	60	SF
2010-03-27	NO OBSERVATION																								0		
2010-03-28	NO OBSERVATION																									0	
2010-03-29	NO OBSERVATION																									0	
2010-03-30	NO OBSERVATION																									0	
2010-03-31	NO OBSERVATION																									0	
March	83	0	0	118	0	3	0	2	0	0	2	0	1	358	0	0	0	0	0	0	0	2	0	0	486		

