MOUNT LORETTE, FALL 2012

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

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www.eaglewatch.ca

Summary and highlights

This was the 22st consecutive year that some form of fall count has been conducted by RMERF members and was the 21st conducted at Mount Lorette. The combined species count of 2987 is 29.7 % below average and is the second lowest valid fall count for the site. Twelve species occurred in below average numbers and only Rough-legged Hawk and Peregrine Falcon numbers were above average. The median passage dates of seven of the ten species occurring in significant numbers were later than average and the combined-species passage date was 2 days later than average. The Golden Eagle count of 2635 is 27.3%% below average and is also the second-lowest valid fall count for the site. This accentuates the declining trend for the species at the site. One complete and eight partial days were spent at the Piitaistakis-South Livingstone site, and a reconnaissance count of twelve partial days was conducted at the Steeples site on the western flanks of the Rocky Mountains near Cranbrook, BC.

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 geological continuation of the Fisher Range across the Kananaskis Valley to the NW. To the west the mountains of the Kananaskis Range are somewhat higher and include Mount Kidd (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 Crowsnest Pass in SW Alberta, during which time extended comparison counts were conducted at Mount Lorette during the main period of Golden Eagle migration. The Lorette counts in 2006, 2007 and 2008 lasted for 32 days, 25 days and 30 days respectively and are considered to be too short for statistical comparison with previous counts from which data from a standard count period September 20 to November 15 have been recalculated. The only exception is 2009 where a 46-day count from September 20 to November 9 has been included. 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 14 years 1993-1996, 1998-2001, 2003-2005 and 2009-11. For the second consecutive year because of logistical considerations no systematic daily count was held this season at the Piitaistakis-South Livingstone site, and brief reconnaissance counts were conducted on 9 days between September 29 and October 15. The reconnaissance count at Steeples, BC, was restricted to only 12 days between October 3 and November 7 this season.

At Mount Lorette observers spent at total of 52 days (530.09hours) of a possible 57 days at the site between September 20 and November 15, the days and hours being 5.0% and 5.9% below average respectively.

Detailed daily summaries of the Mount Lorette and Piitaistakis-South Livingstone counts 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. Five days were completely lost to bad weather: October 10 (rain and snow), October 20 and 31(snow), and November 8 and 9 (snow). A further three days were shortened by weather: September 25 (rain), October 3 (low cloud) and November 6 (rain and snow) and, although not shortened, the counts on five other days (October 8,23,24,26,30) were significantly impacted by poor weather conditions. Rain, snow or flurries occurred, however, only on 12 active count days (23.1%) of the count period but the eastern ridges were significantly occluded (80-100%) on five active days (9.6%) and were 50-100% occluded on 21.2% of active days. Maximum daily temperatures ranged from 24.5°C on September 20 (the first day of the count) to -9°C on November 10, while minimum temperatures on active observation days ranged from 12.5°C on October 1 to -23°C on November 11. On nine active days (17.3%) the temperature failed to rise above freezing and seven of these days were the period October 21 to 27. Regrettably the Environment Canada weather station (Nakiska Ridgetop) situated 4 km west of the Hay Meadow site on Olympic Summit (Mount Allan) at 2543 m was inoperative this season and ridge wind information had to be estimated by observers. It should be noted that experience has demonstrated that wind velocities tend to be underestimated by observers located in the valley, and on cloudless days or when the ridges were cloaked in cloud estimating the wind direction proved to be impossible. Observers assessed ridge winds to be from the SSW-W 71.2% of the time, while it was impossible to asign a direction on 11.5% of active days. All

other directions and variable winds prevailed only 17.3% of the time, of which 13.5% were WNW-NE winds. The most common wind direction was, as usual, SW which blew on 38.5% of active days. Observers assessed these winds as light 26.9% of the time, compared, for example, with just 3.6% last year based on the weather station data. Winds were assessed as strong (>41 km/h) 15.4% of the time and moderate to strong (11-100+ km/h) 26.9% of the time. Winds were assessed as moderate (11-40 km/h) 17.3% of the time, as light to moderate (1-40 km/h) 11.5% and 1 day (1.9%) had winds that ranged from light to strong. Only two active days (September21 and 27) were completely cloudless(3.8%) and only 4 days (7.7%) experienced a cloud cover that was between 80 and 100%. Most other active days saw wide diurnal variation in percentage cloud cover.

General flight dynamics September 20 to November 15

Migrant raptors were recorded on all of the 52 active field days between September 20 and November 15 (**Table 2**). A total of only eight days (15.4%) had a passage of at least 100 migrants. Seven of these days occurred in October but the combined species total of 130 on November 6 was the highest ever recorded in November, as was the Golden Eagle count of 105. In fact, this was only the third time that over 100 Golden Eagles have been recorded in November, the others being 106 on November 1, 2000 and 108 on November 8, 2009. The highest single-day count occurred on October 9 with the passage of 441 birds which is exactly coincident with the average highest single-day count for the site. The combined species total is 29.7% below the long-term average and is the second-lowest valid fall count for the site. The combined species median passage date of October 14 is two days later than the average for the count period September 20-November 15, and the median passage dates of seven of the ten species occurring in significant numbers were later than average. Despite the persistence of movement throughout the count period only two species occurred in higher than average numbers (Table 3): Rough-legged Hawk (61: +12.7%) and Peregrine Falcon (6: +12%). The other eleven species all occurred in lower than average numbers: Osprey 2 (-26.3%), Bald Eagle 128 (-52.4%), Northern Harrier 6 (-42.9%), Sharp-shinned Hawk 63 (-55.2%), Cooper's Hawk 10 (-58.9%), Northern Goshawk 30 (-138.1%), Broad-winged Hawk 1 (-86.3%), Red-tailed Hawk 26 (-24.3%), Golden Eagle 2635 (-27.3%), Merlin 5 (-30%) and Gyrfalcon 1 (-68.2%). Turkey Vulture, Swainson's Hawk, Ferruginous Hawk and American Kestrel were not recorded this season. The final count was Turkey Vulture 0, Osprey 2, Bald Eagle 128, Northern Harrier 6, Sharp-shinned Hawk 63, Cooper's Hawk 10, Northern Goshawk 30, Accipiter sp. 5, Broad-winged Hawk 1, Swainson's Hawk 0, Red-tailed Hawk 26, Ferruginous Hawk 0, Rough-legged Hawk 61, Buteo sp. 2, Golden Eagle 2635, eagle sp. 2, American Kestrel 0, Merlin 5, Gyrfalcon 1, Peregrine Falcon 6, Prairie Falcon 2, Falco sp. 1, and indeterminate raptor 1, for a total of 2987 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 four have included the whole of October excepting up to three days lost (this year) 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 15 previous complete October counts at the site, with variance from average in parentheses. A total of 28 days (-7.08%) and 287.85 hours (-9.7%) were spent at the site during the month during which time 2251 migrant raptors of 13 species were counted. This total is 32.4% below average and is the second-lowest valid October count at the site. Only four species occurred in higher than average numbers: Redtailed Hawk 13 (+3.2%), Rough-legged Hawk 56 (+27.9%), Peregrine Falcon 4 (+30.43%) and Prairie Falcon 2 (+76.47%). Twelve species occurred in lower than average numbers: Bald Eagle 50 (-69.2%), the lowest ever October count for the species; Northern Harrier 1 (-79.5%), Sharp-shinned Hawk 45 (-39.1%), Cooper's Hawk 6 (-40.4%), Northern Goshawk 20 (-38.4%), Broad-winged Hawk 1

(-76.6%), Golden Eagle 2045 (-31%), the second lowest October count ever; Merlin 1 (-75%) and Gyrfalcon 1 (-42.3%). Turkey Vulture, Osprey, Swainson's Hawk, Ferruginous Hawk and American Kestrel were not recorded during the month.

Golden Eagle

Observers counted a total of 2653 migrating Golden Eagles on 50 days between September 20 and November 15, with the highest single-day count of 428 occurring on October 9 (Figure 1). The total was 27.26% below the long-term average and the high count was 2.9% below average. Only five days saw passage of at least 100 birds and the only other count over 200 was 334 on October 15. The count of 105 birds on November 6 was the second-highest ever recorded in November, and this was only the third time that over 100 Golden Eagles have been recorded in the month. The previous 100+ counts were 106 on November 1, 2000 and 108 on November 8, 2009. Golden Eagles comprised 88.2% of the total count this season. The flight comprised 1824 adults, 101 subadults, 352 juveniles, 1 undifferentiated immature bird and 357 birds of unknown age yielding an immature:adult ratio of 0.25 and a juvenile:adult/subadult ratio of 0.17. Both ratios are only slightly below those of last year (0.26) and 0.18 respectively), and the immature: adult ratio is 7.9% below the long-term average. The highest cumulative hourly counts were 441 (1300-1400), 322 (1200-1300), 300 (1600-1700) and 280 from (1500-1600) MST. This year no birds were recorded between 0700 and 0800 while 48 birds occurred after 1800 (Figure 2). The highest single-hour passage was 99 between 1600 and 1700 on October 8, while the following hour yielded 77 birds. The only other hour that saw a rate above one per minute was the 68 counted between 0900 and 1000 on October 15. The species median passage date of October 14 was one day later than average, as was the adult median passage date of October 15. Immature birds were 2 days later than average on October 9.

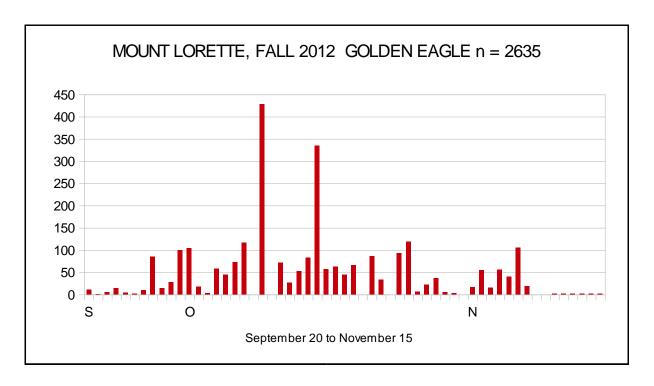


Figure 1

MOUNT LORETTE, FALL 2012 GOLDEN EAGLE n = 2635

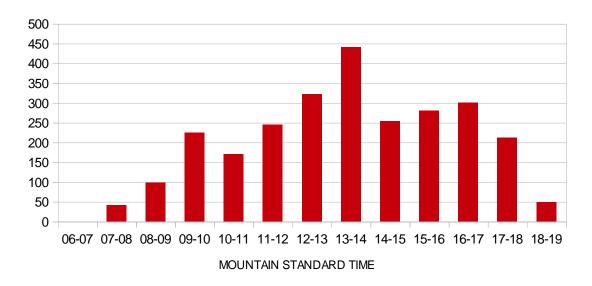


Figure 2

Fall Golden Eagle Trend

Figure 3 shows the linear trend of all counts from 1993-2012 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 ameliorating but not significantly altering the trend This trend is also seen in spring counts at the site. This season's count, the second lowest for valid counts at the site, accentuates the declining trend for the species at the site seen since 1993

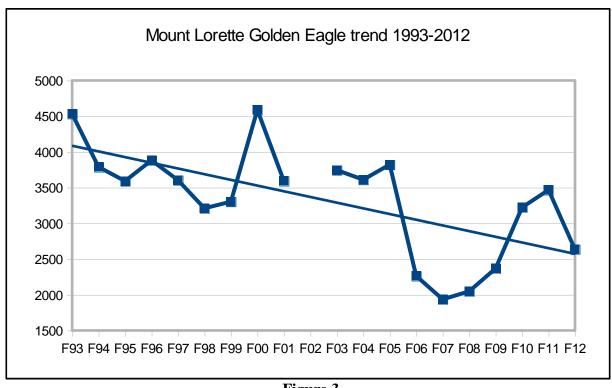


Figure 3

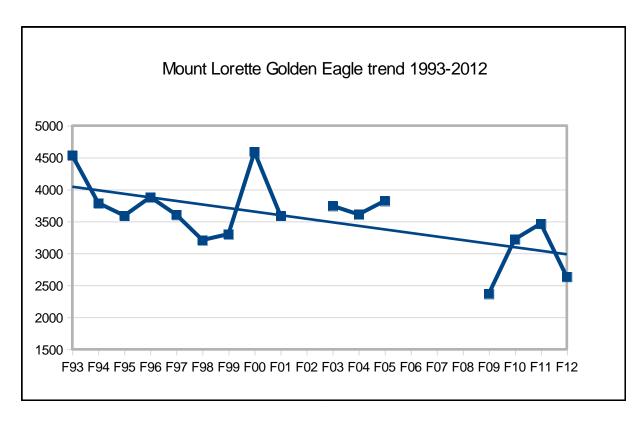


Figure 4

Golden 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. As the age ratios have been found to be very similar between counts at Piitaistakis-South Livingstone and Lorette, it is reasonable to combine data from three sites along the migration trend: when plotted, the points form a consistent trend pattern There is a generally increasing trend to 1999, followed by a decrease to 2002, then a steady increase to 2008 followed by a decrease to 2012. 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 overall decline in the species seen at the site 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 2012 ratio, although very similar to that of the previous year, continues this trend.

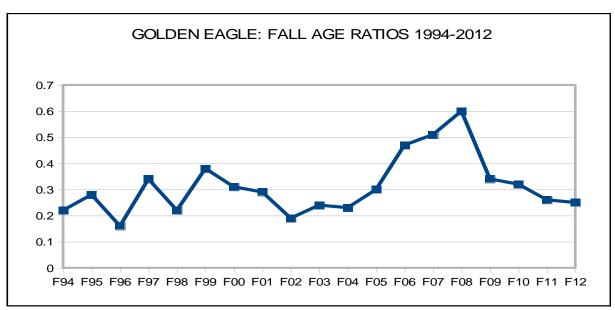


Figure 5

Bald Eagle

The count of 128 birds seen on 37 days between September 20 and November 15 was 52.4% below average and was the second lowest count ever for the period ahead only of the 100 counted in 2009. The four lowest fall counts at the site have occurred in the last four years. The highest single-day count was 20 on November 6, which is 19.5% below the average high count. The flight comprised 91 adults, 6 subadults, 11 juveniles, 17 undifferentiated immature birds and 3 birds of unknown age giving an immature:adult ratio of 0.41 which is 23.3% below the average ratio. The median passage date for the species, for adults and for juvenile birds all fell on October 28, which was six, four and 9 day's later than average respectively.

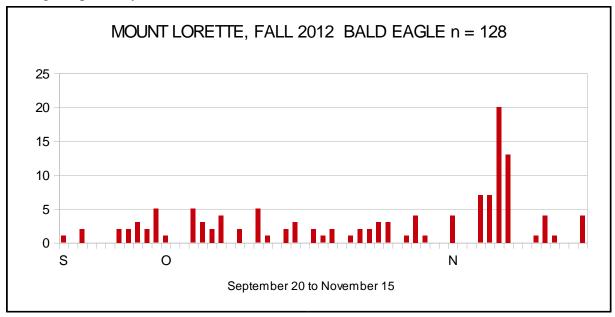


Figure 6

The low counts of the last four years may result from the relative mildness of the weather during the count period and especially the lack of the southward passage of severe 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 Beauvais Ridge count in 2011 and early 2012 (see last year's fall report).

Other Species

Osprey The only Ospreys recorded were single birds on September 27 and 30. The total is 26.3% below average.

Northern Harrier A total of 6 birds were seen on four days between September 23 and the relatively late date of November 5. Two birds each moved on both September 23 and 30. The total is 42.9% below average. The count comprised 1 adult male, 1 adult female, 1 undifferentiated female/juvenile, 1 juvenile and 2 intermediate birds, and the median passage date of the species was September 30, three days earlier than average.

Sharp-shinned Hawk The total of 63 birds counted on 23 days between September 23 and November 6 was the second lowest fall count for the site and 55.2% below average. The highest single-day count was 15 on October 4 which is 30.2% below the average high count. The flight comprised 24 adults, 9 juveniles and 30 birds of unknown age yielding an immature: adult ratio of 0.38, which is 13.5% below average although, as usual, the high percentage of unaged birds means that age ratio figures for this species must be used with caution. The median passage date for the species was October 4, 2 days later than average, adult birds were on the average date of October 4 and juvenile birds were 4 days later than average on September 30.

Cooper's Hawk Following a high count of 30 birds last year, this year's total of 10 birds equaled the lowest fall count ever at the site and was 55.2% below average. Birds moved on 9 days between September 21 and November 6, with a maximum passage of 2 birds on October 6. The flight comprised 6 adults and 4 birds of indeterminate age. The median passage date for both the species and for adults was October 3, three and two days later than average respectively

Northern Goshawk A total of 30 goshawks migrated on 20 days between September 23 and November 5. The total is 14.15% below average for the site. The highest single-day count was 4 on October 30. The flight comprised 22 adults, 1 juvenile and 7 birds of unknown age and the median passage date for the species was October 9, three days earlier than average while the adult median passage date was October 14, three days later than average.

Broad-winged Hawk The only bird seen was a juvenile light morph bird on October 21. The total is 86.3% below average and continues the run of low counts for the species at the site since 1999. The average count to 1999 is 13.7; the average count after 1999 is 2.3.

Swainson's Hawk Not recorded this year. It has only occurred on five of the fifteen valid fall counts at the site and apart from two birds that occurred in 1995 only single birds were counted.

Red-tailed Hawk The count of 26 birds on 15 days between September 22 and November 12 was 24.3% below average, and the highest single-day count of 4 on September 22 and October 7 was 44% below the average high count. The flight comprised 24 birds of the race *B.j.calurus*, 15 of which were

light morphs (13 adults, 2 juveniles), 3 were rufous (intermediate) morphs (1 adult, 2 juveniles) and 6 were dark morphs (3 adults, 2 juveniles 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 0.33 which is 35.8% below average. The species median passage date of October 5 was 6 days later than average; adult median passage was also October 5, 7 days later than average and juveniles were 9 days later than average on October 7.

Ferruginous Hawk The species was not recorded this season. Single birds have been recorded on five previous counts.

Rough-legged Hawk A total of 61 birds moved on 18 days between October 4 and November 11, with a single-day high count of 16 on October 22. The total and daily maximum were 12.7% and 50.34% above average respectively. The flight comprised 44 light, 14 dark and 3 indeterminate morphs giving a dark:light ratio of 0.39. The median passage date of October 17 was 4 days later than average.

American Kestrel The species went unrecorded this season for the first time. Previous counts have recorded between one and three birds.

Merlin Five merlins were counted on five days between September 22 and October 6. Three birds (2 adult males and 1 bird of indeterminate sex and age) were ascribed to the race *F.c.columbarius*, and 2 birds were of unknown race, sex or age. The median passage date for the species was September 25 which is 8 days earlier than average.

Gyrfalcon The only bird seen was an adult grey morph on October 9. The total is 68.2% below average.

Peregrine Falcon A total of 6 birds was counted on 6 days between September 30 and the late date of November 5. The count is 12% above average. The flight comprised 3 adults, 1 juvenile and 2 birds of indeterminate age, and the species median passage date of October 5 was 1 day later than average.

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

Observers at Mount Lorette

Principal Observers George Halmazna (14 days), Terry Waters (11 days), Cliff Hansen (10 days), Bill Wilson (9 days) and Joel Duncan (7 days), with the assistance of Rod Smith (8 days), Kevin Barker (5 days), Cliff Hansen (4 days), Chris Hunt (4 days), Michael Woertman (3 days), Jill and Roderick Bhara (1 day), Jim Davis (1 day), Andrew Hart (1 day), Heinz Unger (1 day) and Fiona Waters (1 day).

Acknowledgments: RMERF gratefully acknowledges the receipt of \$1161 from Alberta Community Spirit, and extends thanks to the members and supporters of the Rocky Mountain Eagle Research Foundation for their continuing financial and logistical support. We thank Cliff Hansen who organized the count and compiled the data. The Rocky Mountain Eagle Research Foundation also gratefully acknowledges the continuing co-operation of the University of Calgary Biogeoscience Institute of the Canadian Rockies and Foothills Field Station at Barrier Lake and the G8 Chair for Wildlife Studies at the University of Calgary.

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 is1900 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. In the fall 2011 counts were conducted from this site 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. This fall's (**Table 5**) count involved one full day, October 6, on the ridge to which the general public were invited, a short count on the ridge conducted by two birders from Edmonton on the following day, and seven further short reconnaissance days at the Frank Slide site between September 29 and October 15 conducted by members of the Crowsnest Pass Conservation Society.

Weather and Flight dynamics

Apart from the count on October 6, systematic weather data were not gathered but observation days were generally warm or mild with moderate to strong W-SW ridge winds and favourable cloud cover. The exception was the public day on October 6 when snow fell obscuring the ridge until 1230, after which it cleared but only three observers were left to enjoy the subsequent migration. With the exception of October 4 when only 6 Golden Eagles were seen, all the counts yielded a reasonable number of raptors moving along the Livingstone Ridge and three days yielded over 100 migrants. On October 6 a total of 120 migrants of 5 species, including 100 Golden Eagles, moved between 1315 and 1806, with a peak movement of 83 birds between 1500 and 1700. On October 2, Gerald Romanchuk and Steve Knight, who had been with me on the ridge the previous day, returned to the site and in 4.5 hours (1420-1850) counted a total of 187 migrant raptors of seven species including 168 Golden Eagles. Unfortunately no age data were gathered. The most intense movement, however, came on October 11 when members of the Crowsnest Pass Conservation Society counted 151 migrant raptors in just 1.75 hours that included 147 Golden Eagles (133a,1sa,13j). Although not part of the reconnaissance counts, of note was the sighting by David McIntyre and his wife Monica of a south-bound adult Turkey Vulture on the eastern flank of the Livingstone Range at around 1615. This was the

first fall record of the species on the route, and equals the total seen in the fall in 20 years at Mount Lorette.

Count Summary (Table 5) A total of 9 days (33.25 hours) of a possible 17 days was spent in the field between September 29 and October 15 during which time a total of 662 migrant raptors of eleven species were recorded. The count comprised 1 adult Turkey Vulture, 2 Ospreys, 11 Bald Eagles (6adults, 2 juveniles and 3 unaged), 6 unaged Northern Harriers, 24 Sharp-shinned Hawks (6 adults, 18 unaged), 6 unaged Cooper's Hawks, 6 small undifferentiated accipiters, 3 unaged Red-tailed Hawks, 6 Rough-legged Hawks (4 light, 1 dark and 1 undetermined morph), 585 Golden Eagles (314 adults, 23 subadults, 64 juveniles and 184 unaged birds), 1 undifferentiated eagle and 1 Merlin of unreported race, age or sex.

On the same days at Mount Lorette observers counted a total of 984 migrant raptors of ten species, including 881 Golden Eagles in 100.6 hours. The numbers of raptors per hour at Piitaistakis-South Livingstone was therefore 19.9 compared to 9.8 at Mount Lorette, and the numbers of Golden Eagles per hour at Piitaistakis-South Livingstone was 17.6 compared to 8.8 at Mount Lorette

Observers at Piitaistakis-South Livingstone

Observers Denise Cocciolone-Amatto (7 days), Raymond Tole (3 days), Steve Knight and Gerald Romanchuk (2 days), and Wendy Dercole, Shirley Enszol, Merilyn Liddell, Karola Michalsky, Phil Nicholas, Peter Sherrington, Penny Takahashi and Cenny Yau (1 day each).

Steeples 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 Steeples Ridge which is located on the east side of the Kootenay Valley (Rocky Mountain Trench) 25 km NE of Cranbrook, British Columbia. Three sites were used to monitor raptor movement along, or just north of, the NNW-SSE oriented Steeples ridge which forms the southern part of the Hughes Range on the western flank of the Rocky Mountains. Of significance is that it is located about 80 km almost due W of the Piitaistakis-South Livingstone site giving the possibility of simultaneously monitoring movement along the eastern and western flanks of the Rocky Mountains at the same latitude. This year all counts were conducted at the Scarface/Bill Nye site (49 ° 45' 11.10"N, 115 ° 38' 49.14"W, at 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 to arrive there. The site offers views of the birds as they pass over, or in front of, the ridge. 'Scarface Peak' (2400m) is the most westerly and visibly craggy peak of Mount Bill Nye (2600m). The fall 2012 season is the fourth reconnaissance count at the site (**Table 6**), but because of work committments Vance could only spend 12 days (36 hours) of a possible 36 days at the site between October 3 and November 7. The number of days and hours are 63.3% and 70.57% below the average of the last three years (2009-2011) respectively.

Weather and count summary

It was warm throughout the count with high temperatures ranging from 15C on October 10 and 13 to 5C on October 20 and 21, and it was still 10C on November 7, the last day of the count. It was sunny or partially sunny on all active days, with a cloud cover that generally ranged from 20% to 80% cumulus,

altostratus and cirrus, and days with 80-100% cloud involved mainly thin altostratus. Ridges were clear except for October 21 and November 5 when they were partially clear, and ridge winds were assessed as calm on active days between October 3 and 10 and on October 17, as strong westerly on October 13 and moderate to strong variably W, SE or NW between October 20 and November 7. Observing conditions were generally excellent but raptor movement was sporadic. October 6 saw a flight of 24 birds but all other counts between October 3 and 17 had no migrants (three days) or produced 1 to 3 birds. October 20 had the season-high count of 37 birds and movement remained steady for the rest of the count. The count produced a total of 108 migrant raptors of seven species (**Table 7**), but comparison with previous counts (**Table 6**) must be used with caution because of the low numbers of days spent in the field this season. An adult **Turkey Vulture** seen on October 3 was only the third recorded on a fall count here. **Bald Eagles** were the most common migrant and comprised 68.5% of the count. Most of the 74 birds counted occurred on two days: 21 on October 6 and 29 on October 20, and the flight comprised 48 adults, 9 subadults and 17 juvenile birds. The only **Northern** Harrier seen was a juvenile bird on October 13. Sharp-shinned Hawks were fewer than usual with only 3 adult birds seen and the total of two Northern Goshawks (1 adult and 1 unaged) was close to average for the count. Oddly, no **Red-tailed Hawks** were recorded as previous years have seen an average of 11 birds, but the 5 light morph Rough-legged Hawks probably represented close to a normal count. Golden Eagle numbers seemed to be low with only 22 birds (16 adults, 1 subadult and 5 juveniles) recorded. Only two birds were recorded before October 20 and peak movement involved only 11 birds on November 5.

Observer at Steeples

All counts were conducted by Vance Mattson.

Appendix

List of Tables

Table 1 Mount Lorette summary weather

Table 2 Mount Lorette daily counts September 20 to November 15

Table 3 Mount Lorette summary counts 1993-2012 (excluding short counts)

Table 4 Mount Lorette October summary counts

Table 5 Piitaistakis-South Livingstone daily counts September 29-October 15

Table 6 Steeples summary fall counts 2009-2012

Table 7 Steeples daily counts October 1 to November 15

TABLE 1 MOUNT LORETTE, FALL 2012 SUMMARY WEATHER

										WEATHER		% T	IN/IE	
					R	IDGE WIN	JID.						GES	#
			TE	ИР		IDGE WII	max		CI	.OUD	PRECIPITATION & NOTES		CURED	migran
Day#			Max	Min	Direction	Velocity		Max%	Min%	type	TRESHTIATION & NOTES	West	East	raptors
1	San	20	24.5	5	?	L	n/a	50	0	Ci (thin)	smoke haze			12
2	Sep	21	24.5	2	?	L	n/a	0	0	Ci (thin)	smoke haze after 1400			3
3	Sep	22	24	3	SW?	L?	n/a	25	5	Cu,Sc,Ci	smoke haze			13
4	Sep	23	23	1	SE-W	L.	n/a	100	10	Ac,Cs	STIDILE TIAZE			26
5	Sep	24	22	0.5	W?	L	n/a	20	0	Ci,Cu	smoke haze			7
6	Sep	25	14	1	?	L-M	n/a	100	20	St,Cu,As,Ac,Ci	1313 cold front: rain and showers	40	30	4
7	Sep	26	15	2	WSW	М	n/a	20	0	Cu,Sc	fog patches in am	20	20	14
8	Sep	27	21.5	-1.5	?	L	n/a	0	0		light smoke haze			92
9	Sep	28	23	0	E?	L	n/a	20	0	Ci	smoke to W			18
10	Sep	29	18	3	W-SW	М	n/a	80	30	Ac,As,Ci		10		36
11	Sep	30	17	-1	WSW	М	n/a	95	5	Cu,As,Ci,Cs				117
12	Oct	1	19	12.5	SW	S	n/a	80	50	Cu,As,Ci,Cs				108
13	Oct	2	6	-1	NW-NE	M-S	n/a	100	10	St,Cu	1000 cold front: rain/snow pellets	60	60	18
14	Oct	3	4	-2	N-NW	L?	n/a	80	50	Sc,Cu	snow flurries in pm	75	75	7
15	Oct	4	5	-9	W	L-M	n/a	50	0	Cu				82
16	Oct	5	7	-5	NNW	L	n/a	20	0	Cu,Ci	light smoke haze in pm			55
17	Oct	6	12.5	1	W	М	n/a	100	tr	St,Ac,Ci		20	20	83
18	Oct	7	14.5	-6.5	SW	L-M	n/a	100	30	As,Cu				137
19	Oct	8	4	1	NNW-NNE?	L?	n/a	100	100	St	cold front in am: rain, drizzle, snow	100	100	3
20	Oct	9	11	-1.5	SW	M-S	n/a	100	5	St,Cu,Ac,As,Ci				441
	Oct	10	NO OBS	SERVAT	ION			100	100	St	rain, snow after 1200	100	100	0
21	Oct	11	12	-1	SSW	M	n/a	100	50	Cu,As,Ac,Lent,Ci	1600-1900: arch developed	10	10	84
22	Oct	12	12.5	-1	W-SW	S	n/a	70	30	Cu,As,Ac,Ci,Cs				30
23	Oct	13	14	8	W-SW	S	n/a	100	40	Sc,Ac,Ci	v. light, brief rain showers all day			55
24	Oct	14	14	8	WSW	M-S	n/a	100	60	Cu,As,Ci	occ. Light rain showers			86
25	Oct	15	14	10	SW	M-S	n/a	90	20	St,Cu,Ci		20		344
26	Oct	16	7	4	SSW-NW	M-S-L	n/a	100	40	St,Cu,As,Ci	rain and snow to W in pm	50	50	57
27	Oct	17	7	0	SW	S	n/a	40	0	Sc,Cu,Ci				63
28	Oct	18	11	1	SW	M-S	n/a	90	20	Cu,Lent,As,Ci	1200-1600 arch over Fisher Range			48
29	Oct	19	11	8	SW	S	n/a	100	40	St,Sc,Cu,Ac,Ci	frequent rain showers all day	90	10	72
	Oct	20	NO OBS	SERVAT	ION			100	100	St	snow	100	100	0
30	Oct	21	-2.5	-5.5	SW	M-S	n/a	100	20	St,Cu,Ci	4cm fresh snow; v. light flurries in pm	90	50	102
31	Oct	22	-3.5	-5	NE?	L-M	n/a	100	50	St,Cu	occ. light flurries	100	100	53
32	Oct	23	-5.5	-7	?	L?	n/a	100	100	St	5cm fresh snow; snow all day (2 cm)	100	90	7
33	Oct	24	-5	-12	NW	L	n/a	80	50	Sc,Cu,Ac,Ci	10cm fresh snow	70	20	100
34	Oct	25	-4	-7	SW	L-M	n/a	100	5	Cu,Ac,As	light ice crystal haze in am	80	50	126
35	Oct	26	-5	-11	WNW	M	n/a	100	80	Ac,Cu,As,Ac,Ci	flurries, then heavy snow after 1600	90	70	7
36	Oct	27	-4	-10	SW	M-L	n/a	100	30	St,Cu,Ac,As,,Ci		50	20	25
37	Oct	28	7	-7.5	W	M-S	n/a	100	50	Cu				42
38	Oct	29	6	-2	SW	L-S	n/a	100	20	St,Cu	1400-1600: snow	60	20	7
39	Oct	30	6	3	SW	M-S	n/a	100	100	St	rain	90	90	3
	Oct	31		SERVAT				100	100	St	snow	100	100	0
40	Nov	1	6	-4	SSW-SW-W	S	n/a	100	50	Sc,Cu,Ac,As	1200-1300: light drizzle	10	10	20
41	Nov	2	5	-2	WSW	M	n/a	80	20	Ac				58
42	Nov	3	9.5	5	SW	S	n/a	100	60	Cu,Lent,Ac,As,Ci		30		15
43	Nov	4	9	-1	W	M-S	n/a	100	50	Cu,Ac,As				65
44	Nov	5	12	7	SW	S-M	n/a	100	20	Cu,lent,As,Ac				51
45	Nov	6	4	-4	SW-SSW	M-S	n/a	100	20	Cu,lent,As,Ac,Ci	1100: snow and rain for rest of day	50	50	130
46	Nov	7	4	0	SW	M-S	n/a	100	10	As,Cu,St	1530: cold front producing steady snow	30	10	31
	Nov	8		SERVAT				100	100	St,Sc	snow	100	100	0
	Nov	9		SERVAT				100	100	St	snow to 0900	100	100	0
47	Nov	10	-9	-15	SW	L	n/a	90	5	Cu,As,Ci	6cm fresh snow	25		3
48	Nov	11	-4	-23	SW	M	n/a	100	0	Ci,As,Ci				7
49	Nov	12	2	-9	SW	S	n/a	80	40	St,Cu,lent,As,Cs,C	CC .			4
50	Nov	13	5	-4	SW	M-S	n/a	90	70	Cu,As		50		2
51	Nov	14	4 2	-6	?	M	n/a	50 50	20	Cu,As Ci,Cs,Cc		20		2

											T	ABLE	2												
								М	ount	Lore	ette,	Albe	rta,	fall 2	012										
September 2	0 to Nov	ember	15																						-
Date	HRS	TV	os	BE	NH	SS	СН	NG	BW	SW	RT	FH	RL	GE	AK	ML	GY	PG	PR	UA	UB	UE	UF	UU	TOTAL
2012-09-20	12.08	0	0	1	0	0	0	0	0	0	0	0	0	11	0	[1]	0	0	0	0	[1]	0	0	0	12
2012-09-21	12	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
2012-09-22	10	0	0	2	0	0	0	0	0	0	4	0	0	5	0	1	0	0	0	1	0	0	0	0	13
2012-09-23	12.5	0	0	[2]	2	8	0	1	0	0	1	0	0	14	0	0	0	0	0	0	0	0	0	0	26
2012-09-24	12.5	0	0	0	0	2	1	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	7
2012-09-25	9	0	0	0	0	0	[1]	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	4
2012-09-26	10.25	0	0	2	0	1	0	1	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	14
2012-09-27	12.5	0	1	2	0	2	1	[2]	0	0	1	0	0	85	0	0	0	0	0	0	[1]	0	0	0	92
2012-09-28 2012-09-29	10.5 10	0	0	2	0	1	0	0	0	0	3	0	0	14 28	0	0	0	0	0	0	0	0	0	0	18 36
2012-09-29	13.16	0	1	5	2	1	1	4	0	0	1	0	0	99	0	1	0	1	0	0	0	0	0	1	117
September	124.5	0	2	17	4	16	4	6	0	0	11	0	0	273	0	4	0	1	0	2	0	1	0	1	342
2012-10-01	12.75	0	0	1	0	3	0	0	0	0	0	0	0	104	0	0	0	0	0	0	0	0	0	0	108
2012-10-01	9.67	0	0	0	0	1	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	18
2012-10-02	6.5	0	0	0	0	0	1	2	0	0	0	0	0	3	0	0	0	1	0	0	0	0	0	0	7
2012-10-04	11.6	0	0	5	0	15	1	0	0	0	0	0	1	58	0	0	0	0	0	1	1	0	0	0	82
2012-10-05	10.5	0	0	3	0	1	1	1	0	0	3	0	0	45	0	0	0	1	0	0	0	0	0	0	55
2012-10-06	10.5	0	0	2	0	3	2	0	0	0	2	0	0	73	0	1	0	0	0	0	0	0	0	0	83
2012-10-07	12.25	0	0	4	0	4	0	3	0	0	4	0	6	116	0	0	0	0	0	0	0	0	0	0	137
2012-10-08	11.5	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3
2012-10-09	12.5	0	0	2	0	2	0	2	0	0	0	0	6	428	0	0	1	0	0	0	0	0	0	0	441
2012-10-10	NO OBS	SERV A	AOITA	ı																					0
2012-10-11	10.5	0	0	5	0	6	0	1	0	0	0	0	1	71	0	0	0	0	0	0	0	0	0	0	84
2012-10-12	11	0	0	1	0	0	0	0	0	0	0	0	1	26	0	0	0	0	0	0	1	1	0	0	30
2012-10-13	10.5	0	0	0	0	0	0	0	0	0	0	0	2	52	0	0	0	0	1	0	0	0	0	0	55
2012-10-14	12.5	0	0	2	0	0	0	1	0	0	0	0	0	83	0	0	0	0	0	0	0	0	0	0	86
2012-10-15	12	0	0	3	0	3	1	1	0	0	0	0	1	334	0	0	0	0	1	0	0	0	0	0	344
2012-10-16	10	0	0	0	0	0	0	[1]	0	0	0	0	0	57	0	0	0	0	0	0	0	0	0	0	57
2012-10-17 2012-10-18	10.5 11	0	0	2	0	2	0	1	0	0	0	0	0	63 45	0	0	0	0	0	0	0	0	0	0	69 48
2012-10-18	10	0	0	2	0	0	0	[1] 0	0	0	0	0	3	66	0	0	0	1	0	0	0	0	0	0	72
2012-10-19					U	U	U	U	U	U	U	U	3	00	U	U	U	'	U	U	U	U	U	U	0
2012-10-20	11.25	0	0	1	0	1	0	1	1	0	1	0	11	86	0	0	0	0	0	0	0	0	0	0	102
2012-10-22	11.33	0	0	2	0	0	0	1	0	0	1	0	16	33	0	0	0	0	0	0	0	0	0	0	53
2012-10-23	7	0	0	2	1	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	7
2012-10-24	7	0	0	3	0	0	0	2	0	0	1	0	1	93	0	0	0	0	0	0	0	0	0	0	100
2012-10-25	10.5	0	0	3	0	2	0	[1]	0	0	0	0	2	119	0	0	0	0	0	0	0	0	0	0	126
2012-10-26	5.5	0	0	0	0	0	0	1	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	7
2012-10-27	9.5	0	0	1	0	0	0	0	0	0	0	0	1	22	0	0	0	1	0	0	0	0	0	0	25
2012-10-28	11	0	0	4	0	0	0	1	0	0	0	0	0	37	0	0	0	0	0	0	0	0	0	0	42
2012-10-29	11	0	0	1	0	0	0	1	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	7
2012-10-30	8	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
2012-10-31																									0
October	287.9	0	0	50	1	45	6	20	1	0	13	0	56	2045	0	1	1	4	2	3	2	1	0	0	2251
2012-11-01		0	0	4	0	0	0	[1]	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	20
2012-11-02	9.75	0	0	[1]	0	1	0	[1]	0	0	1	0	0	55	0	0	0	0	0	0	0	0	1	0	58
2012-11-03	4.75	0	0	7	0	0	0	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	15
2012-11-04	10.5	0	0	7	1	0	0	0	0	0	0	0	2	56	0	0	0	0	0	0	0	0	0	0	65 51
2012-11-05 2012-11-06	10.5 7.5	0	0	20	0	0	0	3	0	0	0	0	1	40 105	0	0	0	0	0	0	0	0	0	0	130
2012-11-06	9.33	0	0	13	0	0	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0	31
2012-11-07					5	,	5	,	J	J	,	,	0	10	,	0	5	,	0	0	0	- 0	5	0	0
2012-11-09																									0
2012-11-10	8.5	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
2012-11-11	9.67	0	0	4	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	7
2012-11-12	10	0	0	1	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	4

												TA	BLE	3												
		MOUN	T LO	RET	TE SI	JMM	ARY	TOTA	LS,	Septe	mbe	r 20 ·	- Nov	emb	er 15,	1993-	1996,	1998	3-2001	, 200	03-20	05, 20	009-2	012		
	days	hrs.	TV	OS	BE	NH	SS	СН	NG	BW	SW	RT	FH	RL	GE	AK	ME	GY	PG	PR	UA	UB	UE	UF	UU	Т
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
2012	52	530.1	0	2	128	6	63	10	30	1	0	26	0	61	2635	0	5	1	6	2	5	2	2	1	1	2987
TOTAL	818	8417	1	40	3891	153	2033	351	708	103	6	507	5	819	53347	39	105	45	81	30	88	32	28	18	66	62496
Av 93-11	54.7	563.4	0.07	2.71	269	10.5	141	24.4	48.4	7.29	0.43	34.4	0.36	54.1	3622.3	2.79	7.14	3.14	5.36	2	5.93	2.14	1.86	1.21	4.64	4250.6
12 cf Av	-5.0	-5.9	-100	-26.3	-52.4	-42.9	-55.2	-58.9	-38.1	-86.3	-100	-24.3	-100	12.7	-27.3	-100	-30.0	-68.2	12.0	0.0	-15.7	-6.7	7.7	-17.6	-78.5	-29.7
1992	short	count																								
1997	count	at Plate	au Mo	untain																						
2002	no sy	stematio	coun	t																						
2006-08	anoma	alously	low, s	hort co	ounts																					

												TA	BLE	4												
					ОСТ	OBEF	SUM	MAR	Y TOT	ALS,	MOU	NT LO	RETT	E (exc	cluding	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	Т
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
2012	28	287.9	0	0	50	1	45	6	20	1	0	13	0	56	2045	0	1	1	4	2	3	2	1	0	0	2251
TOTAL	480	5070	0	8	2487	74	1154	157	507	65	1	202	2	713	46504	12	61	27	50	19	45	29	32	18	41	52208
Av 93-11		318.8	0	0.53	162	4.87					0.07		0.13	43.8	2963.9	0.8	4	1.73	3.07	1.13	2.8	1.8	2.07		2.73	3330.5
11 cf Av	-7.1	-9.71	0	-100	-69	-79	-39	-40	-38	-77	-100	3.17	-100	27.9	-31	-100	-75	-42	30.4	76.5	7.14	11.1	-52	-100	-100	-32.41

											TA	BLE	5												
							F	iitais	takis-	South	Livi	ngsto	ne, A	lberta	, fall	2012									
September 29 t	to Octobe	r 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	TOTA
2009-09-29	4	0	0	1	1	2	1	1	0	0	0	0	0	22	0	0	0	0	0	0	0	1	0	0	29
2009-09-30	n/a	1																							1
September	4	1	0	1	1	2	1	1	0	0	0	0	0	22	0	0	0	0	0	0	0	1	0	0	30
2009-10-01	4.25	0	2	0	0	1	1	1	0	0	0	0	0	38	0	0	0	0	0	0	0	0	0	0	43
2009-10-02																									0
2009-10-03																									0
2009-10-04	2	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	6
2009-10-05	2.5	0	0	1	3	2	1	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	23
2009-10-06	8.5	0	0	5	0	7	0	1	0	0	0	0	6	100	0	0	0	0	0	0	1	0	0	0	120
2009-10-07	4.5	0	0	3	1	8	1	3	0	0	3	0	0	168	0	0	0	0	0	0	0	0	0	0	187
2009-10-08																									0
2009-10-09																									0
2009-10-10	NO OBS		ION																						0
2009-10-11	1.75	0	0	1	1	1	0	1	0	0	0	0	0	147	0	0	0	0	0	0	0	0	0	0	151
2009-10-12			ION																						0
2009-10-13	3.25	0	0	0	0	2	2	0	0	0	0	0	0	54	0	1	0	0	0	0	0	0	0	0	59
2009-10-14	NO OBS	ERVAT	ION																						0
2009-10-15	2.5	0	0	0	0	1	0	0	0	0	0	0	0	34	0	0	0	0	0	8	0	0	0	0	43
October	29.25	0	2	10	5	22	5	6	0	0	3	0	6	563	0	1	0	0	0	8	1	0	0	0	632
TOTALS	33.25	1	2	11	6	24	6	7	0	0	3	0	6	585	0	1	0	0	0	8	1	1	0	0	662
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	TOTAI
Mount Lorett	e. Alber	ta. fall	2012																						+
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	TOTAI
2009-09-29	10	0	0	2	0	1	0	0	0	0	3	0	0	28	0	0	0	0	0	1	0	1	0	0	36
2009-09-30		-																							0
September	10	0	0	2	0	1	0	0	0	0	3	0	0	28	0	0	0	0	0	1	0	1	0	0	36
2009-10-01	12.75	0	0	1	0	3	0	0	0	0	0	0	0	104	0	0	0	0	0	0	0	0	0	0	108
2009-10-02					-	_	-		-	-	_	-	_		_		-	_	_	-	-	_	-		0
2009-10-03																									0
2009-10-04	11.6	0	0	5	0	15	1	0	0	0	0	0	1	58	0	0	0	0	0	1	1	0	0	0	82
2009-10-05	10.5	0	0	3	0	1	1	1	0	0	3	0	0	45	0	0	0	1	0	0	0	0	0	0	55
2009-10-06	10.5	0	0	2	0	3	2	0	0	0	2	0	0	73	0	1	0	0	0	0	0	0	0	0	83
2009-10-07	12.25	0	0	4	0	4	0	3	0	0	4	0	6	116	0	0	0	0	0	0	0	0	0	0	137
2009-10-08				_	,	_		, , ,	, ,	,	_	Ť	Ť					Ť	Ť			Ť			0
2009-10-00																									0
2009-10-10																									0
2009-10-10	10.5	0	0	5	0	6	0	1	0	0	0	0	1	71	0	0	0	0	0	0	0	0	0	0	84
2009-10-11								<u>'</u>					H.	· · ·											0
2009-10-12	10.5	0	0	0	0	0	0	0	0	0	0	0	2	52	0	0	0	0	1	0	0	0	0	0	55
2009-10-13				J	J	J	J	0	J	J	J	J		JZ	U	U	0	J	<u>'</u>	U	J	J	U	U	0
2009-10-14	12	0	0	3	0	3	1	1	0	0	0	0	1	334	0	0	0	0	1	0	0	0	0	0	344
October	90.6	0	0	23	0	35	5	6	0	0	9	0	11	853	0	1	0	1	2	1	1	0	0	0	948
TOTALS	100.6	0	0	25	0	36	5	6	0	0	12	0	11	881	0	1	0	1	2	2	1	1	0	0	984
								Ť			- <u>-</u>		<u> </u>			T.	Ť	i i	_	_	i i	i i			104
Raptors/hour	P-SL 19.	91, ML	9.78																						
GOEA/hour	P-SL 17.	59, ML	8.76																						

												TA	BLE	6												
							YI	EARL	Y SU	MMA	RYF	ALL 1	OTA	LS, S	STEEPI	LES 2	2009-2	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	Т
2009	41	148	2	1	146	7	37	4	5	0	0	9	0	13	226	1	1	0	0	0	0	0	1	0	0	453
2010	34	145.5	0	1	191	2	18	0	2	0	0	7	0	8	162	0	0	0	0	0	0	4	4	0	0	399
2011	23	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
2012	12	36	1	0	74	1	3	0	2	0	0	0	0	5	22	0	0	0	0	0	0	0	0	0	0	108
TOTAL	110	403	3	3	541	10	73	4	11	0	0	34	0	27	503	2	1	0	1	0	0	4	6	0	0	1223
Av 09-10	32.7	122.3	0.67	1	1 56	3	23.3	1.33	3	0	0	11.3	0	7.33	160.33	0.67	0.33	0	0.33	0	0	1.33	2	0	0	371.67
11 cf Av	-63	-70.6	50	-100	-52	-67	-87	-100	-33	0	0	-100	0	-32	-86.28	-100	-100	0	-100	0	0	-100	-100	0	0	-70.94

											TΑ	BLE	7												
									Ste	eple	s, B	ritish	Col	umb	ia										
October 3 to	Novemb	er 7																							
Date	HRS	TV	os	BE	NH	SS	СН	NG	BW	SW	RT	FH	RL	GE	AK	ML	GY	PG	PR	UA	UB	UE	UF	UU	TOTAI
2012-10-03	2.5	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
2012-10-04	NO OBS	SERVA	ATION	ĺ																					0
2012-10-05	NO OBS	SERVA	ATION	ı																					0
2012-10-06	3	0	0	21	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	24
2012-10-07	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
2012-10-08	1.5	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
2012-10-09	NO OBS	SERVA	ATION	i																					0
2012-10-10	3.5	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
2012-10-11		-	-	ı		-			-					-				-			-	-			0
2012-10-12																									0
2012-10-12	3.5	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
2012-10-13		_	-	_	- 1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	- 0	0
		0		0	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
2012-10-15	3	•	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2012-10-16						_				_	_	_						_	_		_	_		_	0
2012-10-17	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
2012-10-18																									0
2012-10-19	NO OBS	SERV	ATION																						_ 0
2012-10-20	4.5	0	0	29	0	1	0	1	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	37
2012-10-21	3	0	0	10	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	14
2012-10-22	NO OBS	SERVA	ATION	I																					0
2012-10-23	NO OBS	SERVA	ATION	l																					0
2012-10-24	NO OBS	SERVA	ATION	I																					0
2012-10-25	NO OBS	SERVA	ATION	ı																					0
2012-10-26	NO OBS	SERVA	ATION	ı																					0
2012-10-27	NO OBS	SERVA	ATION	ı																					0
2012-10-28																									0
2012-10-29																									0
2012-10-30																									0
2012-10-30																									0
				63	4	-	0	2	0	0	_	_	4	10	0	_	0	_	_	0	_	0	0	0	-
October 2012-11-01	31	1	0		1	2	U	2	U	U	0	0	4	10	U	0	U	0	0	U	0	U	U	U	83
																									-
2012-11-02																									0
2012-11-03																									0
2012-11-04																									0
2012-11-05	3	0	0	4	0	1	0	0	0	0	0	0	1	11	0	0	0	0	0	0	0	0	0	0	17
2012-11-06	NO OBS	SERV/	ATION	1																					0
2012-11-07	2	0	0	7	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	8
November	5	0	0	11	0	1	0	0	0	0	0	0	1	12	0	0	0	0	0	0	0	0	0	0	25
TOTALS	36	1	0	74	1	3	0	2	0	0	0	0	5	22	0	0	0	0	0	0	0	0	0	0	108
Date	HRS	TV	os	BE	NH	SS	СН	NG	BW	SW	RT	FH	RL	GE	AK	ML	GY	PG	PR	UA	UB	UE	UF	UU	TOTAL