MOUNT LORETTE, SPRING 2015

With notes on the Beaver Mines, Alberta and Steeples, BC sites

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Summary and highlights

Following a reconnaissance count at the site in 1992, this was the 23rd consecutive year that a systematic spring count has been held at Mount Lorette. It is the 7th consecutive extended (as opposed to complete) count at the site and, as started in 2011, the count period was again March 1 to April 22. The combined species count of 2745 birds was the second highest since 2006, as was the Golden Eagle count of 2459, but it should be noted that all counts from 1993-2006, with the exception of 1997, exceeded these totals.

The March combined species count of 2455 was just 2.8% below the long-term average for valid counts, but the April total of 290 was 50.8% below average and equaled the lowest ever April total. The Golden Eagle count of 2459 was 18.4% below average, but the highest single day count of 507 on March 20 was the second highest ever. Four species occurred in significantly higher than average numbers: Northern Harrier, Red-tailed Hawk, Rough-legged Hawk and Merlin, while 8 other species were significantly below average.

The reconnaissance count at Beaver Mines was extended to 39 days (209 hours) and produced 1798 migrants of 17 species, including a single day Golden Eagle count of 429 on March 19. The sixth reconnaissance count at the Steeples count on the western flanks of the Rocky Mountains near Cranbrook, BC produced a count of 302 birds which is the lowest ever there, with record low counts of both Bald Eagle (81) and Golden Eagle (200).

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

Migrating Golden Eagles were first seen moving over Mount Lorette on March 20, 1992, and the first extended (33 day, 280 hour) count was conducted the following fall and yielded 2661 migrant raptors of which 2044 were Golden Eagles[1]. Until 2005, full-season spring counts were conducted annually at Mount Lorette, with an average time spent at the site of the 15 counts of 79.9 days (863.5 hours). From 2006 to 2009 the principal fall observation site was moved to the Piitaistakis-South Livingstone location close to the Municipality of Crowsnest Pass in SW Alberta, during which time extended comparison counts were conducted at Mount Lorette during the main period of 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 2** summarizes all the spring counts since 1993 conducted at Mount Lorette to date. It is clear that the counts conducted in 2008, 2009, 2010 and 2012 are anomalously low compared to other counts. The combined species count for the years 2008, 2009, 2010 and 2012 (with comparison for Golden Eagle in parentheses) are only 39% (39%), 30.5% (29.4%), 40% (43.7%) and 37.7% (33.3%) respectively of the average for the counts from 1993 to 2007 and 2011. By contrast the fifth lowest spring count at the site in 2007 is 68.2% (65.6%) of average. The anomalous nature of these four counts probably results from a combination of poor weather conditions and, in some cases, observer inexperience, but whatever the cause it seems prudent at this time to exclude these counts from the statistical comparisons with subsequent counts.

The spring 2011 count was conducted between March 01 and April 22, one week longer than those from 2008-2010, and all subsequent counts have been conducted during the same time

period. **Table 3A** summarizes the counts conducted at Mount Lorette for the period March 1 to April 22 1973-2014. **Table 3B** excludes the anomalously low counts of 2008, 2009, 2010 and 2012 on which the data variances of the current count (number, median passage dates and age ratios) are based unless otherwise stated.

Once again no count was held this season at the Piitaistakis-South Livingstone site, and so this report concerns only the count at Mount Lorette, the reconnaissance site at Beaver Mines in SW Alberta 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 52 days (604.2 hours) of a possible 53 days at the site between March 01 and April 22, the days and hours being 4.9% and 10.4% above the average of valid counts respectively.

The reconnaissance count that was first conducted by Peter Sherrington at Beaver Mines last year was extended this year to a 39 day (209 hour) count between March 01 and April 22. At the Steeples reconnaissance count in BC Vance Mattson spent 32 days (130.5 hours) of a possible 53 days at the site between March 1 and April 22. This is the sixth consecutive spring season that this count has been held.

Mount Lorette, Alberta

Weather

Table 6 summarizes the weather data from this season's count. During the count only 1 day (March 2) was completely lost to adverse weather (76.5% below the average of the last 4 years, all of which used the same count period), and a further 3 days (March 23, April 4 and April 6) were significantly shortened because of extended periods of snow. A total of 17 days (32.7%) experienced precipitation (excluding days with occasional flurries or drizzle) which is 29.3% below average. Snow fell on 11 days (21.2%; 44.6% below average) and rain on 6 days (11.5%; 325.9% above average). Valley fog persisted throughout the morning on March 24 and there was an ice crystal haze all day on April 3.

The highest maximum temperature was 18^{o}C on April 21 and the lowest maximum was -8^{o}C on March 3; the highest minimum temperature was 10^{o}C on March 20 and the lowest minimum was -27^{o}C on March 3.The temperature failed to rise above freezing on 8 active days (15.4% which is 18.9% below average). .

Regrettably, once again the Environment Canada Nakiska Ridgetop weather station situated 4 km west of the Hay Meadow site on Olympic Summit (Mount Allan) at 2543 m was inoperative and ridge wind information had to be estimated by observers. It should be noted that experience has demonstrated that wind velocities tend to be underestimated by observers located in the

valley; on cloudless days or when the ridges were cloaked in cloud estimating the wind direction and velocity proved to be impossible. Observers assessed ridge winds to be from the SSW-W 76.9% of the time, from the WNW-NW 11.5%, from the NW-NE 3.8%, and from the SW-NW 1.9%. Wind direction was variable 3.8% of the time and on 1 day (1.9%) observers could not assess the ridge winds because of persistent low cloud.

On active observation days ridge wind speeds were assessed as moderate to strong (11 to 41+ km/h) 30.8% of the time and strong to very strong (>41 km/h to >100 km/h) for 15.4% of the time. Moderate winds (11-40 km/h) occurred on 13.5% of active days, light to moderate (1-40 km/h) winds occurred 25.0% of the time and light winds occurred 9.6% of the time. On 3 days (5.8%) winds varied from light to strong.

Compared to the average of the last four years there were significantly more WNW-NW days (+50.3%) and taken together SSW-WNW winds were almost 14.2% above average. Compared to average, strong to very strong winds were 23.4% and moderate to strong winds were 8.1% below average, moderate winds were close to average (+0.9%), light to moderate winds were 21.1% above average and light winds were 55.5% above average.

Eight active days (15.4%) experienced cloud cover between 80 and 100% all day. A total of 29 days (55.8 %) experienced 100% cloud for at least part of the day. The eastern ridge system (Fisher Range and Mounts Lorette and McDougall) was at least partly obscured on 24 active days (46.2%), and 40-100% obscured on 13 active days (25%); the western ridge system (Mounts Kidd, Bogart, Allan and Collembola) was at least partly obscured on 24 active days (46.2%), and 40-100% obscured on 17 active days (32.7%). Severe daily occlusions (40-100%) of the eastern ridges on active days were 11.8% below average while the western ridges were 18.5% below average.

In summary the season was significantly warmer than normal, precipitation was less than normal with far fewer snow days but more rain days, ridge winds were predominantly SSW-WNW with significantly below average velocities, and cloud cover and ridge occlusion were below average.

General flight dynamics March 1 to April 22

A total of 2745 migrant raptors of 14 species were counted on 51 active observation dates between March 1 and April 22 (**Table 1)**. The combined species total was just 6.8% below the long-term average for the period March 1 to April 22 at the site. Including the day lost because of weather, only 2 days had no raptor passage, and a total of 23 days (44.2%) had counts of 10 birds or less. The first 7 days of the count yielded only 27 birds and the first significant movement (30 birds) occurred on March 18. The first 100+ day (114) occurred on March 13, and the most sustained movement was March 18-22 when 1632 birds were counted at an average of 326.4/day, of which 1559 (95.5%) were Golden Eagles. The highest single day count was 514 (507 Golden Eagles) on March 20. Other 100+ days were March 13 (114: 109 Golden Eagles), March 18 (229: 225 Golden Eagles), March 19 (197:185 Golden Eagles), March 21 (282: 249 Golden Eagles) and March 22 (410: 393 Golden Eagles).

The March combined species total of 2455 represented 89.4% of the total spring 2015 count and was only 2.83% below the average of all valid March counts at the site **(Table 4B).** The April combined species count of 290 birds was the lowest since 2002 and 50.8% below the average of the previous 17 valid counts at the site **(Table 5B)**. The combined species median passage date was March 25 which was 2 days later than the long-term average.

Of the 14 species that regularly occur during the period (**Table 3B**) 4 species were significantly above average: Northern Harrier 6 (+36.7%), Red-tailed Hawk 39 (+41.8%), Rough-legged Hawk 29 (+63.6% and Merlin 9 (+31.7%). Broad-winged Hawk 1 (+800%) and Peregrine Falcon 2 (+89.5%) were non-significantly above average.

All other species recorded were significantly lower than average: Osprey 1 (-48.6%), Bald Eagle 129 (-30.3%), Sharp-shinned Hawk 18 (-29.7%), Cooper's Hawk 6 (-12.9%), Northern Goshawk 20 (-11.1%), Golden Eagle 2459 (-18.4%), Gyrfalcon 1 (-18.2%) and Prairie Falcon 1 (-89.5%). Turkey Vulture (recorded on 3 previous counts), Ferruginous Hawk (recorded on 3 previous counts) and American Kestrel (recorded on 11 previous counts) were not recorded this year, while Swainson's Hawk has never been recorded at the site during the current count period.

The final count was Turkey Vulture 0, Osprey 1, Bald Eagle 129, Northern Harrier 6, Sharp-shinned Hawk 18, Cooper's Hawk 6, Northern Goshawk 20, *Accipiter* sp. 2, Broad-winged Hawk 1, Swainson's Hawk 0, Red-tailed Hawk 39, Ferruginous Hawk 0, Rough-legged Hawk 29, *Buteo* sp. 2, Golden Eagle 2459, eagle sp. 15, American Kestrel 0, Merlin 9, Gyrfalcon 1, Peregrine Falcon 2, Prairie Falcon 1, *Falco* sp. 2 and indeterminate raptor 3, for a total of 2745 migrant raptors of 14 species. The combined species median passage date was March 20, 3 days earlier than average. Of the 9 species occurring in sufficient numbers to calculate median passage dates, 3 were later than average (Cooper's Hawk: 6 days; Red-tailed Hawk: 4 days; Northern Harrier 1 day), while 6 were earlier than average (Rough-legged Hawk: 20 days; Merlin: 15 days; Sharp-shinned Hawk: 9 days; Bald Eagle: 6 days; Golden Eagle: 3 days; Northern Goshawk: 1 day)

Detailed daily summaries of weather and flight dynamics can be found on the spring 2014 blog on the RMERF website www.eaglewatch.ca

Golden Eagle

Observers counted a total of 2459 migrating Golden Eagles on 46 days between March 1 and April 21, with the highest single-day count of 507 occurring on March 20 (**Figure 1**). The number of days on which the species was recorded is 15.6% below average, the total is 3.1% above the long-term average and the high count is 27% above average and the second highest spring maximum count at the site after 849 in 1993. Five other days also had counts of over 100 birds: March 13 (109), March 18 (225), March 19 (185), March 21 (249) and March 22 (393). The five-day count from March 18 to 22 was 1559 at an average of 311.8/day.

The March count of 2294 was 8.26% above the average of all counts at the site **(Table 4A)**, but when the anomalously low counts are excluded the figure falls to -4.03% **(Table 4B)**. By contrast, the April count of 165 equals the lowest ever (with 2004) for valid spring counts and is

65.2% below the average of all counts **(Table 5A)** and 69.7% below the average excluding the anomalously low counts **(Table 5B)**. The flight comprised 1836 adults, 67 subadults, 84 juveniles and 472 birds of unknown age yielding an immature:adult ratio of 0.08 which is 5.9% below average. This is anomalously low compared to the predicted trend and probably results from the low April count (when most immature birds migrate) and the relatively high number of unaged birds (472)

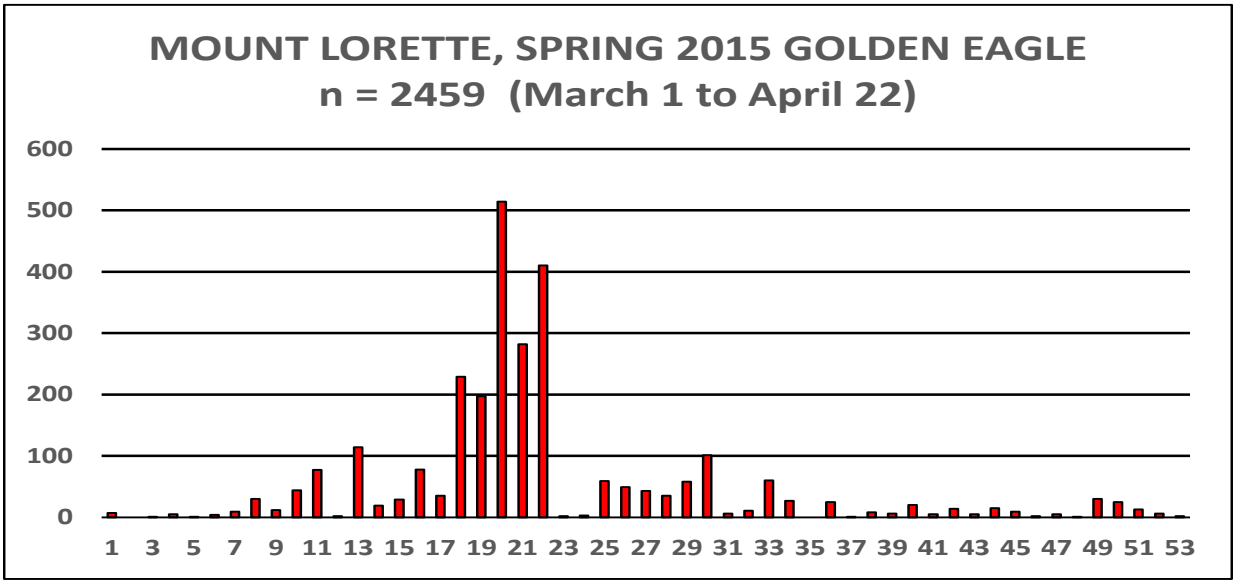

Figure 1

The hourly cumulative counts (**Table 7**, **Figure 2A**) differ significantly from the long-term average (1993-2007) negatively-skewed normal distribution curve where hourly counts steadily increase throughout the day, peak around 1600 and fall thereafter (**Figure 2B**). This season's chart shows a slow build-up to 1400-1500 with relatively low numbers of birds moving during each hour. Most of the movement occurred between1500 and 1800 with hourly counts of 414, 377 and 546 respectively, and the total of 1337 comprised 54.4% of the total flight. The only day with a significant early movement was March 21 when 220 birds moved between 0800 and 1400. The highest single-hour count was 181 between 1700 and 1800 (MST) on March 20, followed by 153 from 1500-1600 and 118 from 1600-1700 on the same day: the three-hour movement involved 452 birds. The very low counts for the hours 0600-0700 (1) and 1900-2000 (3) result in part from some observers arriving late at the site and leaving early.

The median passage date for the species and for adult birds was March 20, which were 3 and 2 days earlier than average respectively. The median passage date for immature birds was April 22 which is 17 days earlier than average reflecting the anomalously low count of young birds in April. It is possible that the main immature movement occurred after the end of the count on April 22.

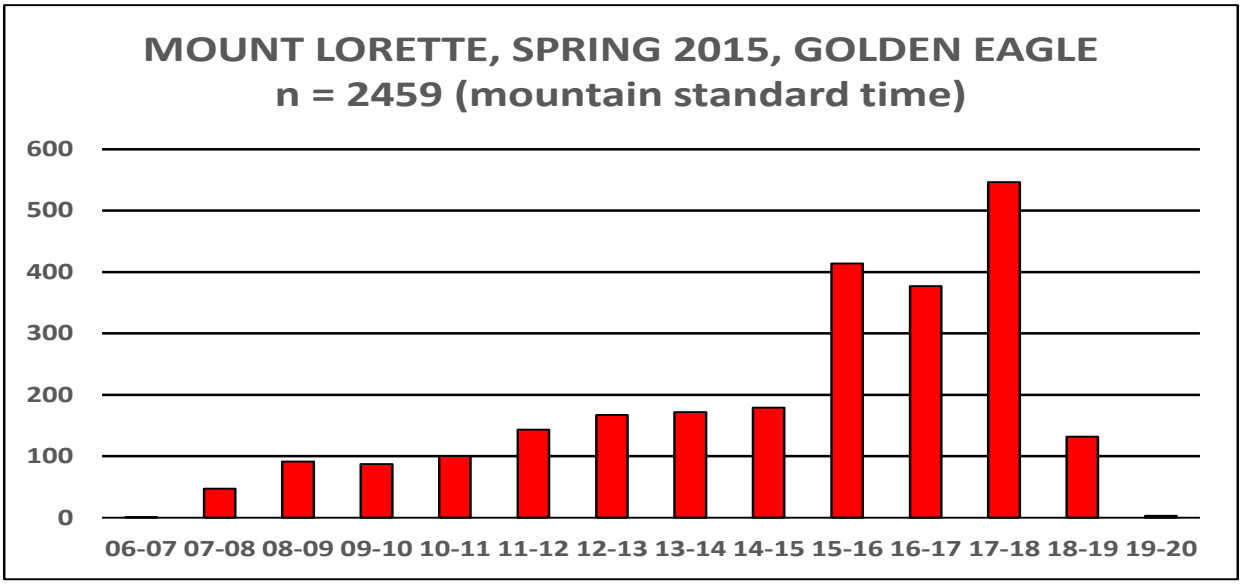

Figure 2A

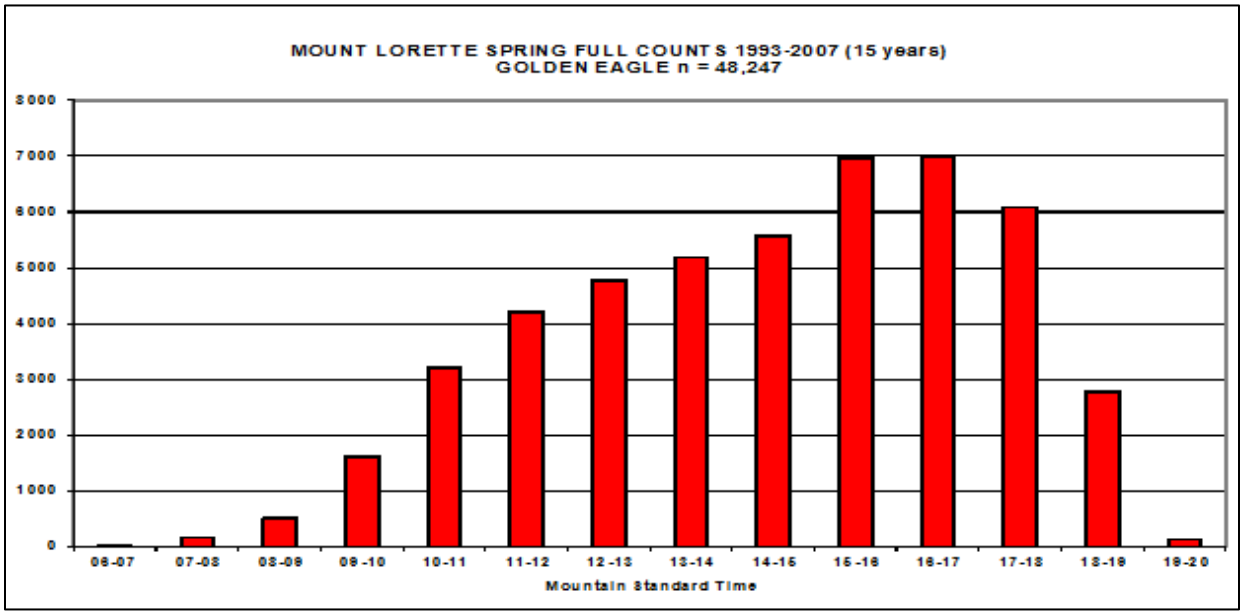

Figure 2B

Spring Golden Eagle Trend

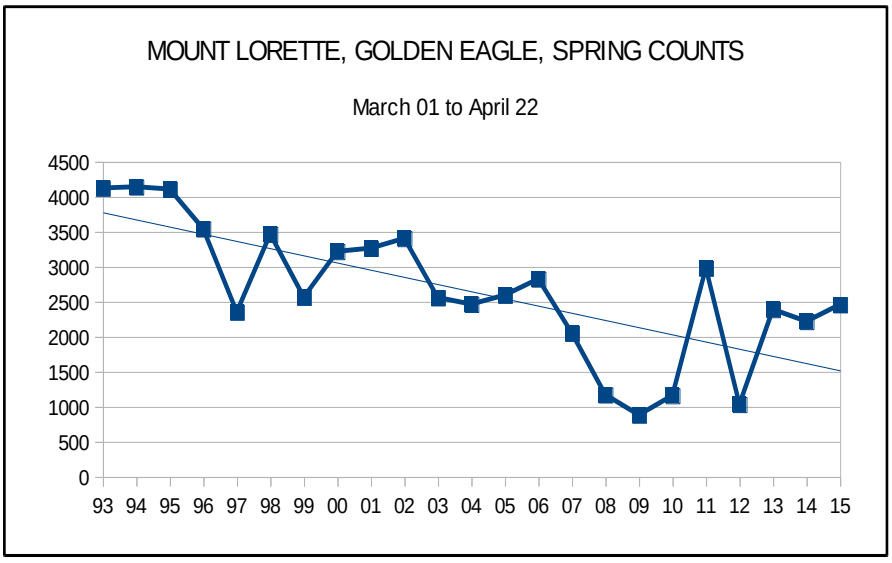

Figure 3A

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

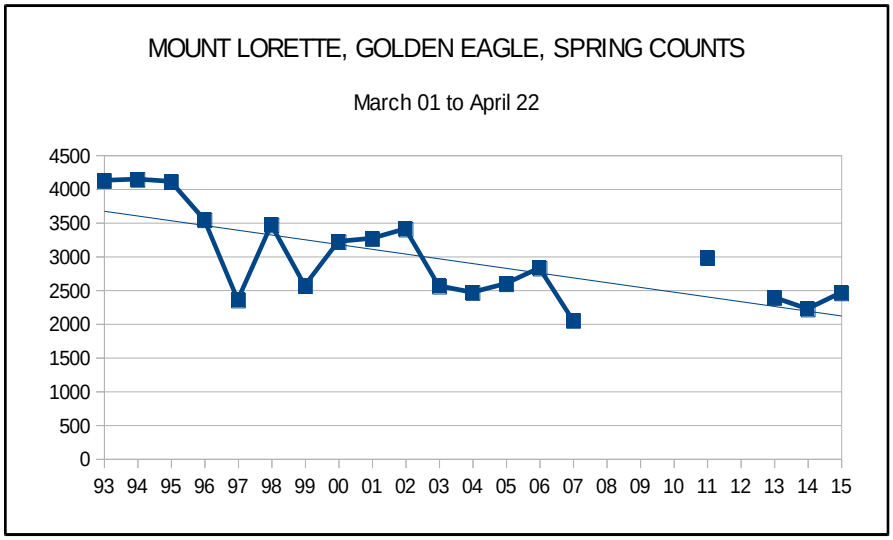

Figure 3B

The weather at the site since 2007 has generally been worse than average and birds may have been deflected to more easterly routes in greater numbers than usual, but the weather in 2011 was similar, as was the weather in 1997 and 1999 and all of these counts (2982, 2352 and 2565 respectively) were significantly higher than those of the period 2008-10. The linear trend line (**Figure 3A**) appears to show a significant decline over the last 20 years (and especially since 1995) and removal of the recent anomalous low counts (**Figure 3B**) only slightly tempers but does not change this trend, as does the removal of the demonstrably weather-affected counts in 1997 and 1999 **(Figure 3C)**. Data from the present count do not materially alter this trend and the future of this population of migratory Golden Eagles should still be of serious concern.

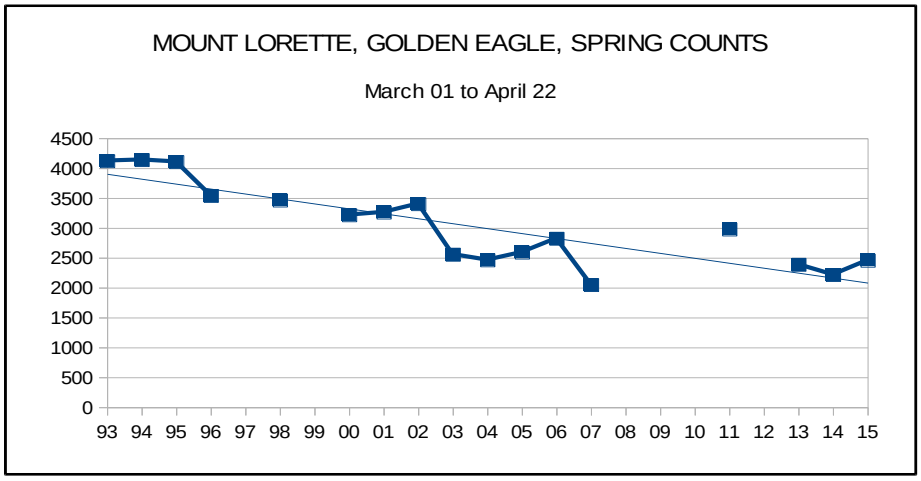

Figure 3C

Golden Eagle Age Analysis

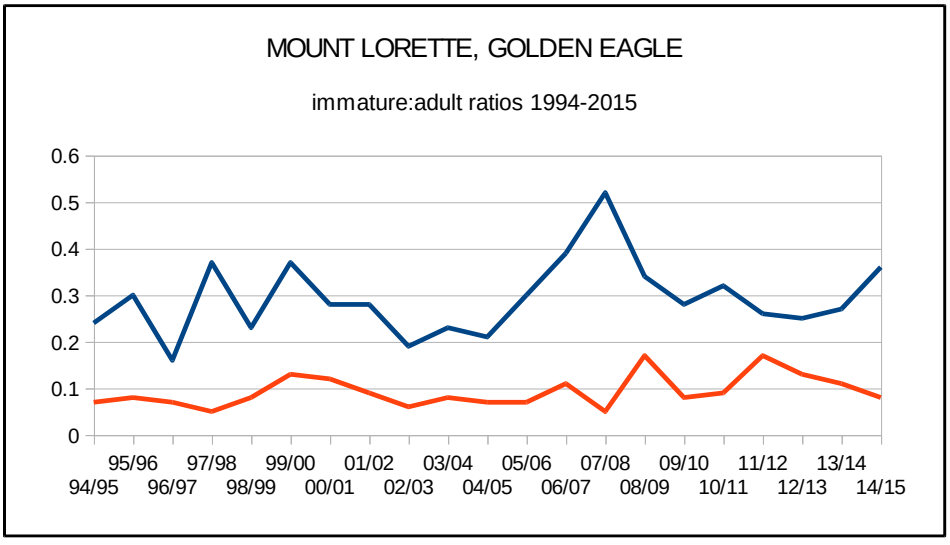

Figure 4

Figure 4 shows the ratio of immature and adult Golden Eagles from 1994 to 2014. This is based on a combination of Mount Lorette and Piitaistakis-South Livingstone data as contemporaneous counts from both sites show a close correlation of ratios. The upper (blue) series show fall data, the lower (red) series show spring data. The fall data points are plotted above the spring data points of the following year. Both data sets show a remarkable parallelism, with the spring data consistently showing a significant reduction from the previous fall. This probably reflects a combination of winter mortality and possibly a more diffuse migration pattern of young birds in the spring. It is also accentuated by the shorter count period which generally under-counts the number of juvenile birds, many of which move after April 22. Despite these limitations the trends are consistent and almost certainly reflect the breeding cycles of the northern Snowshoe Hare population [1,2,3]. This probably peaked around the time counts started at Mount Lorette in 1992, (although age data from the first two years are not reliable enough to be included) and fell to 1995 rising again to a second peak around 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 (see the 2012 spring report). This suggests that we can successfully continue to monitor these trends by counting from March 1 to April 22, although it is to be hoped that at some time we will be able to resume full counts at the site. The age ratio from the fall 2013 and 2014 counts suggest that breeding success is beginning to increase again with numbers beginning to rise towards the next peak which is expected be around 2016. Reports from the Yukon[5] suggest that 2013 saw a significant rise in the number of Snowshoe Hares, and this should be reflected in the number of juvenile birds recorded on the coming fall 2014 count. The spring 2015 age ratio of 0.08, however is anomalously low compared to the predicted trend from the fall 2014 count and probably results from the low April count (when most immature birds migrate) and the relatively high number of unaged birds (472). It is possible that the main immature movement occurred after the end of the count on April 22 and during some complete counts significant juvenile movement did not occur until May.

Bald Eagle

Observers counted 129 Bald Eagles on 32 days between March 1 and April 18 (**Figure 5**). This was highest count since 2011, but is 22.8% below the long-term average of all counts, and 30.3% below the average excluding 2008-10 and 2012. The highest daily count was 18 on March 21 which is 11.9% below the average high count (excluding low counts) for the period. The March count of 98 was 8.5% below average and the April count of 31 was 58.8% below average. The flight comprised 92 adults, 14 subadults and 18 juveniles, 2 undifferentiated immature birds and 3 of indeterminate age giving an overall immature:adult ratio of 0.26 which is 23% below the long-term average ratio. The median passage date for the species was March 22, 6 days earlier

than average; adult birds were 5 days earlier than average on March 22 and immature birds were 7 days early on March 25.

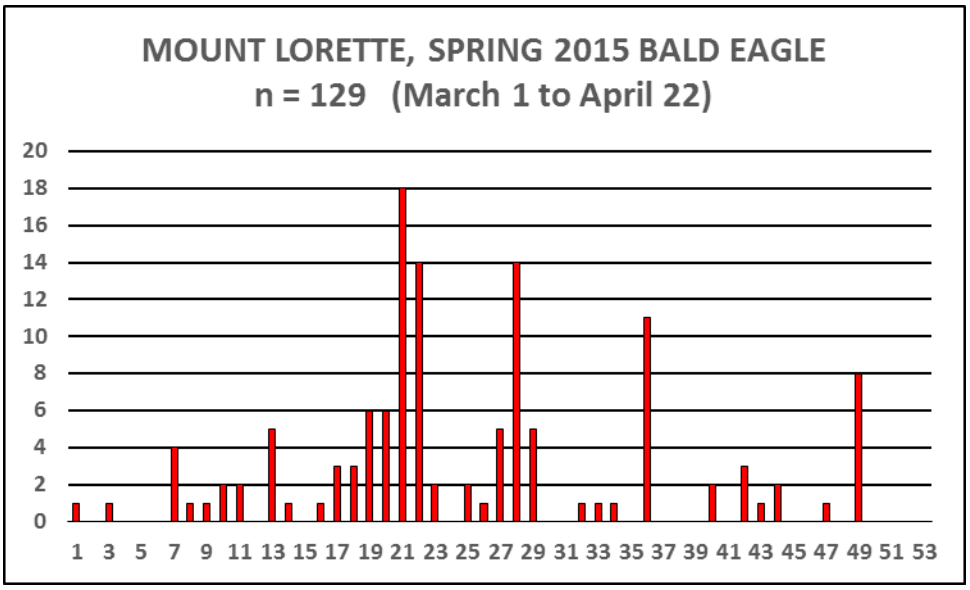

Figure 5

Other species

Turkey Vulture

Not recorded this year. The only previous records for the count period were single birds recorded on April 13, 1993, March 18, 2011 and March 31 2013.

Osprey

A single bird was recorded on April 22, a total that is 48.6% below average.

Northern Harrier

Six birds were recorded comprising 3 adult males and 3 adult females on 3 days between March 29 and April 17. The total is 36.7 below the average count for the period. Three of the birds moved on April 14 which equals the highest single-day count for the species. The median passage date for the species was April 14, 1 day later than average.

Sharp-shinned Hawk

It was another low count for the species with only 18 birds counted on 9 days between the relatively early date of March 9 and April 19 which is 29.7% below average. The highest daily count was 4 birds on April 19, which is 32.1% below the average high count. Five birds were counted in March, which is 119.5% above average, and 13 in April which is 44.3% below average. The flight comprised 8 adults, 2 juvenile and 8 unaged birds giving an immature:adult ratio of 0.25, and the species median passage date of April 12 is 1 day earlier than average, while the adult median of April 5 is 9 days earlier than average.

Cooper's Hawk

A total of 6 Cooper's Hawks occurred on 5 days between March 21 and April 22, a total that is 12.9% below average. The flight comprised 3 adults, 2 juveniles and 1 bird of indeterminate age, giving an age ratio of 0.67. The median passage date for the species was April 19, 6 days later than average.

Northern Goshawk

The total of 20 birds seen on 8 days between March 11 and April 20 was 11.1% lower than average. Five of the birds occurred on April 19 which is 50% higher than the average single-day count. The flight comprised 16 adults and 4 birds of unknown age. The median passage dates for both the species and for adults was March 19 which are 1 day early and 1 day later than average respectively.

Broad-winged Hawk

A single juvenile light morph bird was recorded on April 19. 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 total of 39 birds counted on 13 days between March 14 and April 20, was 41.8% above average and the fourth highest spring count for the site.. The highest daily count was 7 on April 20 which is 46.5% above the average high count. The flight comprised 35 "Western Red-tailed Hawks" (*B.j.calurus*): 22 adult and 3 juvenile light morphs, 1 indeterminate aged rufous (intermediate) morph and 7 adult dark morphs; 1 adult "Krider's Hawk" (*B.j.borealis* var *krideri*); 2 indeterminate light morph birds and 1 bird of indeterminate race, morph or age. The overall immature:adult ratio was 0.09. The median passage dates of the species was April 14, 4 days later than average, and of adults was April 7, which is 5 days later than average.

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

Observers counted a total of 29 birds on 13 days between March 7 (15 days earlier than the average first occurrence) and April 19. The count is 63.6% higher than average and equals the second highest spring count for the site. The highest single-day count was 6 on March 21, which is close to average (+3.8%). The median passage date of March 21 was 20 days earlier than average. The flight comprised 20 light morphs, 7 dark morphs and 2 birds of indeterminate morph.

American Kestrel

No birds were recorded this year. It has occurred on 11 previous years.

Merlin

A total of 9 birds were recorded on 5 days between March 12 and April 17 which is 31.7% above average and the highest count since 2007. The highest single-day count was 3 on March 24 and on April 18 which both equals the previous highest count. The flight comprised 2 adult males, 3 adult females and 3 indeterminate birds of the race *columbarius*, and 1 bird of indeterminate race, age and sex. The species median passage date was March 21, 15 days earlier than average.

Gyrfalcon

A single black morph bird was recorded on April 5.

Peregrine Falcon

An adult bird recorded on March 21 was the second earliest ever at the site and 18 days earlier than the average first occurrence, and a bird of indeterminate age was seen on April 13. The total is 89.5% above the average count.

Prairie Falcon

A single bird seen on April 18 was the only record for the season.

Observers

Principal Observers: Joel Duncan (11 days), Brian McBride (8.5 days), Jim Davis (8 days), Bill Wilson (8 days), Terry Waters (7 days), George Halmazna (5 days), Cliff Hansen (2.5 days), Peter Sherrington (2 days)

Assistants: Cliff Hansen (11 days), Patrick Farley (7 days), Ruth Morrow (6 days), Dan Parliament (6 days), Jennifer Waters (5 days), Rosemary Power (4 days), Heinz Unger (4 days), Joel Duncan (3 days), Kevin Barker (3 days), Chris Hunt (2 days), Gord Petersen (2 days), Patricia Farley (1 day), Dawn Hall (1 day), Brian McBride (1), Tina & Ken Moore (1 day), Diane Stinson (1 day), Michael Woertman (1 day).

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Beaver Mines extended reconnaissance count, Alberta

Beaver Mines is a small hamlet located about 20 km west of the town of Pincher Creek in southwestern Alberta. It is also where I have lived since 2007 after moving there in order to conduct counts at the Piitaistakis-South Livingstone site. My house is located in a valley on the alignment of the most easterly foothills ridge system that has a NW-SE orientation in this area. In the past I have commented in the daily blog on individual days when I have observed significant raptor movement from my house in both spring and fall at times when the mountain and foothill ridges to the west are obscured by cloud. During the spring of 2014 these conditions appeared to have prevailed for extended periods so I was able to conduct non-systematic counts on 17 days (78.1 hours) between March 18 and April 17.The count yielded a total of 1092 migrants of 10 species were recorded including 110 Bald Eagles and 853 Golden Eagles.

This season I spent a total of 39 days (209 hours) observing from my house and recorded a total of 1798 migrant raptors of 17 species. (**Table 8**). On only 2 active observation days were no migrants seen, and it now appears that this route is the main spring raptor flyway and not a poor weather displacement route from the west as I had previously believed. The highest single day count was 463 (including 429 Golden Eagles) on March 19, one day earlier than the maximum movement at Mount Lorette. The weather is summarized in **Table 9**. In addition to the 10 days that I was unable to observe, a further 4 days were lost to poor weather. Generally, however, the season was characterized by significantly higher than normal temperatures, a prevalence of moderate to strong SWS-SW winds and high cloudy skies that favoured detection and identification of high flying migrants. The count notably differs from Mount Lorette in the variety and numbers of non-eagle species which comprised 24.8% of the total count (15 species) at Beaver Mines compared to 5.7% (12 species) at Mount Lorette.

Golden Eagle A total of 1169 birds were counted of which 1070 occurred in March. The highest single-day count was 429 on March 19 and other significant days were 156 on March 20 101 on March 22 and 95 on March 25. The flight comprised 1052 adults, 54 subadults, 23 juveniles and 40 unaged birds, giving am immature:adult ratio of 0.07 which is very close to the 0.08 recorded at Mount Lorette.

Bald Eagle There was also a strong movement of Bald Eagles with 183 counted of which 142 occurred in March. The flight comprised 129 adults, 17 subadults and 37 juveniles with an immature:adult ratio of 0.3, which is also close to the Mount Lorette ratio of 0.26.

Osprey A single bird was seen on the last day of the count, April 22.

Northern Harrier A total of 42 migrants were tallied comprising 27 adult males, 7 adult females, 6 juveniles and 2 birds of unknown sex or age, giving an age ratio of 0.18.

Sharp-shinned Hawk The 60 birds seen comprised 14 adults, 9 juveniles and 37 unaged birds giving an age ratio of 0.64. Most birds (46) moved in April.

Cooper's Hawk The count of 15 birds comprised 4 adults, 6 juveniles and 5 unaged birds giving an age ratio of 1.5. All but one of the birds were counted in April.

Northern Goshawk Unlike the other two *Accipiter* species 66.1% of goshawks were seen in March. The flight of 56 birds was 34 adults, 8 juveniles and 14 unaged birds giving an age ratio of 0.24.

Broad-winged Hawk Also occurring on the last day of the count was a light morph adult bird.

Swainson's Hawk Completing the trio of late spring migrants (along with Osprey and Broad-winged Hawk) this a dark morph adult was also recorded on April 22, the last day of the count. The species has never been recorded at Mount Lorette during the present count period.

Red-tailed Hawk This species also moved strongly and persistently after March 19 with 135 (83.9%) of the total of 161 birds seen in April. The highest single-day count was 31 on April 7.

The flight comprised 144 "Western" Red-tailed Hawks (*B.j.calurus*): 128 light morphs (98 adults, 4 juveniles, 26 indeterminate); 1 adult rufous morph and 15 dark morphs (11 adults, 4 juveniles); 5 adult "Harlan's" Red-tailed Hawks (*B.j.harlani*); 4 indeterminate dark morph birds and 8 birds of indeterminate subspecies, morph or age.

Ferruginous Hawk Three adult birds were counted: a light and dark morph on April 7, and a light morph on April 20.

Rough-legged Hawk A total of 51 birds comprising 35 light morphs, 8 dark morphs and 2 unknown morphs occurred between March 1 and April 15, giving a dark:light ratio of 0.4. Forty-one of the 51 birds were seen in March (80.4%).

American Kestrel A total of 16 adult birds, 6 males and 10 females, were recorded between March 22 and April 22

Merlin Of the 13 Merlins recorded, 10 were the race *columbarius* (5 adult males, 1 adult female and 4 unknown), 1 was an adult male of the race *richardsonii* and 2 were of undetermined race, age or sex. Eight birds moved in March and 5 in April.

Gyrfalcon A grey morph bird was seen on March 12.

Peregrine Falcon Single adult birds were recorded on March 20 and March 25.

Prairie Falcon Five single birds were seen on 5 days between March 9 and April 14.

Completing the count of 1798 birds were 2 small unidentified *Accipiters*, 13 unidentified *Buteos*, 1 unidentified eagle and 2 small unidentified raptors.

Details of this count and other single day counts in the area can be found on the spring 2015 blog on our website: ww.eaglewatch.ca.

Acknowledgements All counts were conducted by Peter Sherrington assisted by Denise Coccionoli-Amatto (3 days), Merilyn Liddell (1 day), Gordon Petersen (1 day) and Nel Van Kamer (1 day).

Steeples Ridge extended reconnaissance count, British Columbia

Introduction

In the fall of 2009, Vance Mattson conducted the first extended reconnaissance count at or near the Steeples Ridge which is located on the east side of the Kootenay Valley (Rocky Mountain Trench) 25 km NE of Cranbrook, British Columbia. Three sites were used to monitor raptor movement along, or just north of, the NNW-SSE oriented Steeples Ridge which forms the southern part of the Hughes Range on the western flank of the Rocky Mountains. Of significance is that it is located about 80 km almost due west 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, 2009, with 95% of the time being spent between 1300 and 1800 and recorded 453 migrant raptors of 12 species. An extended spring reconnaissance count was conducted at the site for the first time in 2010, and 2015 was the fifth spring count there (**Table 11**).

During the spring 2015 season Vance conducted a 32-day (130.5 hour) extended reconnaissance count out of a possible 53 days between March 1 and April 22 (**Table 10)**. All observation was again conducted at the Bill Nye site, with the exception of March 12 which was spent at the South Lakit site. Between 1.5 and 5.75 hours at an average of 4.1 hours a day were spent at the sites with most observations conducted between 1300 and sundown.

Details of the sites are as follows:

Bill Nye (Scarface) (49 ^{o} 45’ 11.10’’N, 115 ^{o} 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 10 km from the Lazy Lake Road turn off on Wasa Lake Park Drive on the southern edge of Wasa Lake. The site is located about 5 km 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).

South Lakit (49^{o} 35’ 45.45’N, 115 ^{o} 35’ 30.50’’W, 1080m)

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

Weather

A total of 12 days (March 2, 14-16, 18-19, 23-24, April 1, 6, 14) were completely lost to adverse weather conditions when the ridges were obscured on heavily overcast days. Hourly weather data were not gathered but daily weather summaries were produced with the exceptions of March 31 and April 16 **(Table 12)**. The temperature high for the count was 20^{o}C on March 27 and the lowest maximum daily temperature was -4^{o}C on March 3 Average high temperatures on active observation days in March were 10.6^{o}C (range -4^{o}C to 20^{o}C) and 12.4^{o}C in April (range 4^{o}C to 19^{o}C). Temperatures were generally above seasonal normals.

The most common ridge wind direction was S-W (60% of active days), followed by Calm (23.3%), and all other directions comprised only 16.7%. Wind velocities were assessed as strong on 33.3% of active days, moderate to strong 10%, moderate 10%, light to moderate 3.3%, light 20% and calm 23.3%. Unlike last year during the period of maximum movement, March 22-25 when 136 migrants were seen winds were assessed as light to calm, this year the days of highest movement (March 20: 119, March 22: 48 and April 27: 23) were associated with strong S-SW winds. Conditions were generally cloudy with 60.7% of active days experiencing 70-100% cloud cover, 28.6% between 30 and 60% and only 17.9% with cloud cover less than 30%.

General flight dynamics

The peak of the movement occurred on March 20 (119) and March 22 (48), the 116 birds constituting 57% of the entire count. This peak was preceded by inclement weather from March 14-19 and coincides with peak counts at both Mount Lorette and Beaver Mines. The April movement was only 42 birds comprising 14% of the total count, and no day had double-digit numbers.

Count Summary

The count produced a total of 302 migrant raptors of 8 species (**Table 10**). Of this total 200 (66.2%) were Golden Eagles and 81 (26.8%) were Bald Eagles. Eagle species together comprised 93% of the total flight compared to the 94.3% eagles recorded at Mount Lorette, although there Golden Eagles (2459) greatly outnumbered Bald Eagles (129). Other migrants at Steeples were scarce and comprised 10 adult Turkey Vultures, 1a female Northern Harrier, 2u Sharp-shinned Hawks, 1u Northern Goshawk, 4 adult light morph *calurus* Red-tailed (which is the lowest ever spring count), 1 unidentified *Buteo,*1 adult Peregrine Falcon and 1 unidentified falcon. For the first time Rough-legged Hawk was not recorded on the count. The results of all five spring counts at the site are summarized on **Table 11**.

Golden and Bald Eagles

The 200 migrant Golden Eagles were recorded on 16 of a possible 32 active field days (50%) with a highest single day count of 104 on March 20 and with the second highest count of 26 on March 22. This is the lowest ever spring count for the species at the site. Only 4 days (12.5%) had double-digit counts this season. The flight comprised 189 adults, 4 subadults, 6 juveniles and 1 bird of indeterminate age giving an immature:adult ratio of 0.05, which compares to a ratio of 0.08 at Mount Lorette and of 0.07 at Beaver Mines.

The total of 81 migrant Bald Eagles was also, by far, the lowest ever spring count at the site. Birds were recorded on 20 days (62.5%) with a single day high count of 19 on March 22. March 20 with 13 birds was the only other day with a double-digit count. The flight comprised 47 adults, 4 subadults and 28 juveniles, 1 undifferentiated immature bird and 1 bird of indeterminate age, giving an immature:adult ratio of 0.7 which is much higher than the ratios of 0.26 at Mount Lorette and 0.3 at Beaver Mines.

Principal Observer at Steeples

Vance Mattson with the exception of Virginia Rasch on March 31 and April 16.

Appendix

TABLE 1

Mount Lorette, Alberta, spring 2015

March 01-April 22 (52 days, 604.2 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	Principal Observer(s)
2015-03-01	11.67	0	0	1	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	7	BW
2015-03-02	NO OBSERVATION (weather)																								0	no
2015-03-03	11	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	BmB
2015-03-04	11.75	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	5	PS
2015-03-05	12	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	PS
2015-03-06	11	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	1	0	4	CHa
2015-03-07	11.33	0	0	4	0	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0	0	0	0	0	9	JDa
2015-03-08	12.25	0	0	1	0	0	0	0	0	0	0	0	0	29	0	0	0	0	0	0	0	0	0	0	30	BW
2015-03-09	9.5	0	0	1	0	1	0	0	0	0	0	0	1	9	0	0	0	0	0	0	0	0	0	0	12	TW
2015-03-10	12	0	0	2	0	0	0	0	0	0	0	0	0	42	0	0	0	0	0	0	0	0	0	0	44	BmB
2015-03-11	11.5	0	0	2	0	0	0	1	0	0	0	0	2	70	0	0	0	0	0	0	1	1	0	0	77	JDu
2015-03-12	12	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	2	JDu
2015-03-13	12.25	0	0	5	0	0	0	0	0	0	0	0	0	109	0	0	0	0	0	0	0	0	0	0	114	CHa
2015-03-14	9.5	0	0	1	0	0	0	2	0	0	1	0	1	14	0	0	0	0	0	0	0	0	0	0	19	JDa
2015-03-15	12.83	0	0	0	0	0	0	0	0	0	0	0	0	29	0	0	0	0	0	0	0	0	0	0	29	BW
2015-03-16	7.5	0	0	1	0	0	0	0	0	0	0	0	0	77	0	0	0	0	0	0	0	0	0	0	78	TW
2015-03-17	11.75	0	0	3	0	0	0	0	0	0	0	0	0	31	0	0	0	0	0	0	0	1	0	0	35	BmB
2015-03-18	11	0	0	3	0	0	0	0	0	0	0	0	0	225	0	0	0	0	0	0	0	1	0	0	229	JDu
2015-03-19	12.33	0	0	6	0	0	0	0	0	0	1	0	4	185	0	1	0	0	0	0	0	0	0	0	197	JDa
2015-03-20	13.25	0	0	6	0	0	0	0	0	0	0	0	1	507	0	0	0	0	0	0	0	0	0	0	514	GH
2015-03-21	11.25	0	0	18	0	1	1	2	0	0	0	0	6	249	0	3	0	1	0	0	0	0	0	1	282	JDa
2015-03-22	14.58	0	0	14	0	0	0	1	0	0	0	0	0	393	0	0	0	0	0	0	0	1	1	0	410	BW
2015-03-23	6.5	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	TW
2015-03-24	12.5	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3	BmB
2015-03-25	12.5	0	0	2	0	0	0	0	0	0	0	0	0	54	0	0	0	0	0	0	0	3	0	0	59	CHa/BmB
2015-03-26	9.5	0	0	1	0	0	0	0	0	0	0	0	0	46	0	0	0	0	0	0	0	2	0	0	49	JDu
2015-03-27	13	0	0	5	0	0	0	1	0	0	0	0	0	37	0	0	0	0	0	0	0	0	0	0	43	GH
2015-03-28	12.5	0	0	14	0	3	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0	35	JDa
2015-03-29	12.67	0	0	5	1	0	0	3	0	0	0	0	0	45	0	0	0	0	0	1	0	2	0	1	58	BW
2015-03-30	11	0	0	0	0	0	0	0	0	0	0	0	2	98	0	1	0	0	0	0	0	0	0	0	101	TW
2015-03-31	12.25	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	1	0	0	6	BmB
March	**344.7**	**0**	**0**	**98**	**1**	**5**	**1**	**10**	**0**	**0**	**2**	**0**	**19**	**2294**	**0**	**6**	**0**	**1**	**0**	**1**	**1**	**12**	**2**	**2**	**2455**	
2015-04-01	12	0	0	1	0	0	0	0	0	0	0	0	1	7	0	0	0	0	0	0	1	1	0	0	11	JDu
2015-04-02	12.5	0	0	1	0	0	0	0	0	0	2	0	0	57	0	0	0	0	0	0	0	0	0	0	60	JDu
2015-04-03	11.75	0	0	1	0	0	0	0	0	0	1	0	0	25	0	0	0	0	0	0	0	0	0	0	27	GH
2015-04-04	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	BW
2015-04-05	12.5	0	0	11	0	1	0	0	0	0	4	0	4	4	0	0	1	0	0	0	0	0	0	0	25	JDa
2015-04-06	6.5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	TW
2015-04-07	12	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	8	BmB
2015-04-08	12.5	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	6	JDu
2015-04-09	12.5	0	0	2	0	0	1	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	20	JDu
2015-04-10	13	0	0	0	0	1	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	5	GH
2015-04-11	11.25	0	0	3	0	0	0	0	0	0	6	0	2	2	0	0	0	0	0	0	0	0	0	1	14	JDa
2015-04-12	14.42	0	0	1	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	5	BW
2015-04-13	10.5	0	0	2	0	3	0	0	0	0	6	0	0	3	0	0	0	1	0	0	0	0	0	0	15	TW
2015-04-14	9.5	0	0	0	3	0	0	0	0	0	2	0	0	4	0	0	0	0	0	0	0	0	0	0	9	BmB
2015-04-15	12.75	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	JDu
2015-04-16	12.5	0	0	1	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	1	0	0	5	JDu
2015-04-17	12	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	GH
2015-04-18	13.75	0	0	8	0	2	0	3	0	0	6	0	1	6	0	3	0	0	1	0	0	0	0	0	30	JDa
2015-04-19	14.83	0	0	0	2	4	1	5	1	0	1	0	2	9	0	0	0	0	0	0	0	0	0	0	25	BW
2015-04-20	11	0	0	0	0	0	2	1	0	0	7	0	0	3	0	0	0	0	0	0	0	0	0	0	13	TW
2015-04-21	13.75	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	1	0	0	6	BmB
2015-04-22	13	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	JDu
April	**259.5**	**0**	**1**	**31**	**5**	**13**	**5**	**10**	**1**	**0**	**37**	**0**	**10**	**165**	**0**	**3**	**1**	**1**	**1**	**1**	**1**	**3**	**0**	**1**	**290**	
Total	**604.2**	**0**	**1**	**129**	**6**	**18**	**6**	**20**	**1**	**0**	**39**	**0**	**29**	**2459**	**0**	**9**	**1**	**2**	**1**	**2**	**2**	**15**	**2**	**3**	**2745**	
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 2

MOUNT LORETTE, SPRING COUNTS 1993-2015

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	392.7	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	648.7	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	582	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	728.3	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	680.6	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	650.4	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	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	933.4	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	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	914.1	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	939.2	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	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	1238	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	1214	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	1019	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	493.3	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	519	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	556.1	1	1	192	5	41	8	17	0	0	45	0	40	2982	1	4	1	2	2	1	6	13	0	0	3362
2012	48	495.4	0	1	91	2	25	6	16	0	0	52	0	7	1034	2	5	1	3	1	7	3	4	0	0	1260
2013	49	537.4	1	0	104	2	17	1	13	0	0	18	0	27	2389	0	7	0	1	1	10	10	4	1	1	2607
2014	49	526.3	0	3	106	2	15	5	11	0	0	24	0	18	2219	2	3	0	2	1	3	3	7	2	0	2426
2015	52	604.2	0	1	129	6	18	6	20	1	0	39	0	29	2459	0	9	1	2	1	2	2	15	2	3	2745
TOTALS	1575	17134	15	162	4178	170	1161	300	542	27	11	813	10	433	62689	108	189	28	46	59	75	58	89	23	55	71241

TABLE 3A

SPRING SUMMARY TOTALS, MOUNT LORETTE 1993-2015 (all counts)

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	369.4	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	495.9	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	459.6	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	492.5	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	458.5	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	529.4	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	554.6	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	586.8	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	587.6	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	569.8	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	646.9	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	694.3	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	622.6	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	44	493.3	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	519	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	556.1	1	1	192	5	41	8	17	0	0	45	0	40	2982	1	4	1	2	2	1	6	13	0	0	3362
2012	48	495.4	0	1	91	2	25	6	16	0	0	52	0	7	1034	2	5	1	3	1	7	3	4	0	0	1260
2013	49	537.4	1	0	104	2	17	1	13	0	0	18	0	27	2389	0	7	0	1	1	10	10	4	1	1	2607
2014	48	526.3	0	3	106	2	15	5	11	0	0	24	0	18	2219	2	3	0	2	1	3	3	7	2	0	2426
2015	52	604.2	0	1	129	6	18	6	20	1	0	39	0	29	2459	0	9	1	2	1	2	2	15	2	3	2745
T 93-15	1122	12407	3	37	3803	89	512	142	471	3	0	609	4	366	60979	21	141	25	25	44	54	45	88	18	38	67517
Av 93-14	48.6	536.5	0.1	1.6	167.0	3.8	22.5	6.2	20.5	0.1	0.0	25.9	0.2	15.3	2660.0	1.0	6.0	1.1	1.0	2.0	2.4	2.0	3.3	0.7	1.6	2944.2
15 cf Av	6.9	12.6		-38.9	-22.8	59.0	-19.8	-2.9	-2.4	1000.0		50.5		89.3	-7.6		50.0	-8.3	91.3	-48.8	-15.4	2.3	352.1	175.0	88.6	-6.8

TABLE 3B

SPRING SUMMARY TOTALS, MOUNT LORETTE 1993-2015 (excluding 2008-2010 and 2012)

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	369.4	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	495.9	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	459.6	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	492.5	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	458.5	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	529.4	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	554.6	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	586.8	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	587.6	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	569.8	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	646.9	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	694.3	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	622.6	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	556.1	1	1	192	5	41	8	17	0	0	45	0	40	2982	1	4	1	2	2	1	6	13	0	0	3362
2012																										
2013	49	537.4	1	0	104	2	17	1	13	0	0	18	0	27	2389	0	7	0	1	1	10	10	4	1	1	2607
2014	48	526.3	0	3	106	2	15	5	11	0	0	24	0	18	2219	2	3	0	2	1	3	3	7	2	0	2426
2015	52	604.2	0	1	129	6	18	6	20	1	0	39	0	29	2459	0	9	1	2	1	2	2	15	2	3	2745
T 93-15	944	10450	3	36	3462	85	479	130	425	3	0	534	4	348	56732	19	132	23	21	41	39	37	63	15	33	62664
Av 93-14	49.6	547.0	0.2	1.9	185.2	4.4	25.6	6.9	22.5	0.1	0.0	27.5	0.2	17.7	3015.2	1.1	6.8	1.2	1.1	2.2	2.1	1.9	2.7	0.7	1.7	3328.8
15 cf Av	4.9	10.5		-48.6	-30.3	36.7	-29.7	-12.9	-11.1	800.0		41.8		63.6	-18.4		31.7	-18.2	89.5	-55.0	-2.7	2.9	462.5	176.9	80.0	-17.5

TABLE 4A

MARCH SUMMARY TOTALS, MOUNT LORETTE 1993-2015 (all counts)

	days	hrs.	TV	OS	BE	NH	SS	CH	NG	BW	SW	RT	FH	RL	GE	AK	ME	GY	PG	PR	UA	UB	UE	UF	UU	T
1993	23	180	0	0	107	2	7	2	20	0	0	7	0	2	3176	0	4	0	1	0	0	1	0	1	0	3330
1994	30	281	0	0	154	2	1	3	21	0	0	7	0	0	3356	0	1	2	0	7	0	0	0	0	0	3554
1995	28	264.7	0	0	92	1	1	1	34	0	0	5	0	7	3618	0	4	0	0	2	0	0	0	0	0	3765
1996	29	254.6	0	0	110	1	3	1	11	0	0	1	0	3	2370	0	1	0	0	2	0	0	0	0	0	2503
1997	26	250.5	0	0	109	0	1	0	5	0	0	4	0	1	2118	0	2	1	0	1	0	0	0	0	0	2242
1998	30	255.5	0	0	79	1	3	0	2	0	0	1	0	3	2895	0	3	1	0	1	0	0	0	0	0	2989
1999	29	305.6	0	0	124	1	2	4	6	0	0	2	0	1	2320	0	3	0	0	1	0	0	0	0	1	2465
2000	27	305.6	0	0	141	0	0	0	4	0	0	5	0	1	2751	0	0	0	0	1	0	1	2	0	1	2907
2001	31	363.7	0	0	137	0	0	1	8	0	0	3	0	1	2694	0	5	2	0	0	0	0	3	0	1	2855
2002	30	310.3	0	0	119	0	0	0	6	0	0	2	0	0	1950	0	3	1	0	0	0	0	0	1	1	2083
2003	28	311.4	0	0	118	0	2	0	6	0	0	1	0	4	2055	0	2	0	0	0	1	0	0	0	0	2189
2004	30	369.7	0	0	126	0	2	0	12	0	0	12	0	6	2300	0	1	0	1	1	0	0	1	1	2	2465
2005	31	387.8	0	0	121	0	4	1	26	0	0	3	0	1	2319	0	3	3	0	0	0	0	5	0	1	2487
2006	31	393.9	0	0	101	1	1	0	9	0	0	8	0	2	2544	0	2	1	0	0	0	0	1	0	0	2670
2007	31	385.3	0	0	91	0	0	0	6	0	0	8	0	1	1782	0	1	2	0	1	0	0	0	0	1	1893
2008	31	342.3	0	0	73	1	0	0	2	0	0	1	0	1	1093	0	2	0	0	0	2	1	3	0	2	1181
2009	27	289.4	0	0	36	0	5	0	5	0	0	0	0	2	684	0	0	0	0	1	3	0	5	1	1	743
2010	31	347.1	0	0	64	1	0	0	17	0	0	6	0	6	1051	0	0	1	0	0	1	2	10	0	1	1160
2011	27	305.4	1	0	124	2	5	1	9	0	0	2	0	9	2554	0	0	1	1	1	0	4	10	0	0	2724
2012	28	270.8	0	0	42	0	3	1	1	0	0	1	0	5	771	0	1	0	0	0	1	1	1	0	0	828
2013	29	308.8	1	0	74	0	9	0	10	0	0	8	0	4	2216	0	3	0	1	0	8	7	4	1	0	2346
2014	28	290.8	0	0	52	0	0	0	2	0	0	4	0	2	1468	0	2	0	0	0	0	0	3	0	0	1533
2015	30	344.7	0	0	98	1	5	1	10	0	0	2	0	19	2294	0	6	0	1	0	1	1	12	2	2	2455
TOTAL	665	7119	2	0	2292	14	54	16	232	0	0	93	0	81	50379	0	49	15	5	19	17	18	60	7	14	53367
Av 93-14	27.59	294.7	0.091	0	97.4	0.59	2.23	0.68	10	0	0	3.95	0	2.73	2119	0	1.86	0.682	0.18	0.864	0.73	0.77	2.05	0.23	0.55	2245
15 cf Av	8.73	17.0	-100.0		0.7	69.2	124.5	46.7	0.0			-49.4		596.7	8.26		222.0	-100.0	450.0	-100.0	37.5	29.4	486.7	780.0	266.7	9.38

TABLE 4B

MARCH SUMMARY TOTALS, MOUNT LORETTE 1993-2015(excluding 2008-2010 and 2012)

	days	hrs.	TV	OS	BE	NH	SS	CH	NG	BW	SW	RT	FH	RL	GE	AK	ME	GY	PG	PR	UA	UB	UE	UF	UU	T
1993	23	180	0	0	107	2	7	2	20	0	0	7	0	2	3176	0	4	0	1	0	0	1	0	1	0	3330
1994	30	281	0	0	154	2	1	3	21	0	0	7	0	0	3356	0	1	2	0	7	0	0	0	0	0	3554
1995	28	264.7	0	0	92	1	1	1	34	0	0	5	0	7	3618	0	4	0	0	2	0	0	0	0	0	3765
1996	29	254.6	0	0	110	1	3	1	11	0	0	1	0	3	2370	0	1	0	0	2	0	0	0	0	0	2503
1997	26	250.5	0	0	109	0	1	0	5	0	0	4	0	1	2118	0	2	1	0	1	0	0	0	0	0	2242
1998	30	255.5	0	0	79	1	3	0	2	0	0	1	0	3	2895	0	3	1	0	1	0	0	0	0	0	2989
1999	29	305.6	0	0	124	1	2	4	6	0	0	2	0	1	2320	0	3	0	0	1	0	0	0	0	1	2465
2000	27	305.6	0	0	141	0	0	0	4	0	0	5	0	1	2751	0	0	0	0	1	0	1	2	0	1	2907
2001	31	363.7	0	0	137	0	0	1	8	0	0	3	0	1	2694	0	5	2	0	0	0	0	3	0	1	2855
2002	30	310.3	0	0	119	0	0	0	6	0	0	2	0	0	1950	0	3	1	0	0	0	0	0	1	1	2083
2003	28	311.4	0	0	118	0	2	0	6	0	0	1	0	4	2055	0	2	0	0	0	1	0	0	0	0	2189
2004	30	369.7	0	0	126	0	2	0	12	0	0	12	0	6	2300	0	1	0	1	1	0	0	1	1	2	2465
2005	31	387.8	0	0	121	0	4	1	26	0	0	3	0	1	2319	0	3	3	0	0	0	0	5	0	1	2487
2006	31	393.9	0	0	101	1	1	0	9	0	0	8	0	2	2544	0	2	1	0	0	0	0	1	0	0	2670
2007	31	385.3	0	0	91	0	0	0	6	0	0	8	0	1	1782	0	1	2	0	1	0	0	0	0	1	1893
2008																										0
2009																										0
2010																										0
2011	27	305.4	1	0	124	2	5	1	9	0	0	2	0	9	2564	0	0	1	1	1	0	4	10	0	0	2734
2012																										
2013	29	308.8	1	0	74	0	9	0	10	0	0	8	0	4	2216	0	3	0	1	0	8	7	4	1	0	2346
2014	28	290.8	0	0	52	0	0	0	2	0	0	4	0	2	1468	0	2	0	0	0	0	0	3	0	0	1533
2015	30	344.7	0	0	98	1	5	1	10	0	0	2	0	19	2294	0	6	0	1	0	1	1	12	2	2	2455
TOTAL	548	5869	2	0	2077	12	46	15	207	0	0	85	0	67	46790	0	46	14	5	18	10	14	41	6	10	49465
Av 93-14	27.22	290.8	0.111	0	107	0.61	2.28	0.78	10.8	0	0	4.39	0	2.56	2390.4	0	2.11	0.778	0.22	1	0.5	0.72	1.44	0.22	0.44	2527
15 cf Av	10.2	18.54	-100		-8.5	63.6	120	28.6	-7.7			-54		643	-4.03		184	-100	350	-100	100	38.5	731	800	350	-2.83

TABLE 5A

APRIL 1-22 SUMMARY TOTALS, MOUNT LORETTE 1993-2015 (all counts)

	days	hrs.	TV	OS	BE	NH	SS	CH	NG	BW	SW	RT	FH	RL	GE	AK	ME	GY	PG	PR	UA	UB	UE	UF	UU	T
1993	21	189.5	1	3	60	1	30	17	31	0	0	24	0	2	948	0	4	0	2	4	0	0	0	2	0	1129
1994	22	215	0	4	64	8	44	15	20	1	0	29	1	20	786	0	0	1	0	4	2	1	0	0	0	1000
1995	20	194.9	0	4	72	0	30	5	10	0	0	27	2	11	490	1	7	0	3	4	0	0	0	0	0	666
1996	22	237.9	0	4	128	7	25	3	9	1	0	17	0	8	1173	0	4	0	1	1	3	1	0	0	0	1385
1997	22	209.8	0	2	103	4	15	5	11	0	0	17	0	11	234	2	5	0	0	1	2	1	0	1	0	414
1998	22	203	0	0	70	5	17	4	5	0	0	20	0	25	571	0	4	0	1	1	0	1	0	2	0	726
1999	21	223.8	0	0	60	9	7	2	3	0	0	44	0	14	245	1	3	0	0	1	1	1	0	0	0	391
2000	21	249	0	1	63	5	28	7	5	0	0	9	0	23	468	5	5	1	0	0	0	2	1	0	3	626
2001	19	223.1	0	1	100	4	29	6	17	0	0	27	1	20	571	2	3	1	1	0	0	0	1	0	1	785
2002	22	277.3	0	1	121	4	32	5	19	0	0	23	0	9	1455	2	4	2	0	1	3	1	0	1	4	1687
2003	21	258.4	0	1	66	5	8	4	6	0	0	23	0	10	503	1	3	2	0	0	4	1	1	0	3	641
2004	21	277.2	0	6	47	1	22	7	8	0	0	20	0	5	165	1	7	0	2	1	0	1	1	1	2	297
2005	22	309.6	0	1	61	2	12	1	18	0	0	12	0	7	275	0	3	0	0	0	1	1	1	0	3	398
2006	22	300.4	0	2	89	3	30	10	13	0	0	10	0	22	282	0	10	0	1	0	5	3	7	0	3	490
2007	19	237.3	0	1	98	3	32	6	13	0	0	37	0	13	269	1	12	1	1	1	1	0	0	0	2	491
2008	15	151	0	0	13	0	1	1	0	0	0	2	0	0	78	0	0	0	1	0	1	1	0	2	1	101
2009	13	160.6	0	0	40	0	1	5	2	0	0	6	0	1	198	0	1	0	0	0	1	1	0	0	0	256
2010	15	171.9	0	0	24	0	1	0	4	0	0	8	0	1	109	0	1	0	0	1	0	0	3	0	0	152
2011	21	250.7	0	1	68	3	36	7	8	0	0	43	0	31	428	1	4	0	1	1	1	2	3	0	0	638
2012	20	224.6	0	1	48	2	22	5	15	0	0	51	0	2	263	2	4	1	3	1	6	2	3	0	0	431
2013	20	226.7	0	0	30	2	8	1	3	0	0	10	0	23	173	0	4	0	0	1	2	3	0	0	1	261
2014	21	235.4	0	3	54	2	15	5	9	0	0	20	0	16	751	2	1	0	2	1	3	3	4	2	0	893
2015	22	259.5	0	1	31	5	13	5	10	1	0	37	0	10	165	0	3	1	1	1	1	1	3	0	1	290
TOTAL	464	5286	1	37	1510	75	458	126	239	3	0	516	4	284	10600	21	92	10	20	25	37	27	28	11	24	14148
Av 93-14	19.1	217.8	0.05	1.5	64.8	3.09	19.5	5.27	10	0.09	0	20.9	0.18	11.7	440.18	0.86	4	0.41	0.77	1.05	1.5	1.05	0.95	0.41	1.05	589.32
15 cf Av	15	19.15	-100	-33	-52	61.8	-33	-5.2	0	1000		77.3	-100	-15	-62.52	-100	-25	144	29.4	-4.3	-33	-4.3	214	-100	-4.3	-50.79

TABLE 5B

APRIL 1-22 SUMMARY TOTALS, MOUNT LORETTE 1993-2015, (excluding 2008-2010 and 2012)

	days	hrs.	TV	OS	BE	NH	SS	CH	NG	BW	SW	RT	FH	RL	GE	AK	ME	GY	PG	PR	UA	UB	UE	UF	UU	T
1993	21	189.5	1	3	60	1	30	17	31	0	0	24	0	2	948	0	4	0	2	4	0	0	0	2	0	1129
1994	22	215	0	4	64	8	44	15	20	1	0	29	1	20	786	0	0	1	0	4	2	1	0	0	0	1000
1995	20	194.9	0	4	72	0	30	5	10	0	0	27	2	11	490	1	7	0	3	4	0	0	0	0	0	666
1996	22	237.9	0	4	128	7	25	3	9	1	0	17	0	8	1173	0	4	0	1	1	3	1	0	0	0	1385
1997	22	209.8	0	2	103	4	15	5	11	0	0	17	0	11	234	2	5	0	0	1	2	1	0	1	0	414
1998	22	203	0	0	70	5	17	4	5	0	0	20	0	25	571	0	4	0	1	1	0	1	0	2	0	726
1999	21	223.8	0	0	60	9	7	2	3	0	0	44	0	14	245	1	3	0	0	1	1	1	0	0	0	391
2000	21	249	0	1	63	5	28	7	5	0	0	9	0	23	468	5	5	1	0	0	0	2	1	0	3	626
2001	19	223.1	0	1	100	4	29	6	17	0	0	27	1	20	571	2	3	1	1	0	0	0	1	0	1	785
2002	22	277.3	0	1	121	4	32	5	19	0	0	23	0	9	1455	2	4	2	0	1	3	1	0	1	4	1687
2003	21	258.4	0	1	66	5	8	4	6	0	0	23	0	10	503	1	3	2	0	0	4	1	1	0	3	641
2004	21	277.2	0	6	47	1	22	7	8	0	0	20	0	5	165	1	7	0	2	1	0	1	1	1	2	297
2005	22	309.6	0	1	61	2	12	1	18	0	0	12	0	7	275	0	3	0	0	0	1	1	1	0	3	398
2006	22	300.4	0	2	89	3	30	10	13	0	0	10	0	22	282	0	10	0	1	0	5	3	7	0	3	490
2007	19	237.3	0	1	98	3	32	6	13	0	0	37	0	13	269	1	12	1	1	1	1	0	0	0	2	491
2008																										
2009																										
2010																										
2011	21	250.7	0	1	68	3	36	7	8	0	0	43	0	31	428	1	4	0	1	1	1	2	3	0	0	638
2012																										
2013	20	226.7	0	0	30	2	8	1	3	0	0	10	0	23	173	0	4	0	0	1	2	3	0	0	1	261
2014	21	235.4	0	3	54	2	15	5	9	0	0	20	0	16	751	2	1	0	2	1	3	3	4	2	0	893
2015	22	259.5	0	1	31	5	13	5	10	1	0	37	0	10	165	0	3	1	1	1	1	1	3	0	1	290
TOTAL	401	4578	1	36	1385	73	433	115	218	3	0	449	4	280	9952	19	86	9	16	23	29	23	22	9	23	13208
Av 93-14	19.9	226.9	0.06	1.78	72.2	3.67	22.5	5.83	11.1	0.11	0	21.8	0.22	14.1	502	0.94	4.56	0.44	0.72	1.17	1.39	1.06	0.83	0.39	1.22	668.06
15 cf Av	10.6	14.39	-100	-44	-57	36.4	-42	-14	-9.5	800		69.9	-100	-29	-67.13	-100	-34	125	38.5	-14	-28	-5.3	260	-100	-18	-56.59

TABLE 6

MOUNT LORETTE, SPRING 2015

SUMMARY WEATHER

			TEMP		RIDGE WIND		CLOUD			PRECIPITATION & NOTES	% TIME RIDGES OBSCURED		# migrant
Day #			Max	Min	Direction	Velocity	Max%	Min%	type		East	West	raptors
1	**Mar**	**1**	-0.5	-18	SW	M	100	90	As,lent,Ci	snow plumes on ridges			7
	Mar	**2**	NO OBSERVATION							snow all day	100	100	0
2	**Mar**	**3**	-8	-27	W	M-S	0						1
3	**Mar**	**4**	0	-25	SW	M-S	100	0	Ac,As,Cs,Ci	snow plumes on ridges			5
4	**Mar**	**5**	4.5	-12	WNW	S	100	40	Cu,Ac,Lent,Ci	snow plumes on ridges			1
5	**Mar**	**6**	7	2	NW	S-VS	80	30	Cu,lent,Ac,Ci	snow plumes on ridges			4
6	**Mar**	**7**	9	-2	NW-W	L-M	80	40	Sc,Cu	light flurry 1130-1200			9
7	**Mar**	**8**	8	-8	NW	M-S	40	0	Cu,Ci				30
8	**Mar**	**9**	10	5	W	VS	80	10	St,Sc,Cu,Ci	snow plumes on ridges			12
9	**Mar**	**10**	11	5	W	M	90	0	Cu,As,Ci,Cs				44
10	**Mar**	**11**	10	-1	W	M-S	90	10	Cu,As,Ci				77
11	**Mar**	**12**	10	5	W	M-S	100	10	St,Cu,As	drizzle in early am	10	5	2
12	**Mar**	**13**	13	-2	W	M	100	10	Arch,As,Ci				114
13	**Mar**	**14**	8	7	SW	M	100	100	St	rain all day. Move to Lusk Ck. at 1300	100	100	19
14	**Mar**	**15**	3	3.5	W	M	100	100	As,Cu,St	clear in am, snow (4cm) in pm	60	60	29
15	**Mar**	**16**	3	-3	SW	M-S-L	80	10	St,Cu	6 cm fresh snow; clearing in pm	60	70	78
16	**Mar**	**17**	3	-12	W	L	100	10	As,Ci				35
17	**Mar**	**18**	7	-4	SW	L-M	90	30	Cu,Cs,Ci			40	229
18	**Mar**	**19**	3.5	-1	W	M-S	100	20	Cu,Sc,	snow plumes on ridges in pm		30	197
19	**Mar**	**20**	3.5	-1	SW	L-M	100	90	St,Cu,As,Cs	brief flurries and rain showers	30	60	514
20	**Mar**	**21**	-1	-10	SW	L-M	100	20	Sc,Cu,Cs,Ci	rain after 1400: move to W'sootch then Lusk	20	20	282
21	**Mar**	**22**	7	-6	W	M-S-L	80	10	Cu				410
22	**Mar**	**23**	-2	-5	SW	L-M	100	10	fog,St,As,Ci	snow 1300-1700, then clear (n.o. after 1500)	50	50	2
23	**Mar**	**24**	1	-5	NW	L	100	30	Cu,As,fog	fog to 1200	60	60	3
24	**Mar**	**25**	6	-3	W	M-S	100	65	Cu,As			10	59
25	**Mar**	**26**	13	7	SW	S	90	30	Sc,Cu,Ac,As				49
26	**Mar**	**27**	15	1	SW	M-S	90	0	Cu,Ci,Cs				43
27	**Mar**	**28**	8	1	SW	L-M	100	40	Cu,Sc,	rain & snow to 1330; Hay M'dow after 1330	50	80	35
28	**Mar**	**29**	8	4	W-SW	M-S	100	60	St,Cu,Ci	rain after 1700	20	40	58
29	**Mar**	**30**	11	3	W-SW	S-M	90	50	Ac				101
30	**Mar**	**31**	10	2	SW	M-S	100	0	St,Cu,As	rain 1600-1700	10	20	6
31	**Apr**	**1**	2	-2	W-NW	S	100	30	Cu,As,Ci			10	11
32	**Apr**	**2**	2	-7	SW	M-S	70	30	Cu,Ci				60
33	**Apr**	**3**	4	-7	SW	L-M	90	50	Cu,Cs	crystal haze all day		20	27
34	**Apr**	**4**	-2.5	-6	?	L	100	100	St	snow after 1000	90	90	0
35	**Apr**	**5**	-1	-6	var	L-M	100	50	Sc,Cu	periods of snow (5cm)	80	100	25
36	**Apr**	**6**	-2	-5	NE	L-M	100	100	St	snow showers, some heavy	100	100	1
37	**Apr**	**7**	4	-7	W	M-S	60	10	Cu,Ci,Cs				8
38	**Apr**	**8**	7	-8	SW	L-M	10	0	Ci				6
39	**Apr**	**9**	11	-8	SW	L-M	0	0					20
40	**Apr**	**10**	9.5	-3.5	SW	M-S	90	0	St,Cu,As,Cs				5
41	**Apr**	**11**	4	-1	S-W	S-M	100	30	fog,Cu,Cc	periods of heavy snow	70	90	14
42	**Apr**	**12**	0	-6	W-SW	M-S	100	90	St,Cu	flurries all day and periods of snow	70	80	5
43	**Apr**	**13**	8	0	SW	S	100	20	St,Sc,Cu,Ci			5	15
44	**Apr**	**14**	6	-2	SW-N	L-M	100	90	Sc,Cu,As	cold front passing at 1300; snow after 1530	40	40	9
45	**Apr**	**15**	8	-11	SW	S	0	0		snow plumes on ridges			2
46	**Apr**	**16**	13	-3	SW	S	100	10	Cu,As,Ci	snow plumes on ridges			5
47	**Apr**	**17**	13	-7	SW	M	100	0	Cu,Ci	steady light rain after 1600	5	30	1
48	**Apr**	**18**	5	-1	N	L-M	100	10	Sc,Cu	snow and snow showers to 1345	70	80	30
49	**Apr**	**19**	10	-8.5	SW	L	90	0	Cu,Ci				25
50	**Apr**	**20**	16	-2	SW-NW	L	100	0	Cu				13
51	**Apr**	**21**	18	-3	SW	M	30	0	Cu,Cs,Ci				6
52	**Apr**	**22**	14	-2	SW	L-M-S	70	30	Cu,As,Cs	cold front passing at1710; rain to 1800		20	2
													2745

TABLE 7

MOUNT LORETTE: GOLDEN EAGLE: PASSAGE BY HOUR, SPRING 2015

	MST	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	n	T
		1	47	91	87	100	143	167	172	179	414	377	546	132	3		
	MDT	**07-08**	**08-09**	**09-10**	**10-11**	**11-12**	**12-13**	**13-14**	**14-15**	**15-16**	**16-17**	**17-18**	**18-19**	**19-20**	**20-21**		
MAR	1	-	0	0	0	0	0	0	3	1	2	0	0	0	-	6	6
	2	w	w	w	w	w	w	w	w	w	w	w	w	w	w	0	6
	3	-	0	0	0	0	0	0	0	0	0	0	0	0	-	0	6
	4	-	0	0	0	0	1	0	1	1	0	2	0	0	-	5	11
	5	-	0	0	0	0	0	0	0	0	0	0	1	0	-	1	12
	6	-	0	1	0	0	0	0	0	0	0	0	2	0	-	3	15
	7	-	0	0	0	0	0	1	0	1	1	0	0	0	-	3	18
	MST	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20		
	MDT	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21		
	8	0	0	0	1	1	4	5	1	1	8	1	7	0	-	29	47
	9	-	0	0	1	3	3	0	0	1	1	0	0	-	-	9	56
	10	-	0	0	0	0	0	1	2	2	3	3	24	7	-	42	98
	11	-	0	0	0	6	15	9	20	3	7	9	1	0	-	70	168
	12	w	W	(W)	(W)	0	0	0	1	0	0	0	0	0	-	1	169
	13	0	1	2	3	3	0	1	30	6	3	8	42	10	-	109	278
	14	w	W	W	W	W	W	2	7	4	1	W	w	w	w	14	292
	15	0	3	22	4	0	W	W	W	W	W	W	w	w	w	29	321
	16	w	w	w	w	W	W	1	9	16	17	9	25	0	-	77	398
	17	0	0	0	0	0	0	1	1	16	7	6	0	0	-	31	429
	18	-	-	0	0	0	0	0	2	44	57	49	73	0	-	225	654
	19	0	0	14	32	28	11	5	0	14	47	17	8	9	0	185	839
	20	0	0	0	0	2	21	19	1	5	153	118	181	7	-	507	1346
	21	0	41	40	22	34	48	35	7	3	8	4	7	w	w	249	1595
	22	0	1	8	10	6	14	37	42	17	29	73	81	74	1	393	1988
	23	-	0	0	0	0	(W)	W	W	W	w	-	-	-	-	0	1988
	24	W	W	W	W	W	W	(W)	(W)	(W)	0	2	1	0	-	3	1991
	25	0	0	0	1	5	9	14	8	5	5	6	1	0	-	54	2045
	26	-	-	-	1	0	4	0	9	4	8	13	6	1	0	46	2091
	27	0	0	0	0	1	0	0	0	1	9	8	18	0	-	37	2128
	28	w	W	W	1	W	w	(W)	0	2	0	2	8	5	-	18	2146
	29	1	1	0	0	1	4	8	5	14	11	(W)	W	w	w	45	2191
	30	-	0	0	2	3	0	0	10	10	19	29	25	0	-	98	2289
	31	0	0	0	1	0	0	1	3	0	W	0	0	0	-	5	2294
APR	1	0	0	0	2	1	0	0	2	0	0	2	0	0	-	7	2301
	2	0	0	0	2	0	1	0	5	1	4	7	29	8	0	57	2358
	3	0	0	1	0	0	2	18	2	1	1	0	0	-	-	25	2383
	4	0	(W)	(W)	W	W	w	w	w	w	w	w	w	w	w	0	2383
	5	W	W	W	W	W	(W)	1	W	(W)	(W)	1	2	(W)	(w)	4	2387
	6	w	w	w	w	w	w	W	W	1	W	W	W	W	w	1	2388
	7	-	0	0	0	0	0	1	0	0	6	1	0	0	-	8	2396
	8	0	0	0	0	0	0	0	0	0	3	3	0	0	0	6	2402
	9	-	0	1	0	0	0	0	0	0	0	2	3	9	2	17	2419
	10	0	0	0	0	0	0	0	0	2	1	0	1	0	-	4	2423
	11	W	W	W	W	2	W	w	W	0	0	0	0	W	w	2	2425
	12	(W)	W	(W)	(W)	(W)	(W)	W	(W)	(W)	0	0	0	0	0	0	2425
	13	-	0	0	0	2	1	0	0	0	0	0	0	0	-	3	2428
	14	(W)	(W)	0	0	0	2	2	0	(W)	W	W	w	w	w	4	2432
	15	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2434
	16	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	2436
	17	0	0	0	0	0	0	0	0	0	0	0	(W)	(w)	(w)	0	2436
	18	W	W	W	(W)	(W)	2	1	(W)	1	1	1	0	0	0	6	2442
	19	0	0	1	2	1	0	1	1	0	2	1	0	0	0	9	2451
	20	-	0	1	0	0	1	0	0	1	0	0	0	0	-	3	2454
	21	0	0	0	0	1	0	3	0	1	0	0	0	0	0	5	2459
	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2459
	MDT	**07-08**	**08-09**	**09-10**	**10-11**	**11-12**	**12-13**	**13-14**	**14-15**	**15-16**	**16-17**	**17-18**	**18-19**	**19-20**	**20-21**		
	MST	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20		
														-			
	TOTALS	1	47	91	87	100	143	167	172	179	414	377	546	132	3	2459	

W	Ridges observed to be obscured: migration impossible
(W)	Poor migration conditions observed
w	Ridges obscured: not observed
(w)	Poor migration conditions: not observed
Red	Observation aw ay from Hay Meadow site: generally Lusk Creek but occasionally Wasootch Creek or Barrier Lake

TABLE 8

Beaver Mines, Alberta, spring 2015

March 01-April 22 (39 days, 208.8 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
2015-03-01	2.25	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
2015-03-02	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
2015-03-03	NO OBSERVATION (no observer)																								0
2015-03-04	NO OBSERVATION (no observer)																								0
2015-03-05	NO OBSERVATION (no observer)																								0
2015-03-06	4.75	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4
2015-03-07	4	0	0	10	0	0	0	0	0	0	0	0	2	6	0	0	0	0	0	0	0	0	0	0	18
2015-03-08	3.5	0	0	8	0	0	0	0	0	0	0	0	3	5	0	0	0	0	0	0	0	0	0	0	16
2015-03-09	4	0	0	9	0	0	0	0	0	0	0	0	2	5	0	0	0	0	1	0	0	0	0	0	17
2015-03-10	4	0	0	5	0	0	0	2	0	0	0	0	3	10	0	0	0	0	0	0	0	0	0	0	20
2015-03-11	4.25	0	0	2	0	0	0	1	0	0	0	0	1	25	0	1	0	0	0	0	0	0	0	0	30
2015-03-12	6.25	0	0	8	0	0	0	0	0	0	0	0	2	34	0	2	1	0	0	0	0	0	0	0	47
2015-03-13	4	0	0	5	0	0	0	3	0	0	0	0	1	15	0	0	0	0	0	0	0	0	0	0	24
2015-03-14	NO OBSERVATION (no observer)																								0
2015-03-15	NO OBSERVATION (no observer)																								0
2015-03-16	NO OBSERVATION (no observer)																								0
2015-03-17	NO OBSERVATION (no observer)																								0
2015-03-18	6.25	0	0	8	0	1	o	2	0	0	0	0	5	78	0	1	0	0	0	0	0	0	0	0	95
2015-03-19	8.75	0	0	26	0	0	0	2	0	0	2	0	1	429	0	1	0	1	0	0	1	0	0	0	463
2015-03-20	7.25	0	0	24	0	1	1	2	0	0	4	0	6	156	0	1	0	0	1	0	0	1	0	0	197
2015-03-21	NO OBSERVATION (no observer)																								0
2015-03-22	6.5	0	0	4	4	4	0	4	0	0	3	0	2	101	2	1	0	0	0	0	0	0	0	0	125
2015-03-23	2.75	0	0	0	0	1	0	2	0	0	2	0	5	32	1	0	0	0	0	0	0	0	0	0	43
2015-03-24	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
2015-03-25	9.25	0	0	7	0	6	0	13	0	0	6	0	3	95	1	1	0	1	1	0	4	0	0	0	138
2015-03-26	8.25	0	0	10	0	1	0	0	0	0	3	0	3	32	0	0	0	0	1	0	0	0	0	0	50
2015-03-27	2.25	0	0	3	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	14
2015-03-28	NO OBSERVATION (no observer)																								0
2015-03-29	NO OBSERVATION (no observer)																								0
2015-03-30	6	0	0	6	0	0	0	6	0	0	6	0	0	28	0	0	0	0	0	0	1	0	0	0	47
2015-03-31	7	0	0	2	0	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	0	0	0	0	9
March	**105.8**	**0**	**0**	**142**	**4**	**14**	**1**	**37**	**0**	**0**	**26**	**0**	**41**	**1070**	**4**	**8**	**1**	**2**	**4**	**0**	**6**	**1**	**0**	**0**	**1361**
2015-04-01	5.5	0	0	1	1	1	0	2	0	0	18	0	1	13	0	0	0	0	0	0	1	0	0	0	38
2015-04-02	6.25	0	0	0	1	1	0	2	0	0	8	0	1	12	0	0	0	0	0	0	1	0	0	0	26
2015-04-03	5.5	0	0	3	7	8	1	1	0	0	10	0	2	6	0	0	0	0	0	0	0	0	0	0	38
2015-04-04	6.75	0	0	3	2	1	0	2	0	0	10	0	0	8	0	0	0	0	0	0	0	0	0	0	26
2015-04-05	NO OBSERVATION (weather)																								0
2015-04-06	NO OBSERVATION (weather)																								0
2015-04-07	5	0	0	4	0	0	0	0	0	0	31	2	0	19	0	1	0	0	0	0	0	0	0	0	57
2015-04-08	8.25	0	0	5	5	3	0	0	0	0	8	0	0	5	0	0	0	0	0	1	0	0	0	0	27
2015-04-09	3.5	0	0	0	3	2	1	1	0	0	3	0	1	3	0	0	0	0	0	0	0	0	0	0	14
2015-04-10	8	0	0	4	2	2	0	0	0	0	4	0	0	2	0	2	0	0	0	0	0	0	0	0	16
2015-04-11	5.25	0	0	4	3	1	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	11
2015-04-12	6	0	0	3	0	0	1	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	7
2015-04-13	NO OBSERVATION (no observer)																								0
2015-04-14	4.75	0	0	2	5	2	1	2	0	0	8	0	0	8	1	0	0	0	1	0	1	0	0	0	31
2015-04-15	9	0	0	6	5	10	2	3	0	0	12	0	5	9	7	0	0	0	0	0	0	0	0	1	60
2015-04-16	6.5	0	0	4	1	4	1	2	0	0	7	0	0	2	2	1	0	0	0	0	0	0	0	0	24
2015-04-17	6	0	0	1	2	5	1	2	0	0	5	0	0	6	1	1	0	0	0	0	3	0	0	1	28
2015-04-18	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2015-04-19	3	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
2015-04-20	4.25	0	0	0	1	2	0	0	0	0	4	1	0	2	1	0	0	0	0	0	0	0	0	0	11
2015-04-21	NO OBSERVATION																								0
2015-04-22	8.5	0	1	1	0	4	6	0	1	1	4	0	0	1	0	0	0	0	0	1	1	0	0	0	21
April	**103**	**0**	**1**	**41**	**38**	**46**	**14**	**19**	**1**	**1**	**135**	**3**	**10**	**99**	**12**	**5**	**0**	**0**	**1**	**2**	**7**	**0**	**0**	**2**	**437**
Total	**208.8**	**0**	**1**	**183**	**42**	**60**	**15**	**56**	**1**	**1**	**161**	**3**	**51**	**1169**	**16**	**13**	**1**	**2**	**5**	**2**	**13**	**1**	**0**	**2**	**1798**
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**

Beaver Mines, summary counts 2014-2015

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
2014	17	78	0	0	110	0	16	5	12	1	0	62	3	14	853	0	3	0	0	0	4	6	2	0	1	1092
2015	39	209	0	1	183	42	60	15	56	1	1	161	3	51	1169	16	13	1	2	5	2	13	1	0	2	1798

TABLE 9

BEAVER MINES, SPRING 2015

SUMMARY WEATHER

			MIN	MAX	WIND		CLOUD			RIDGE	#
			TEMP	TEMP		Velocity			PRECIPITATION & NOTES	OBSCURED (%)	migrant
Day #			°C	°C	Direction	km/h	%	type			raptors
1	Mar	1	-1	0	WSW	g41	100	As			2
2	Mar	2	-9	-5	ENE-NE	g40	100	St	snow, heavy at times	80	2
	Mar	3	NO OBSERVATION (no observer)								0
	Mar	4	NO OBSERVATION (no observer)								0
	Mar	5	NO OBSERVATION (no observer)								0
3	Mar	6	7	9	WSW	g60	80-100	Ac, Cu, Ci	hazy sunshine		4
4	Mar	7	8	10	W-WNW	g35	50-80	Cu			18
5	Mar	8	10	12	WSW	g67	0-30	Ac			16
6	Mar	9	13	15	WSW	30-60g80	70-80	As, Ac, Ci, Cu	hazy sunshine		17
7	Mar	10	15	17	W-WSW	30-43g52	0-100	thin As, Ac			20
8	Mar	11	11	14	WSW	43-46g70	90-100	As, Cu		10	30
9	Mar	12	12	14	WSW	40-60g76	40-50	Cu			47
10	Mar	13	15	16	WSW	30-35g46	80-10	Ci, Ac			24
	Mar	14	NO OBSERVATION (no observer)								0
	Mar	15	NO OBSERVATION (weather)				100	low St	snow (30 cm)	100	0
	Mar	16	NO OBSERVATION (weather)				100	low St		100	0
	Mar	17	NO OBSERVATION (no observer)								0
11	Mar	18	5	7	WSW	18-32g50	100-50	Ci, Cs, Ac, Cu			95
12	Mar	19	5	7	WSW-W	20-40g76	50-90	AS, Cu, Ci, lent			463
13	Mar	20	7	11	W-WSW	L-M	100-60	Cs, As, Cu			197
	Mar	21	NO OBSERVATION (no observer)								0
14	Mar	22	7	10	WSW-ESE	10-15g30	10-90	Cu, Ac, Ci	cloud thickening in pm		125
15	Mar	23	-2	-1	ENE-NE	L	100	Sc	heavy snow/sleet to early pm	70	43
16	Mar	24	-3	-2	C	C	100	fog/low St	hill visible after 1500	80	0
17	Mar	25	1	7	WSW	30-45g80	100-80	Sc, Cu, As	light flurries in early pm		138
18	Mar	26	7	14	WSW	40-60g92	100-50	As, Cu (arch)			50
19	Mar	27	1	15	C-NE-SW	0-25g40	90-0	Cu	cloudless after 1300		14
	Mar	28	NO OBSERVATION (no observer)								0
	Mar	29	NO OBSERVATION (no observer)								0
20	Mar	30	11	17	SW-W	26-45g60	10-70	Cu, Ac, Ci			47
21	Mar	31	10	16	WSW	43-52g70	20-90	Cu, As	occ. light showers in early pm		9
22	Apr	1	5	7	WSW	60-80	30-70	Cu, Ci	occ. brief flurries in pm		38
23	Apr	2	3	7	var	4-52	30-100	Cu, Sc	periods of snow		26
24	Apr	3	4	9	WSW-W	24-32g50	90-60	As, Cu, Ac, Ci	snow flurries to 1230		38
25	Apr	4	5	8	S-WNW-WSW	22-35	100-40	Sc, Cu, As	1335-1420 heavy wet snow	60	26
	Apr	5	NO OBSERVATION (weather)						snow all day	90	0
	Apr	6	NO OBSERVATION (weather)						snow all day	90	0
26	Apr	7	0	9	NW-WSW	5-20	0-60	Cu, Ac, Ci	cloudless to 1100		57
27	Apr	8	4	10	var	L	30-10	Cu			27
28	Apr	9	12	14	W-SW	13-20g40	10-20	v thin As			14
29	Apr	10	9	14	WSW-SW	20-40g60	90-40	Cu, As			16
30	Apr	11	6	9	WSW-SW	43-58g90	90-20	Cu, St	brief snow flurries		11
31	Apr	12	2	6	WSW	35-55g70	40-80	Cu, thin As	light now flurries		7
	Apr	13	NO OBSERVATION (no observer)								0
32	Apr	14	8	13	WSW	37-48g60	50-100	Cu, As, Sc			31
33	Apr	15	5	12	W-SW	10-45g55	20-0	scattered Cu	cloudless after 1245		60
34	Apr	16	14	17	W-WSW	20-40g60	10-100	Ci, Ac, As			24
35	Apr	17	13	19	W-WSW	30-40g65	0-40	Ac, Ci, Cu			28
36	Apr	18	2	6	NE-NNE	L	100-70	St, Cu	light snow and rain in am	70	0
37	Apr	19	12	12	var	L	50-0	Cu	cloudless after 1710		2
38	Apr	20	16	18	ESE-ENE	L	0-60	Ci, thin As, Cu			11
	Apr	21	NO OBSERVATION (no observer)								0
39	Apr	22	11	16	SW-WSW	24-43g64	100-5	Cu, As			21
										TOTAL	1798

TABLE 10

Steeples, British Columbia, spring 2015

March 01-April 22 (32 days, 130.5 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
2015-03-01	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	2
2015-03-02	NO OBSERVATION (no observer)																								0
2015-03-03	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
2015-03-04	NO OBSERVATION (no observer)																								0
2015-03-05	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
2015-03-06	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
2015-03-07	4.5	0	0	3	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	12
2015-03-08	5.5	0	0	5	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	12
2015-03-09	NO OBSERVATION (no observer)																								0
2015-03-10	5.5	0	0	1	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	9
2015-03-11	NO OBSERVATION (no observer)																								0
2015-03-12	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
2015-03-13	5	0	0	3	0	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0	17
2015-03-14	NO OBSERVATION (w eather)																								0
2015-03-15	NO OBSERVATION (w eather)																								0
2015-03-16	NO OBSERVATION (w eather)																								0
2015-03-17	4.5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
2015-03-18	NO OBSERVATION (no observer, w eather)																								0
2015-03-19	NO OBSERVATION (w eather)																								0
2015-03-20	5.5	0	0	13	0	1	0	1	0	0	0	0	0	104	0	0	0	0	0	0	0	0	0	0	119
2015-03-21	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
2015-03-22	5.5	0	0	19	0	1	0	0	0	0	1	0	0	26	0	0	0	0	0	0	1	0	0	0	48
2015-03-23	NO OBSERVATION (no observer, w eather)																								0
2015-03-24	NO OBSERVATION (no observer)																								0
2015-03-25	NO OBSERVATION (no observer, w eather)																								0
2015-03-26	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
2015-03-27	6	2	0	7	0	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0	23
2015-03-28	3	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
2015-03-29	5.5	0	0	6	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	14
2015-03-30	1.25	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2015-03-31	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
March	**76.75**	**2**	**0**	**59**	**0**	**2**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**193**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**260**
2015-04-01	NO OBSERVATION (no observer)																								0
2015-04-02	4	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
2015-04-03	NO OBSERVATION (w eather)																								0
2015-04-04	3	2	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	6
2015-04-05	5	0	0	1	0	0	0	0	0	0	1	0	0	3	0	0	0	0	0	0	0	0	0	0	5
2015-04-06	NO OBSERVATION (w eather)																								0
2015-04-07	3.5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	6
2015-04-08	NO OBSERVATION (no observer)																								0
2015-04-09	6	2	0	4	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	7
2015-04-10	4.5	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2015-04-11	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
2015-04-12	4	0	0	2	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	5
2015-04-13	NO OBSERVATION (no observer)																								0
2015-04-14	NO OBSERVATION (w eather)																								0
2015-04-15	NO OBSERVATION (no observer)																								0
2015-04-16	5.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2015-04-17	4	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
2015-04-18	3.5	2	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5
2015-04-19	5.5	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2015-04-20	NO OBSERVATION (no observer)																								0
2015-04-21	NO OBSERVATION (no observer)																								0
2015-04-22	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
April	**53.75**	**8**	**0**	**22**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**7**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**42**
Total	**130.5**	**10**	**0**	**81**	**1**	**2**	**0**	**1**	**0**	**0**	**4**	**0**	**0**	**200**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**1**	**0**	**302**
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 11

Steeples, BC, spring counts 2010-2015

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
2012	32	98.5	9	2	112	1	7	0	2	0	0	11	0	7	236	1	0	0	1	0	0	0	4	0	0	393
2013	25	83	1	1	113	0	1	0	1	0	0	7	0	3	230	0	0	0	2	0	0	1	3	0	0	363
2014	40	142.3	14	3	140	0	5	0	0	0	0	14	0	4	275	4	0	0	0	0	0	1	0	0	0	460
2015	32	130.5	10	0	81	1	2	0	1	0	0	4	0	0	200	0	0	0	1	0	0	1	0	1	0	302
TOTALS	205	786.3	59	8	811	5	27	0	14	0	0	63	0	23	1870	7	0	0	5	0	0	3	11	1	0	2907

TABLE 12

STEEPLES, SPRING 2015

SUMMARY WEATHER

			RIDGE WIND			CLOUD			RIDGES	#
			TEMP					PRECIPITATION & NOTES		migrant
Day #			°C	Direction	Velocity	%	type			raptors
1	Mar	1	0-4	C	C	100-50	As, Cu	sunny periods	clear	2
	Mar	2	NO OBSERVATION (weather)					snow all day	obscured	no
2	Mar	3	-4	C	C	20	Cu	sunny	mostly clear	0
	Mar	4	NO OBSERVATION (no observer)							no
3	Mar	5	1	C	C	60	As,Cu,Ci	sunny	clear	0
4	Mar	6	9	C	C	50	As, Cu,lent	sunny	clear	0
5	Mar	7	12	NW	C-L	60	Cu	sunny periods	clear	12
6	Mar	8	12	C	C	0-60	As	mainly sunny	clear	12
	Mar	9	NO OBSERVATION (no observer)							no
7	Mar	10	8-16	S-SW	M	40-70	thin As	sunny	clear	9
	Mar	11	NO OBSERVATION (no observer)							no
8	Mar	12	16	SW	M-S	70-40	Cu	sunny	clear	0
9	Mar	13	9-15	S-SW	M	60-20	As, Ac	sunny	clear	17
	Mar	14	NO OBSERVATION (weather)			100	St	rain and snow	obscured	no
	Mar	15	NO OBSERVATION (weather)			100	St	rain and snow	obscured	no
	Mar	16	NO OBSERVATION (weather)			100	St	rain and snow	obscured	no
10	Mar	17	1-5	W	C-L	60-90	Ac, As, Cu	sunny periods	partially clear	1
	Mar	18	NO OBSERVATION (weather)			100	St	rain and snow	obscured	no
	Mar	19	NO OBSERVATION (weather)			100	St	rain and snow	obscured	no
11	Mar	20	6-12	S-SW	S	100	As, dark Cu	overcast	mostly clear	119
12	Mar	21	10-8	S	S	90	As, Cu, Ci	cloudy	mostly obscured	0
13	Mar	22	9-11	S-SW-SE	S-M	50-60	AS, Cu, Ac	sunny	clear	48
	Mar	23	NO OBSERVATION (weather)			100	St	rain	obscured	no
	Mar	24	NO OBSERVATION (weather)			100	St	rain	obscured	no
	Mar	25	NO OBSERVATION (no observer)					overcast		no
14	Mar	26	15	S	S	50	Cu	sunny	clear	0
15	Mar	27	15-20	S-SW	S	30-60	As, Cu, Ac	sunny	clear	23
16	Mar	28	11	S-SW	S	100-60	Cu	sunny periods	clear	2
17	Mar	29	10-11	S-SW	S	100-80	As, Cu, Ac	cloudy	partially clear	14
18	Mar	30	12-15	SW	S	100-70	Cu, AS	mainly cloudy	clear	1
19	Mar	31	No weather data recorded							0
	Apr	1	NO OBSERVATION (weather)			100	St	overcast	obscured	no
20	Apr	2	8-10	N-NE	L	70-30	Cu	sunny	clear	2
	Apr	3	NO OBSERVATION (weather)			100	St	overcast	obscured	no
21	Apr	4	4-8	W	M-S	70-40	Cu	sunny periods	partially clear	6
22	Apr	5	7-9	SE	L	30-80	Cu	sunny periods	clear	5
	Apr	6	NO OBSERVATION (weather)			100	St	overcast	obscured	no
23	Apr	7	9-10	S	L	70-40	Cu	sunny	clear after 1500	6
	Apr	8	NO OBSERVATION (no observer)							no
24	Apr	9	10-15	C	C	0		sunny	clear	7
25	Apr	10	14	S	S	80-90	As, Cu	cloudy	clear	1
26	Apr	11	9	S	S	70	As, Cu	sunny periods		0
27	Apr	12	8	W-SW	M	90-60	Cu	cloudy	clear	5
	Apr	13	NO OBSERVATION (no observer)							no
	Apr	14	NO OBSERVATION (weather)			100	St	overcast	obscured	no
	Apr	15	NO OBSERVATION (no observer)							no
28	Apr	16	No weather data recorded							0
29	Apr	17	19	W	L	30-90	Cu	mainly sunny	clear	4
30	Apr	18	15	W-N	L-M	0		sunny	clear	5
31	Apr	19	19	C	C	0		sunny	clear	1
	Apr	20	NO OBSERVATION (no observer)							no
	Apr	21	NO OBSERVATION (no observer)							no
32	Apr	22	"warm"	SW	S	?	?	sunny	clear	0
									TOTAL	302