Survey of the Odonate Fauna in Kakwa Wildland Park June – July, 2006

Prepared for the Alberta Natural Heritage Information Centre,
Parks and Protected Areas Division,
Alberta Community Development

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Alberta Lepidopterists' Guild

June, 2007

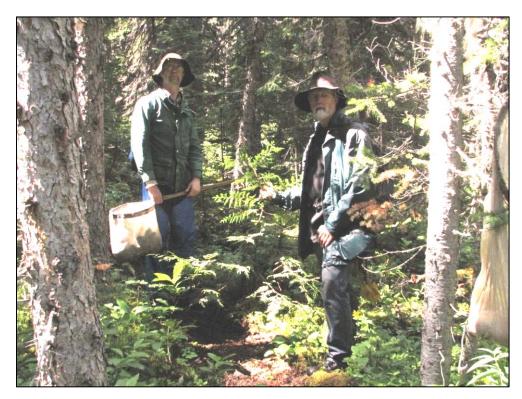


Figure 1. Jim and Gerald Hilchie beside a Western Red Cedar south of Emerald Lakes. (Photo by Doug Macaulay)

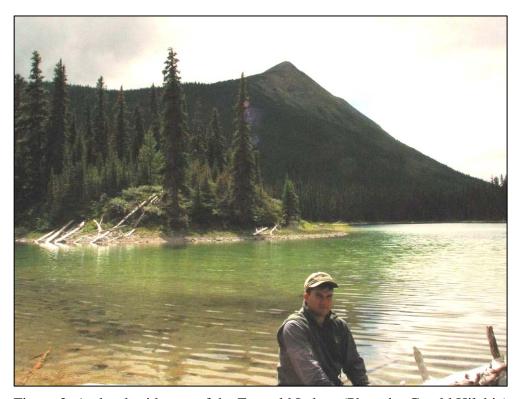


Figure 2. Author beside one of the Emerald Lakes. (Photo by Gerald Hilchie)

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Background Image for the Cover- A close-up photo of the eyes of *Aeshna hudsonica* (photo taken by author).

INTRODUCTION

Kakwa Wildland Park (about 656 km² in size) is located at the northern edge of Alberta's Rocky Mountains, about 114 km southwest of Grande Prairie.

The park encompasses parts of two Subregions within its boundaries – the Alpine and Subalpine Subregions. Of the total area of the park, about 9578 ha (14.6%) is in the Alpine while about 56,058 ha (85.4%) is in the Subalpine Subregion. In the park there are a variety of habitats suitable for odonates – beaver ponds, wet meadows with meandering streams, lakeshores, ponds, subalpine/alpine streams, and peatlands.

Over the past seven years odonate surveys have been a part of the biophysical inventories conducted by Alberta Parks and Protected Areas Division within their wildland parks. Most of these inventories have focused on parks located in northern Alberta. The first odonate survey was conducted in the summer of 2000 (Hornung 2001) in the Marguerite River, Maybelle River, and Richardson River Dunes Wildland Parks. In 2001, La Butte Creek and Fidler-Greywillow Wildland Parks were surveyed, while Colin-Cornwall Lakes WP was the focus of a survey in 2002 (Macaulay 2002, Macaulay 2003). Caribou Mountains WP was surveyed in 2003 and Birch Mountains WP in 2004. Then, in 2006, Kakwa WP was surveyed for odonates, the first ever for the park.

The purpose of the survey at Kakwa was to provide an annotated summary of the odonate species that occur in the park, including notes on such parameters as relative abundance, distribution patterns, range extensions and any other relevant biological or behavioural information. This information will contribute towards an increased understanding of the odonate fauna of the park and, in a broader context, of Alberta.

METHODS

The odonate survey was conducted within Kakwa WP during two time periods – June 16 to 24, and July 10 to 25, 2006. For the June survey, the participants were Ted Johnson and Wayne Nordstrom. For the July survey, Ted Johnson, Margot Hervieux, Terry Thormin, Wayne Nordstrom, Robert Holmberg, Jim Hilchie, Gerald Hilchie, Dave Lawrie, Carey Booth, and the author were involved.

Odonates were surveyed in a variety of ways. Adult specimens were collected with butterfly nets, out of pan or malaise traps and larval exuviae were gathered by hand. Photographs were taken of some species. Many of the collection sites were located adjacent to lakes, ponds, rivers and creeks. Habitats from which specimens were collected included: lake shorelines (LS), riparian meadows along streams and rivers (RM), beaver ponds (BP), fen ponds (FP) and peatland pools (PP) (Table 1).

Collected specimens were inserted into glassine envelopes and labelled with locality, collector, date and GPS coordinates. Some were placed in acetone for approximately 2-3 hours to preserve their colors. Once they were removed from the acetone, specimens were dried and stored in a protective container.

The primary sources used for identification of species and any associated biological information were Walker (1925; 1953; 1958), Walker and Corbet (1975), Cannings and Stuart (1977), Needham et al. (2000), Dunkle (2000) and Acorn (2004). Common names are based on Cannings (2002).

Voucher specimens will be deposited at the University of Alberta's Strickland Museum in Edmonton.

Table 1: Habitats and locations of collection sites in Kakwa Wildland Park (see Appendix 1 for map showing collection locations).

Site #	Habitat	Location	Coordinates
Kakwa Wilo	lland Park:		°N°W
1	LS	North Lake	54.2415°N -119.8430°W
2	BP	Deadhorse Meadows Beaver Pond	54.1357°N -119.9257°W
3	PP	Deadhorse Meadows South Pools	54.1304°N -119.9227°W
4	RM	Kakwa Falls Staging Area	54.1169°N -119.9394°W
5	BP / PP	Emerald Uplands	54.0881°N -119.9175°W
6	LS	Emerald Lakes	54.0862°N -119.9424°W
7	BP / RM	Kakwa River Beaver Ponds	54.0848°N -119.7767°W
8	FP	Rim Ridge Fen	54.0098°N -119.7378°W

Site 1. "North Lake"

This is a typical medium-sized mountain lake with a gravel shoreline and some reed beds. The lakeshore was lined with spruce and willows. During the hour I spent there a huge hatch of *Enallagma* damselflies was occurring and a number of *Aeshna* and *Somatochlora* were observed patrolling the shoreline. Though this lake in not within the boundary of the park, it was worth noting because it may be similar to a number of small lakes within the park that were not visited.

Site 2. "Deadhorse Meadows Beaver Pond"

This beaver pond is one of many situated along a creek that runs through a sizeable grassy meadow. It consists of a series of deeper pools harbouring hungry trout and a surrounding flooded sedge meadow. There are some large patches of emergent aquatic vegetation. The pond had a number of dragonflies patrolling its edges. Damselflies were observed in the flooded meadows. A variety of species were found in this beaver dam complex. *Coenagrion resolutum*, *Leucorrhinia hudsonica*, *Somatochlora semicircularis* were noted in flooded sedge habitats. Along the shoreline and hovering over open pools were *Aeshna eremita*, *A. juncea*, *A. palmata*, and *Somatochlora hudsonica*. Beside the shallow creek and along the forest border, were *S. franklini* and *S. forcipata*.



Figure 3. (left) Deadhorse Meadows with creek and beaver pond; (right) the sedge-bordered beaver pond (site 2).



Site 3. "Deadhorse Meadows South Pools"

About a kilometre south of the beaver pond mentioned above are a series of shallow pools. These are situated along the meadow edges and are lined with sedges and willows. Here there were at least two different *Somatochlora* species observed. They were cruising beside the small pools and in the open meadows. In the open meadow areas were *Somatochlora franklini* while *S. semicircularis* was found patrolling the shallow pools.





Figure 4. (left) Shallow pools in a sedge meadow; (right) open meadows about one km south of the Deadhorse Meadows beaver pond complex (site 3).

Site 4. "Kakwa Falls Staging Area"

This cold, fast-flowing river lacked odonate diversity, however, a few species were observed. The river shoreline was rocky and lined with spruce forest and willow shrub stands. A few *Aeshna eremita* and unknown *Somatochlora* were observed patrolling the shoreline and cruising through nearby meadows. Higher up on a north ridge where the road to the Kakwa Falls Staging Area is located, I observed a number of unknown *Aeshna* and *Somatochlora* patrolling and hill topping but was unable to collect any specimens.



Figure 5. The open willow shrub lands and spruce forest along the Kakwa River near the Kakwa Falls Staging Area (site 4).

Site 5. "Emerald Uplands"

One of the richest sites visited during the survey in terms of odonate diversity were the water-logged peatlands of an elevated plateau, where a number of small lakes and boggy pools were located. The beaver ponds in this area harboured a different complex of species than the boggy pools further to the northwest. Lakes were rich with emergent aquatic vegetation and shoreline sedges. The boggy pools and nearby canals were all lined with sedges and bog birch. Along the shoreline of the beaver pond and amongst the surrounding sedges were *Aeshna eremita*, *A. subarctica*, *A. juncea*, *Cordulia shurtleffii*, *Leucorrhinia hudsonica*, and *Somatochlora albicincta*. In the surrounding peatlands and patrolling over the sedges, along shallow canals or around shallow pools, as shown in Figure 7, were *Aeshna sitchensis*, *Libellula quadrimaculata*, *Somatochlora forcipata*, *S. semicircularis*, *S. kennedyi* and *S. whitehousei*.





Figure 6. (left) Overhead view of peatland lakes and the surrounding sedge meadows; (right) a sedge-dominated shoreline (site 5).





Figure 7. (left) Narrow pools in a sedge/bog birch peatland; (right) open peatland with scattered shallow pools, some dried up and others still with water (site 5).

Site 6. "Emerald Lakes"

The 'Emerald Lakes' are situated in a basin at the base of Kakwa Mountain. As their name suggests, these lakes are a brilliant green in color and rich in calcium carbonate deposits. The water is cold and basic with rocky to sandy shorelines. Odonates that live here are adapted to nutrient poor waters and higher PHs. The larger lake shown in the photo below has a shoreline consisting of rocks while the smaller pond has a sandy shoreline. All the lake bottoms and shorelines are encrusted with carbonate. There are a few scattered patches of aquatic plants, but nothing significant and shorelines are lightly vegetated. Many odonates were observed cruising the lakeshores – most were *Aeshna palmata*. A few *Somatochlora semicircularis* were observed, especially at the smaller lakes like the one shown below.







Figure 8. The marl waters and rocky shoreline of one of the 'Emerald Lakes' and a pond with its typical sandy shoreline (site 6).

Site 7. "Kakwa River Beaver Ponds"

This site had a couple of small beaver ponds formed by a small tributary of the Kakwa River. They were full of emergent vegetation and lined with sedges. Many dragonflies and a few unknown species of damselflies were observed here. Three species of darner were found here and included *A. eremita*, *A. juncea* and *A. palmata* and one species of emerald that dominated the pond, *Somatochlora semicircularis*.



Figure 9. The emergent aquatic vegetation of a sedge-lined beaver pond on a small tributary of the Kakwa River (site 7).

Site 8. "Rim Ridge Fen"

This extensive peatland near Rim Ridge has a few scatter ponds within it. The one pond we visited was lined with sedges and a limited quantity of emergent vegetation. There were a number of dragonflies and damselflies that were utilizing habitats around this pond. *Enallagma hageni* were found along the shoreline amongst the sedges and *Aeshna septentrionalis*, *A. juncea* and *Somatochlora albicincta* were found patrolling its shoreline. Odonates were so prevalent that we named the pond, "Dragonfly Lake."



Figure 10. The sedge-dominated shoreline of a small pond in the Rim Ridge fen (site 8).

RESULTS

A total of 159 odonate specimens, belonging to 5 families and 21 species, were collected in Kakwa WP (Appendix 2). Of the 21 species, five were from the Suborder Zygoptera (damselflies) and sixteen from the Suborder Anisoptera (dragonflies). A species list and collection summary appears in Appendix 2; full collection data appears in Appendix 3. Appendix 1 shows the location of the eight collection sites.

Table 2 indicates that Kakwa WP had the second highest number of collected specimens (159) of the five wildland parks that were compared. Caribou Mountains WP had the most (165). Twenty-one different species were found in both Kakwa and Caribou Mountains WPs (Macaulay and Dunne 2004). This is four more species than were recorded for Colin-Cornwall Lakes WP (Macaulay 2003). There were nine unique species found in Kakwa WP (Table 2). Unique species, in this case, refers to those species that were found only in one of the five parks.

Table 2. Comparison of numbers of specimens collected and numbers of species found within five Wildland Parks.

Wildland Park	# of Specimens	# of Species	Unique Species
Birch Mountains	135	20	None
Caribou Mountains	165	21	(Leucorrhinia patricia)
Colin-Cornwall Lakes	107	17	(Leucorrhinia intacta)
La Butte Creek	54	19	(Aeshna canadensis, Somatochlora prb. cingulata, Sympetrum danae, S. internum, and S. obtrusum)
Kakwa	159	21	(Aeshna septentrionalis, A. sitchensis, A. subarctica A. palmata, Somatochlora forcipata, S. franklini, S. semicircularis, S. whitehousei, Enallagma hageni)

DISCUSSION

I. Factors affecting the Survey

Weather was the biggest factor that affected this survey. Odonates tend to be sun-loving insects that are not active during cool, wet weather. During the June trip weather was poor and none were collected. Then for the first few days of the July trip weather was cool and wet, however, sunny skies returned a few days later. Once it warmed up odonates appeared and became plentiful. Around the Deadhorse Meadows beaver pond, for example, odonate numbers increased as more and more nymphs emerged from its waters and hatched into adults. The weather was not always conducive to collecting specimens but is a reality when collecting in the mountain parks of Alberta and the best way to deal with it is make repeated visits and to wait out the bad weather.

Many habitats were visited during this survey but not all had odonates. No specimens were collected from alpine lakes, ponds and streams. The streams here were too cold, rapid and nutrient poor and most lakes were just too cold, nutrient poor, and lacked aquatic and shoreline vegetation. However, the subalpine lake seen in Figure 11 was productive. This lake, known as "Little Berg Lake," was bordered by sedges and supported some aquatic invertebrate activity. Its waters were still very cool. One species we hoped to find there was the Treeline Emerald (*Somatochlora sahlbergi*) but there was no sign of it in the area. This species likes deep cold ponds with sedge borders and aquatic mosses. "Little Berg Lake" had some of these characteristics but its location may be too far south of the known range of the species for it to be present.

On a high rocky alpine ridge of Mount May at an elevation of 2455 meters a red-bodied whiteface dragonfly (*Leucorrhinia* sp.) was hill-topping but I was unable to capture it as it flitted along the steep rocky slope.

Many habitats were visited in the subalpine portion of the park and odonates were relatively common in these areas. A few dragonflies were observed cruising the shorelines of the Kakwa River. They were likely migrants from outlying ponds but it would be worth trying to collect a few of the *Aeshna* and *Somatochlora*, especially those that were hovering along the shorelines.

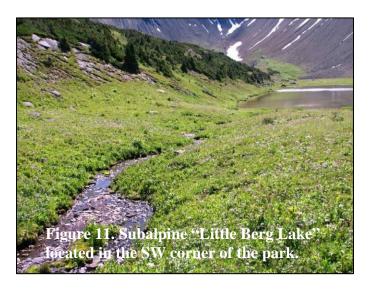
The beaver ponds, fens, and lakes in the subalpine were most productive and had a wide diversity of species. Though many specimens were collected it would be worth visiting these same habitats again in August to look for *Lestes* and *Sympetrum* and any other late summer species. Even a visit to some of these sites in June would be worthwhile when weather is favourable. A species such as the Chalk-fronted Corporal (*Libella julia*) may be one to look for in June at the pond in the "Rim Ridge Fen" (Figure 10).

A number of ponds, lakes and streams were not visited during this survey because of limited time and poor weather but definitely would be worth visiting in future surveys. These areas include: wetlands located in the "Rim Ridge Fen" area, wetlands in meadow habitats, small lakes north of the Emerald Lakes on the other side of the Kakwa River, a small lake just to the east of the Emerald Uplands, and some scattered lakes and ponds east of Sulphur Ridge. Some effort should be given to exploring, perhaps later in the summer, some of the alpine lakes that have sedge shorelines and aquatic mosses.

The 21 odonate species collected in Kakwa WP matches the total species count from the Caribou Mountains WP survey making it one of the most successful trips. However, it is possible that Kakwa could have as many as 52 odonate species, according to range

information provided in sources such as Dunkle (2000) and Acorn (2004). Based on these numbers, only 40% of the possible odonate species for Kakwa were confirmed during this survey. When comparing it to typical wetland-rich boreal habitats such as the Caribou Mountains that could have as many as 33 species, the mountain parks are considerably richer in terms of odonate diversity, perhaps a reflection of the diversity of aquatic habitats found within mountain environments.

The following odonate species could occur within suitable habitats in Kakwa WP – Aeshna umbrosa, A. constricta, A. interrupta, A. tuberculifera, A. canadensis, Ophiogomphus colubrinus, O. severus, Libellula julia, Leucorrhinia intacta, L. borealis, L. proxima, L. costiferum, Sympetrum internum, S. obtrusum, Lestes dryas, L. disjunctus, L. unguiculatus, L. congener, Coenagrion interrogatum, Enallagma erbium, and Ischnura cervula. Somatochlora sahlbergi, not in the above list, is a possibility for some subalpine lakes such as the one shown below in Figure 11. These lakes, however, may be too cold for odonates.



Libellula julia could occur in habitats such as at the Rim Ridge Fen pond (Figure 10). Ophiogomphus colubrinus is a late season species that may appear in the vicinity of the slower, warmer streams in the east side of the park. Others such as Sympetrum danae and others of this genus are likely to appear later in the season. Some species may occur as localised populations in remote areas of the park and could be difficult to discover.

The most productive site noted in this survey was the Emerald Uplands (Figures 6 and 7). A total of 54 specimens and 14 species were found here. The second best habitat was the beaver pond in Deadhorse Meadows where 29 specimens and 8 species were collected. Both these sites were 'boreal' in nature and had a mixture of mountain and boreal species present within them. They also had a variety of habitats ranging from weedy beaver ponds, slow streams and shallow peaty pools.

For more thorough sampling of odonates in the park, it is recommended that: (1) habitats such as patterned fens and small isolated ponds be explored further in attempts to find new potential species, (2) more thorough sampling be done in June to pick up some of the spring species, (3) a survey in August be done to target late season species, and (4) collection of naiads be done, especially in July, to try and find some of the late season species.

II. Distribution patterns and taxa

The following is an annotated list of the species that were collected in Kakwa WP. For each species, notes are included for any significant range extensions, the collection location, relative abundance and any other relevant biological or behavioural information. The list is arranged according to the Suborders Zygoptera and Anisoptera.

Species listed below and also listed in Appendix 2 are given S (subnational or provincial) ranks as well as G (global) ranks. The rankings mean the following: S1/G1 = 5 or fewer occurrences, may be vulnerable to extirpation; S2/G2 = 6 to 20 or fewer occurrences or with many individuals in fewer locations and may be vulnerable to extirpation; S3/G3 = 21 to 100 occurrences, may be rare and local throughout its range or in a restricted range (may be abundant in some locations); S4/G4 = typically >100 occurrences, apparently secure, S5/G5 = typically 100 occurrences, demonstrably secure. For ranking species' abundance, "rare" is considered to be S1, "uncommon" as S2, "common" and "abundant" include S3, S4 and S5s (Appendix 2).

Suborder Zygoptera (Damselflies) [range information is based on Walker (1953), Cannings (2002), Donnelly (2004), and Acorn (2004)].

Family Coenagrionidae

- Lestes disjunctus 'Common Spreadwing' A widespread common species in other areas of Alberta but a rare find in Kakwa WP. Only one adult female was collected in the "Emerald Uplands" (site 5). The single specimen was either an outlier from a localized colony, an earlier emergent or just a rare find. Further surveying in Kakwa may answer this question but it was a big discovery for the July trip. The specimen was collected from a sedge meadow that surrounds a small lake in the "Emerald Uplands" (Figure 6, site 5). This species is ranked as S4G5.
- Coenagrion resolutum 'Taiga Bluet' An abundant species found throughout boreal and mountain forests in still marshy waters. This species exists in many lake regions across Canada. Specimens collected in the Kakwa WP were all found at the "Deadhorse Meadows beaver pond" (Figure 3, site 7). This species likely exists in similar habitats throughout the park. It is ranked as S5G5.
- Enallagma boreale 'Boreal Bluet' An abundant species found in many boreal and mountain wetlands. This species was present amongst a huge emergence of *E. cyathigerum* that were flying beside a lake just outside of the park boundaries. Though this species was not found within the park it may exist in some of the small lakes that I was unable to visit during the survey such as those in the northwest part of the park. The two specimens collected were from site 1. The species is ranked as S5G5.
- Enallagma cyathigerum 'Northern Bluet' This was the most abundant species observed during the Kakwa WP survey. It was found in the cool marshy waters of a small lake located just outside of the park at site 1. The hordes of damselflies that engulfed my vehicle beside a lake at site 1 encouraged me to stop the truck and do some collecting. The other population that was discovered was in the "Emerald Uplands" (Figure 6, site 5). Adults were plentiful here and were found flying along the shoreline and amongst the sedges adjacent to the small lakes. Seven specimens were taken at sites 1 and 5. The species is ranked as S5G5.
- Enallagma hageni 'Hagen's Bluet' This uncommon species is likely one of the most localized that was discovered in Kakwa WP. There are 21 documented records from Alberta and I have ranked it as S3G5. In Kakwa WP it was discovered in the

"Rim Ridge Fen" (site 8) flying along the shoreline of a small peaty pond (Figure 10). Only one specimen was collected though a few others were observed.

Suborder Anisoptera (Dragonflies)

Family Aeshnidae [range and biological information is based on Walker (1958), Dunkle (2000), Needham *et al.* (2000), Cannings (1996 and 2002), and Donnelly (2004)].

- Aeshna eremita 'Lake Darner' An abundant species that was found beside lakes surrounded by sedges and that also had plentiful emergent vegetation (Figure 9). In Kakwa this was one of the most commonly encountered species of Aeshna along with A. juncea and A. palmata. Five specimens were collected at sites 2, 5 and 7 (Appendix 3). The species is ranked as S5G5.
- Aeshna juncea 'Sedge Darner' An abundant species that prefers sedge-bordered peatland ponds. It was one of the most prevalent species of darner in the park. It was common near ponds that were surrounded by sedges and that had plentiful aquatic vegetation. The 21 specimens were collected at sites 2, 5, 7 and 8 (Appendix 3). This species is ranked as S5G5.



Figure 12. *Aeshna juncea* perched on sedges beside the "Deadhorse Meadows beaver pond" at site 2.

Aeshna septentrionalis 'Azure Darner' – This rare species is found in Alberta and only occurs in the mountains. This is an S1-ranked species having only been documented in two other localities near Banff. The Kakwa WP population was discovered in the "Rim Ridge Fen," around a small pond in that area (Figure 10, site 8). Five adult specimens were collected as they patrolled the pond's edges. One exuviae also was collected.



Figure 13. Aeshna septentrionalis on a wild onion near the pond in the "Rim Ridge Fen" (site 8).

- Aeshna sitchensis 'Zigzag Darner' An uncommon species found throughout the boreal and montane regions of Alberta. This species is ranked provincially as an S3 species and currently has approximately 20 documented populations. The species is likely much more common in the province than currently indicated. The most recent populations I am aware of are from the Holmes Crossing Ecological Reserve and this park. Those found in Kakwa WP were observed hovering and patrolling around shallow pools in the "Emerald Uplands" (Figure 7, site 5). Four specimens were collected around these pools.
- Aeshna subarctica 'Subarctic Darner' An uncommon species and a surprising discovery during this survey. This species has an S2-rank because there are twelve documented records for Alberta; most are mountain records. Most recently John Hornung found a population in Maybelle River WP in 2000 and Dave Lawrie and I found a population in Kakwa WP in 2006. It is an elusive species. We discovered a number of individuals patrolling the sedge-covered edges of a large beaver pond in the "Emerald Uplands" (Figure 6, site 5). Three specimens were collected there.
- Aeshna palmata 'Paddle-tailed Darner' A common species in the mountains that was abundant in many habitats explored during this survey. It is also known from Waterton Lakes, Laggan, Banff and Jasper. In Kakwa, it was a dominant species in many of the areas where it was collected and tended to be abundant in ponds and lakes where waters were much cooler. At the Emerald Lakes this was the only darner species that was present. A total of 16 specimens were collected at sites 1, 2, 6 and 7. It is ranked as S4G5.



Figure 14. *Aeshna palmata* perched on sun-bleached driftwood beside one of the Emerald Lakes (near site 6).

Family Corduliidae [(range and biological information from Walker (1925), Walker and Corbet (1975), Cannings *et al.* (1991), Needham *et al.* (2000), Dunkle (2000), Cannings (2002) and Donnelly (2004)].

• Cordulia shurtleffii 'American Emerald' – An abundant species found beside boreal ponds and lakes across Alberta. In recent years it has been collected from the Birch Mountains, Maybelle River, Marguerite River, Caribou Mountains, Colin-Cornwall Lakes, La Butte Creek, and Fidler-Greywillow Wildland Parks. Other Alberta records include Holmes Crossing Ecological Reserve, Fort Chipewyan and the Poplar Creek area north of Fort McMurray. In Kakwa WP, the species was only encountered at site 5 in the Emerald Uplands (Figure 6). Here, individuals were patrolling a pond and four adult specimens were collected. The species is ranked as S5G5.

• Somatochlora albicincta 'Ringed Emerald' – An uncommon species that exists in localized populations in the boreal forest and in the mountains. There are 15 known records for this species in Alberta. It has been ranked as S2G5. During recent park surveys it was found in the Birch Mountains and at Colin-Cornwall Wildland Parks. Populations of these emeralds were regularly encountered patrolling the ponds and small lakes in Kakwa WP. All 27 specimens were taken beside small boggy lakes at sites 5 and 8 (Figures 6 and 10). These sites were at much higher elevations than the beaver pond in Deadhorse Meadows where Somatochlora hudsonica was collected.



Figure 15. Somatochlora albicincta perched on a sedge near a small pond in the "Rim Ridge Fen" (site 5).

• Somatochlora hudsonica 'Hudsonian Emerald' (Figure 10) – This species occurs around deep sedge-bordered lakes, ponds and peatlands. Although there are only 18 documented records for Alberta, the species is probably more widely distributed than these records would indicate, likely occurring throughout the boreal, foothills and mountainous regions of the province. The species is ranked as S3G5. In previous years it was collected from Birch Mountains WP, Caribou Mountains WP, La Butte Creek WP, Holmes Crossing Ecological Reserve, and at Poplar Creek north of Fort McMurray. In Kakwa WP it was collected at the beaver pond in Deadhorse Meadows



(site 2) where numerous adults were observed patrolling the sedge-dominated shoreline. This beaver pond contained trout and lacked the similar species, *Somatochlora albicincta*, which was found at many other similar looking beaver ponds in the park. *S. hudsonica* was also collected at site 3, about one km south of Deadhorse Meadows. The two *S. hudsonica* specimens from Kakwa WP are from some of the most westernmost populations in Alberta.

Figure 16. *Somatochlora hudsonica* perched on vegetation beside the beaver pond at Deadhorse Meadows (site 2).

• Somatochlora forcipata 'Forcipate Emerald' – This rare species is found in small, boggy spring-fed streams and swamps in the boreal forest across Canada. It is an S1-ranked species in Alberta. This ranking is consistent with the rank for this species in British Columbia where it is also scarce (Ramsay and Cannings 2000). In Alberta, the species was previously recorded from Birch Mountains WP, Caribou Mountains WP, and Simpson's Pass near the British Columbia border. In Kakwa WP, four specimens were collected from wet sedge meadow habitats bordering the beaver ponds in Deadhorse Meadows (site 2) and in the Emerald Uplands (site 5). One specimen was observed patrolling a cutline near Deadhorse Meadows (Figure 17). The records from Kakwa WP represent the fourth documented occurrence of this species in Alberta.



Figure 17. *Somatochlora forcipata* resting on a willow leaf on a cutline near Deadhorse Meadows.

• Somatochlora franklini 'Delicate Emerald' – This uncommon species is a Sphagnum bog specialist that breeds in areas containing small spring fed pools. Prior to this survey, there were 16 known records from the province, the most recent being from Birch Mountains WP and Caribou Mountains WP. Most records in the province have come from the boreal, foothills and mountainous regions of Alberta. The species is ranked as S2G5. In Kakwa WP, three specimens were collected from near shallow pools and in sedge meadows in the Deadhorse Meadows area (Figures 3 and 4, sites 2 and 3).



Figure 18. *Somatochlora franklini* perched on a bog birch branch in a sedge fen south of Deadhorse Meadows (site 3).

• Somatochlora semicircularis 'Mountain Emerald' – This is a common species, preferring wetlands bordered by sedge marshes. There are 16 documented records from Alberta's foothills and mountains, and the species is ranked as S4G5. In Kakwa WP many adults were commonly observed patrolling over sedge marshes. There were two other Somatochlora species that were often encountered in the same vicinity – S. albicincta and S. hudsonica. Both of these species were found patrolling the borders of a beaver pond while S. semicircularis patrolled the surrounding sedge marsh. Here they cruised back and forth and from time to time would dive into the sedges in search of a mate or food. I later hiked about a kilometre south and discovered another population of this species, however, this time there was no beaver pond and there were no S. hudsonica observed. Instead there were a number of shallow canals and pools (Figure 4) where S. semicircularis was found patrolling their borders in the same manner as S. albicincta or S. hudsonica did at the beaver pond. In Kakwa WP, 18 specimens were collected from five different locations (sites 2, 3, 5, 6 and 7).



Figure 19. *Somatochlora semicircularis* perched in a sedge fen in Deadhorse Meadows (site 2).

- Somatochlora kennedyi 'Kennedy's Emerald' This rare species prefers ponds, streams or small pools in peatlands and marshes. It is an S1-ranked species in Alberta. In British Columbia the species is also rare and ranked as S1 (Ramsay and Cannings 2000). In Alberta, there are only two documented records of this species. The first record was from Birch Mountains WP where the species was found patrolling the sedges of a small beaver pond (Macaulay 2005). The other record was from Kakwa WP. Here the species was observed in the "Emerald Uplands" where adults were found patrolling shallow sedge-dominated canals and pools (Figure 7). One specimen was collected from site 5.
- Somatochlora whitehousei 'Whitehouse's Emerald' This uncommon species is found in sedge-dominated fens and marsh lands. In Alberta it is ranked as S2 with nine documented occurrences. In Kakwa WP, four specimens were collected from the "Emerald Uplands" (site 5). These specimens represent the westernmost record for Alberta.

Family Libellulidae [range and biological information from Walker and Corbet (1975), Needham *et al.* (2000), Dunkle (2000) and Cannings (2002)]

• Leucorrhinia hudsonica 'Hudsonian Whiteface' – An abundant boreal and mountain forest species that prefers the cool waters of boggy ponds. This species also was found in the Birch Mountains, Caribou Mountains, Colin-Cornwall Lakes, La Butte Creek, Fidler-Greywillow, Maybelle River and Marguerite River WPs as well as a number of other areas in Alberta. Seventeen specimens were collected in Kakwa WP at sites 2, 5 and 8. The species is ranked as S5G5.



Figure 20. *Leucorrhinia hudsonica* perching in sedges beside a large pond at site 5.

• Libellula quadrimaculata 'Four-spotted Skimmer' – An abundant species that inhabits boggy and marshy waters across Canada. It has been found in the Birch Mountains, Caribou Mountains, Colin-Cornwall Lakes, La Butte Creek, Fidler-Greywillow, Maybelle River and Marguerite River WPs as well as a number of other areas in Alberta. One specimen was collected and a number of others were observed patrolling the shallow pools in the "Emerald Uplands" (Figure 7, site 5).

SUMMARY AND CONCLUSIONS

A total of 21 odonate species were found during the 2006 survey of the Kakwa WP. This represents 16 species from the Suborder Anisoptera and 5 from the Suborder Zygoptera. There may be as many as 52 odonate species that occur in the area. Most of the species recorded for Kakwa WP were common and have wide distributions across Canada. Of the 21 species recorded, 10 are either rare or uncommon. The rare species were *Aeshna septentrionalis* (S1-rank), *Somatochlora forcipata* (S1-rank), and *S. kennedyi* (S1-rank). The uncommon species were *Aeshna subarctica* (S2-rank), *A. sitchensis* (S3-rank), *Somatochlora albicincta* (S2-rank), *S. franklini* (S2-rank), *S. whitehousei* (S2-rank), *S. hudsonica* (S3-rank) and *Enallagma hageni* (S3-rank).

The Kakwa WP odonate survey was successful and a wide variety of species were found. The diversity of suitable habitats in the park supports a diversity of odonate species. Future surveys in the park, if conducted over the course of the spring and summer months, would likely add several more species to what is currently known.

ACKNOWLEDGEMENTS

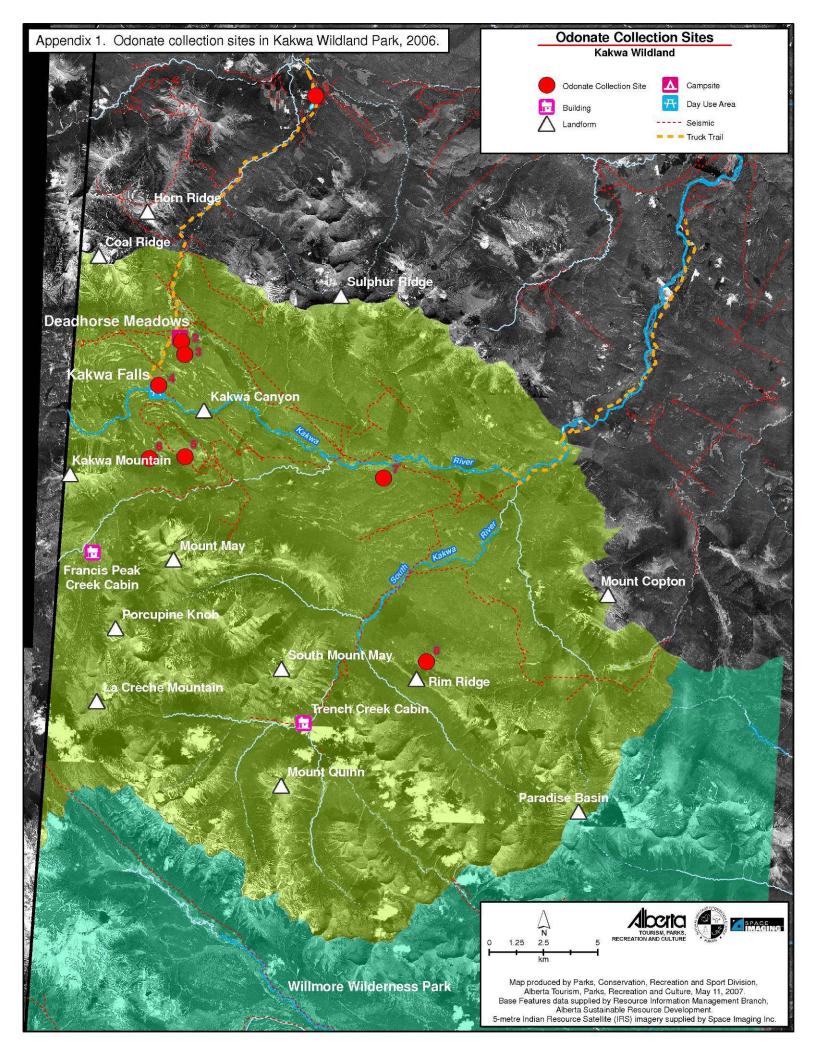
This report would not have been possible without the assistance/support of members of the Alberta Lepidopterists' Guild, particularly Gerald Hilchie and Dave Lawrie who collected specimens along with the author. Thanks to Robert Holmberg, James Hilchie, Carey Booth, Margot Hervieux, Terry Thormin, Wayne Nordstrom, and Ted Johnson who helped with surveying and collection of specimens during their visit to Kakwa WP. Thanks to Sherri Macaulay, Stacy Macaulay and Wayne Nordstrom for editing this report. Lastly, thanks to Robert Cannings and John Acorn who helped with some of the specimen identifications.

The opportunity to inventory the odonates in Kakwa WP was made possible through an invitation to the members of the Alberta Lepidopterists' Guild from the Alberta Natural Heritage Information Centre of the Parks and Protected Areas Division. In addition, park's staff of the Lac La Biche office made this project feasible by providing logistic support, transportation, a field camp and food. Without the efforts of Ted Johnson, Wayne Nordstrom and the rest of the park's staff along with the field camp crew, this project would not have been possible.

LITERATURE CITED

- Acorn, J. 2004. *Damselfies of Alberta. Flying Neon Toothpicks in the Grass*. The University of Alberta Press, Edmonton, AB. 156pp.
- Cannings, R. A. 1996. The Blue Darners: Dragonflies of the genus Aeshna in British Columbia. Cordillera 3(1):28-38.
- Cannings, R. A. 2002. *Introducing the Dragonflies of British Columbia and the Yukon*. Royal British Columbia Museum, Victoria, B.C. 96pp.
- Cannings, R. A. and K. Stuart. 1977. *The Dragonflies of British Columbia*. Handbooks of the British Columbia Provincial Museum. 35. 254 pp.
- Cannings S. G., R. A. Cannings and R. J. Cannings. 1991. Distribution of Dragonflies (Insecta: Odonata) of the Yukon Territory, Canada with Notes on Ecology and Behaviour. Contributions to Natural Science 13:1-27.
- Donnelly, T.W. 2004. *Distribution of North American Odonata*. Part I: Aeshnidae, Petaluridae, Gomphidae, Cordulegastridae. Bulletin of American Odonatology 7(4):61-90.
- Donnelly, T.W. 2004. *Distribution of North American Odonata*. Part II: Macromiidae, Corduliidae and Libellulidae. Bulletin of American Odonatology 8(1):1-32.
- Donnelly, T.W. 2004. *Distribution of North American Odonata*. Part III: Calopterygidae, Lestidae, Coenagrionidae, Protoneuridae, Platystictidae, with data sources and bibliography, parts 1-III. Bulletin of American Odonatology 8(2-3):33-99.
- Dunkle, S.W. 2000. *Dragonflies through Binoculars*. Oxford University Press, New York. 266pp.
- Hornung, J.H. 2001. Species Inventory of the Order Odonata (Dragonflies and Damselflies) for the Shield Inventory Project. Unpubl. Report, Alberta Natural Heritage Information Centre, Parks and Protected Areas Division, Alberta Community Development, Edmonton, AB.
- Macaulay, D.A. 2002. Survey of Odonata in the Canadian Shield Natural Region of Northeastern Alberta. II. 2001 Survey of the La Butte Creek and Fidler-Greywillow Wildland Parks. Unpubl. Report, Alberta Natural Heritage Information Centre, Parks and Protected Areas Division, Alberta Community Development, Edmonton, AB.
- Macaulay, D.A. 2003. Survey of Odonata in the Canadian Shield Natural Region of Northeastern Alberta. II. 2002 Survey of Colin-Cornwall Wildland Parks. Unpubl. Report, Alberta Natural Heritage Information Centre, Parks and Protected Areas Division, Alberta Community Development, Edmonton, AB.

- Macaulay, D.A. and S. Dunne. 2004. Survey of the Odonate Fauna in Caribou Mountains Wildland Park. Unpubl. Report, Alberta Natural Heritage Information Centre, Parks and Protected Areas Division, Alberta Community Development, Edmonton, AB.
- Macaulay, D.A. 2005. Survey of the Odonate Fauna in Birch Mountains Wildland Park. Unpubl. Report, Alberta Natural Heritage Information Centre, Parks and Protected Areas Division, Alberta Community Development, Edmonton, AB.
- Needham, J. G.; Westfall, M. J. and M. L. May. 2000. *Dragonflies of North America*. Scientific Publishers Inc. Gainesville, FL. 939 pp.
- Ramsay, L.R. and S.G. Cannings. 2000. *Dragonflies at Risk in British Columbia*. Vol. 1, pp. 89-93. In L. Darling (ed.), At Risk: Proceedings of a Conference on the Biology and Management of Species and Habitats at Risk, Kamloops, BC, 15-19 February 1999. Ministry of Environment, Lands and Parks, Victoria, BC.
- Walker, E.M. 1925. *The North American Dragonflies of the Genus Somatochlora*. University of Toronto Press, Toronto. 202 pp.
- Walker, E.M. 1953. *The Odonata of Canada and Alaska*. V. I. University of Toronto Press, Toronto. 292 pp.
- Walker, E.M. 1958. *The Odonata of Canada and Alaska*. V. 2. University of Toronto Press, Toronto. 318 pp.
- Walker E.M. and P.S. Corbet. 1975. *The Odonata of Canada and Alaska*. V. 3. University of Toronto Press, Toronto. 307 pp.



		ist of species found in Kakwa Wildland I	Park											
				•	•			Со	llec	tion	Sites			
S- Rank	G- Rank	Abn.	Sp. No.	Family	Genus species subspecies	1	2	3	4	5	6	7	8	TT
			Sub	order Anisoptera (dragonflies)									
S5	G5	С	1	Aeshnidae	Aeshna eremita Scudder		1			3		1		5
S1	G5	R	2	Aeshnidae	Aeshna septentrionalis Burmeister								6	6
S3	G5	U	3	Aeshnidae	Aeshna sitchensis Hagen					4				4
S2	G5	U	4	Aeshnidae	Aeshna subarctica Walker					3				3
S5	G5	Α	5	Aeshnidae	Aeshna juncea (Linnaeus)		9			5		2	5	21
S4	G5	С	6	Aeshnidae	Aeshna palmata Hagen	1	3				11	1		16
S5	G5	Α	7	Corduliidae	Cordulia shurtleffii Scudder					4				4
S5	G5	Α	8	Libellulidae	Libellula quadrimaculata Linnaeus					1				1
S5	G5	Α	9	Libellulidae	Leucorrhinia hudsonica (Selys)		6			10			1	17
S2	G5	U	10	Corduliidae	Somatochlora albicincta (Burmeister)					11			16	27
S3	G5	С	11	Corduliidae	Somatochlora hudsonica (Selys)		1	1						2
S1	G5	R	12	Corduliidae	Somatochlora forcipata (Scudder)		2			2				4
S2	G5	U	13	Corduliidae	Somatochlora franklini (Selys)		2	1						3
S4	G5	С	14	Corduliidae	Somatochlora semicircularis (Selys)		6	2		2	1	7		18
S1	G5	R	15	Corduliidae	Somatochlora kennedyi Walker					1				1
S2	G5	U	16	Corduliidae	Somatochlora whitehousei Walker					4				4
				Subtotal		1	30	4	0	50	12	11	28	136
			Sub	order Zygoptera (damselflies)									
S4	G5	Α	17	Lestidae	Lestes disjunctus Selys					1				1
S5	G5	Α	18	Coenagrionidae	Coenagrion resolutum (Selys)		12							12
S5	G5	Α	19	Coenagrionidae	Enallagma boreale (Selys)	2								2
S5	G5	Α	20	Coenagrionidae	Enallagma cyathigerum (Charp.)	4				3				7
S3	G5	U	21	Coenagrionidae	Enallagma hageni (Wlsh.)								1	1
					Subtotal	6	12	0	0	4	0	0	1	23
					Column Totals	7	42	4	0	54	12	11	29	
					Final Total					159				159

Appendix 3	NA#	Genus species subspecies	OS COIIECT	ed in Kakwa Wildland Park Locality	Site #	Dec. Lat.	Dec. Long.	Collector	Sex	Life Stage
Lestidae	14	Lestes disjunctus Selys	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5 5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	female	adult
Lesiluae	14	Lesies disjunctus selys	24-Jul-00	Emeralu Lake Opianus, 140km Sw of Grande Frame	3	54.00012	-119.91732	iviacaulay, D., Lawrie, D.	lemale	auuit
Coenagrionidae	72	Coenagrion resolutum (Selys)	14-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Nordstrom, W.	male	adult
Coenagrionidae	72	Coenagrion resolutum (Selys)	16-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	female	adult
Coenagrionidae	72	Coenagrion resolutum (Selys)	16-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Coenagrionidae	72	Coenagrion resolutum (Selys)	16-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Coenagrionidae	72	Coenagrion resolutum (Selys)	16-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	female	adult
Coenagrionidae	72	Coenagrion resolutum (Selys)	16-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	female	adult
Coenagrionidae	72	Coenagrion resolutum (Selys)	16-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Coenagrionidae	72	Coenagrion resolutum (Selys)	20-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	female	adult
Coenagrionidae	72	Coenagrion resolutum (Selys)	20-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	female	adult
Coenagrionidae	72	Coenagrion resolutum (Selys)	20-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Coenagrionidae	72	Coenagrion resolutum (Selys)	20-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Coenagrionidae	72	Coenagrion resolutum (Selys)	20-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Coenagrionidae	77	Enallagma boreale (Selys)	25-Jul-06	Small Lake N of Kakwa Wildland Park, 123km SW of Grande Prairie	1	54.24149	-119.84304	Macaulay, D.	male	adult
Coenagrionidae	77	Enallagma boreale (Selys)	25-Jul-06	Small Lake N of Kakwa Wildland Park, 123km SW of Grande Prairie	1	54.24149	-119.84304	Macaulay, D.	male	adult
Coenagrionidae	83	Enallagma cathigerum (Charp.)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Coenagrionidae	83	Enallagma cathigerum (Charp.)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Coenagrionidae	83	Enallagma cathigerum (Charp.)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	female	adult
Coenagrionidae	83	Enallagma cathigerum (Charp.)	25-Jul-06	Small Lake N of Kakwa Wildland Park, 123km SW of Grande Prairie	1	54.24149	-119.84304	Macaulay, D.	female	adult

Coenagrionidae 83											
Coenagrioridae 83 Enalogina cathigarum (Charp.) 25-Jul-06 Prairie 1 54-24149 -119,843,94 Macaulay, D. Imale at Coenagrioridae 83 Enalogina cathigarum (Charp.) 25-Jul-06 Rim Ridge Fen. 143km SW of Grande Prairie 8 54,00980 -119,23788 Macaulay, D. male at Coenagrioridae 93 Enalogina hagen/(Wish.) 23-Jul-06 Rim Ridge Fen. 143km SW of Grande Prairie 8 54,00980 -119,23788 Macaulay, D. male at Aeshnidae 138 Aeshna eremita Scudder 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54,08812 -119,91752 Macaulay, D.; Lawrie, D. male at Aeshnidae 138 Aeshna eremita Scudder 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54,08812 -119,91752 Macaulay, D.; Lawrie, D. male at Aeshnidae 138 Aeshna eremita Scudder 22-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54,13572 -119,91752 Macaulay, D.; Lawrie, D. male at Aeshnidae 138 Aeshna eremita Scudder 22-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54,13572 -119,91750 Macaulay, D. male at Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54,08812 -119,91752 Macaulay, D.; Lawrie, D. male at Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54,08812 -119,91752 Macaulay, D.; Lawrie, D. male at Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54,08812 -119,91752 Macaulay, D.; Lawrie, D. female at Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54,08812 -119,91752 Macaulay, D.; Lawrie, D. female at Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54,08812 -119,91752 Macaulay, D.; Lawrie, D. female at Aeshnidae 140 Aeshna	Coenagrionidae	83	Enallagma cathigerum (Charp.)	25-Jul-06	·	1	54.24149	-119.84304	Macaulay, D.	male	adult
Coenagrifornidae 33	Coenagrionidae	83	Enallagma cathigerum (Charp.)	25-Jul-06	·	1	54.24149	-119.84304	Macaulay, D.	male	adult
Aeshnidae 138 Aeshna eremita Scudder 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. male at all Aeshnidae 138 Aeshna eremita Scudder 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. male at all Aeshnidae 138 Aeshna eremita Scudder 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. male at all Aeshnidae 138 Aeshna eremita Scudder 22-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.91752 Macaulay, D.; Lawrie, D. male at all all all all all all all all all a	Coenagrionidae	83	Enallagma cathigerum (Charp.)	25-Jul-06		1	54.24149	-119.84304	Macaulay, D.	male	adult
Aeshnidae 138 Aeshna eremita Scudder 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.: Lawrie, D. male active Aeshnidae 138 Aeshna eremita Scudder 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.: Lawrie, D. male active Aeshnidae 138 Aeshna eremita Scudder 22-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D.: Lawrie, D. female active Aeshnidae 138 Aeshna eremita Scudder 18-Jul-06 Pond by Kakwa River 7 54.08483 -119.91750 Macaulay, D.: Lawrie, D. male active Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.: Lawrie, D. female active Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 </td <td>Coenagrionidae</td> <td>93</td> <td>Enallagma hageni (WIsh.)</td> <td>23-Jul-06</td> <td>Rim Ridge Fen, 143km SW of Grande Prairie</td> <td>8</td> <td>54.00980</td> <td>-119.73788</td> <td>Macaulay, D.</td> <td>male</td> <td>adult</td>	Coenagrionidae	93	Enallagma hageni (WIsh.)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Macaulay, D.	male	adult
Aeshnidae 138 Aeshna eremita Scudder 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54,08812 -119,91752 Macaulay, D.; Lawrie, D. male at Aeshnidae 138 Aeshna eremita Scudder 22-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54,13572 -119,92570 Macaulay, D. female at Aeshnidae 138 Aeshna eremita Scudder 18-Jul-06 Pond by Kakwa River 7 54,08813 -119,77670 Macaulay, D. male at Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54,08812 -119,91752 Macaulay, D.; Lawrie, D. female at Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54,08812 -119,91752 Macaulay, D.; Lawrie, D. male at Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54,08812 -119,91752 Macaulay, D.; Lawrie, D. </td <td>Aeshnidae</td> <td>138</td> <td>Aeshna eremita Scudder</td> <td>24-Jul-06</td> <td>Emerald Lake Uplands, 140km SW of Grande Prairie</td> <td>5</td> <td>54.08812</td> <td>-119.91752</td> <td>Macaulay, D.; Lawrie, D.</td> <td>male</td> <td>adult</td>	Aeshnidae	138	Aeshna eremita Scudder	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Aeshnidae 138 Aeshna eremita Scudder 22-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female are female are female are female are female. Aeshnidae 138 Aeshna eremita Scudder 18-Jul-06 Pond by Kakwa River 7 54.08483 -119.77670 Macaulay, D. male are female are female are female. Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.: Lawrie, D. female are female are female. Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.: Lawrie, D. male are female. Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.: Lawrie, D. female. are female. Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.9	Aeshnidae	138	Aeshna eremita Scudder	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Aeshnidae 138 Aeshna eremita Scudder 18-Jul-06 Pond by Kakwa River 7 54.08483 -119.77670 Macaulay, D. male ac Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. male ac Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. male ac Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. male ac Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.;	Aeshnidae	138	Aeshna eremita Scudder	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. male ac Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. male ac Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Meadows 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Maca	Aeshnidae	138	Aeshna eremita Scudder	22-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	female	adult
Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. male ac Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Ma	Aeshnidae	138	Aeshna eremita Scudder	18-Jul-06	Pond by Kakwa River	7	54.08483	-119.77670	Macaulay, D.	male	adult
Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. male ac Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aes	Aeshnidae	140	Aeshna juncea (Linnaeus)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Macaulay (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Macaulay (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Macaulay (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Macaulay (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay (Linnaeus) 16-Jul-06	Aeshnidae	140	Aeshna juncea (Linnaeus)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	female	adult
Aeshnidae 140 Aeshna juncea (Linnaeus) 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female 140 Macaulay, D. female 140 Macaulay, D. female	Aeshnidae	140	Aeshna juncea (Linnaeus)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female 2 54.13572 -119	Aeshnidae	140	Aeshna juncea (Linnaeus)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	female	adult
Aeshnidae 140 Aeshna juncea (Linnaeus) 16-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac	Aeshnidae	140	Aeshna juncea (Linnaeus)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	female	adult
	Aeshnidae	140	Aeshna juncea (Linnaeus)	16-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	female	adult
Aeshnidae 140 Aeshna juncea (Linnaeus) 20-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ac	Aeshnidae	140	Aeshna juncea (Linnaeus)	16-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	female	adult
	Aeshnidae	140	Aeshna juncea (Linnaeus)	20-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	female	adult
Aeshnidae 140 Aeshna juncea (Linnaeus) 20-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. female ad	Aeshnidae	140	Aeshna juncea (Linnaeus)	20-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	female	adult
Aeshnidae 140 Aeshna juncea (Linnaeus) 20-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. male ac	Aeshnidae	140	Aeshna juncea (Linnaeus)	20-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Aeshnidae 140 Aeshna juncea (Linnaeus) 20-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. male ad	Aeshnidae	140	Aeshna juncea (Linnaeus)	20-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Aeshnidae 140 Aeshna juncea (Linnaeus) 20-Jul-06 nr. Deadhorse Meadows, 136km SW of Grande Prairie 2 54.13572 -119.92570 Macaulay, D. male ac	Aeshnidae	140	Aeshna juncea (Linnaeus)	20-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult

Aeshnidae	140	Aeshna juncea (Linnaeus)	20-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Aeshnidae	140	Aeshna juncea (Linnaeus)	22-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Aeshnidae	140	Aeshna juncea (Linnaeus)	18-Jul-06	Pond by Kakwa River	7	54.08483	-119.77670	Macaulay, D.	male	adult
Aeshnidae	140	Aeshna juncea (Linnaeus)	18-Jul-06	Pond by Kakwa River	7	54.08483	-119.77670	Macaulay, D.	female	adult
Aeshnidae	140	Aeshna juncea (Linnaeus)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Macaulay, D.	male	adult
Aeshnidae	140	Aeshna juncea (Linnaeus)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Macaulay, D.	female	adult
Aeshnidae	140	Aeshna juncea (Linnaeus)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Macaulay, D.	female	adult
Aeshnidae	140	Aeshna juncea (Linnaeus)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Macaulay, D.	female	adult
Aeshnidae	140	Aeshna juncea (Linnaeus)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Hilchie, G.	?	nymph
Aeshnidae	141	Aeshna palmata Hagen	24-Jul-06	Emerald Lakes, 140km SW of Grande Prairie	6	54.08617	-119.94236	Macaulay, D.; Lawrie, D.	male	adult
Aeshnidae	141	Aeshna palmata Hagen	24-Jul-06	Emerald Lakes, 140km SW of Grande Prairie	6	54.08617	-119.94236	Macaulay, D.; Lawrie, D.	male	adult
Aeshnidae	141	Aeshna palmata Hagen	24-Jul-06	Emerald Lakes, 140km SW of Grande Prairie	6	54.08617	-119.94236	Macaulay, D.; Lawrie, D.	male	adult
Aeshnidae	141	Aeshna palmata Hagen	24-Jul-06	Emerald Lakes, 140km SW of Grande Prairie	6	54.08617	-119.94236	Macaulay, D.; Lawrie, D.	male	adult
Aeshnidae	141	Aeshna palmata Hagen	24-Jul-06	Emerald Lakes, 140km SW of Grande Prairie	6	54.08617	-119.94236	Macaulay, D.; Lawrie, D.	male	adult
Aeshnidae	141	Aeshna palmata Hagen	24-Jul-06	Emerald Lakes, 140km SW of Grande Prairie	6	54.08617	-119.94236	Macaulay, D.; Lawrie, D.	male	adult
Aeshnidae	141	Aeshna palmata Hagen	24-Jul-06	Emerald Lakes, 140km SW of Grande Prairie	6	54.08617	-119.94236	Macaulay, D.; Lawrie, D.	male	adult
Aeshnidae	141	Aeshna palmata Hagen	25-Jul-06	Emerald Lakes, 140km SW of Grande Prairie	6	54.08617	-119.94236	Hilchie, G.; Hilchie, J.	male	adult
Aeshnidae	141	Aeshna palmata Hagen	25-Jul-06	Emerald Lakes, 140km SW of Grande Prairie	6	54.08617	-119.94236	Hilchie, G.; Hilchie, J.	male	adult
Aeshnidae	141	Aeshna palmata Hagen	25-Jul-06	Emerald Lakes, 140km SW of Grande Prairie	6	54.08617	-119.94236	Hilchie, G.; Hilchie, J.	male	adult
Aeshnidae	141	Aeshna palmata Hagen	25-Jul-06	Emerald Lakes, 140km SW of Grande Prairie	6	54.08617	-119.94236	Hilchie, G.; Hilchie, J.	male	adult
Aeshnidae	141	Aeshna palmata Hagen	16-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Aeshnidae	141	Aeshna palmata Hagen	20-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Aeshnidae	141	Aeshna palmata Hagen	22-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Aeshnidae	141	Aeshna palmata Hagen	18-Jul-06	Pond by Kakwa River	7	54.08483	-119.77670	Macaulay, D.	male	adult
Aeshnidae	141	Aeshna palmata Hagen	25-Jul-06	Small Lake N of Kakwa Wildland Park, 123km SW of Grande Prairie	1	54.24149	-119.84304	Macaulay, D.	male	adult
Aeshnidae	143	Aeshna septentrionalis Burmeister	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Macaulay, D.	male	adult
Aeshnidae	143	Aeshna septentrionalis Burmeister	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Macaulay, D.	female	adult
Aeshnidae	143	Aeshna septentrionalis Burmeister	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Macaulay, D.	male	adult
Aeshnidae	143	Aeshna septentrionalis Burmeister	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Macaulay, D.	male	adult
Aeshnidae	143	Aeshna septentrionalis Burmeister	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Hilchie, G.	?	exuviae
Aeshnidae	143	Aeshna septentrionalis Burmeister	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Hilchie, G.; Hilchie, J.	male	adult

Aeshnidae	144	Aeshna sitchensis Hagen	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Aeshnidae	144	Aeshna sitchensis Hagen	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Aeshnidae	144	Aeshna sitchensis Hagen	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Aeshnidae	144	Aeshna sitchensis Hagen	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Aeshnidae	145	Aeshna subarctica Walker	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Aeshnidae	145	Aeshna subarctica Walker	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Aeshnidae	145	Aeshna subarctica Walker	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Corduliidae	291	Cordulia shurtleffii Scudder	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Corduliidae	291	Cordulia shurtleffii Scudder	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Corduliidae	291	Cordulia shurtleffii Scudder	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Corduliidae	291	Cordulia shurtleffii Scudder	25-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Hilchie, G.; Hilchie, J.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	25-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Hilchie, G.; Hilchie, J.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	25-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Hilchie, G.; Hilchie, J.	male	adult
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Corduliidae	313	Somatochlora albicincta (Burmeister)	25-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Hilchie, G.; Hilchie, J.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	25-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Hilchie, G.; Hilchie, J.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Macaulay, D.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Macaulay, D.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Macaulay, D.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Macaulay, D.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Macaulay, D.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Macaulay, D.	female	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Hilchie, G.	?	nymph
Corduliidae	313	Somatochlora albicincta (Burmeister)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Hilchie, G.; Hilchie, J.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Hilchie, G.; Hilchie, J.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Hilchie, G.; Hilchie, J.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Hilchie, G.; Hilchie, J.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Hilchie, G.; Hilchie, J.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Hilchie, G.; Hilchie, J.	male	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Hilchie, G.; Hilchie, J.	female	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Hilchie, G.; Hilchie, J.	female	adult
Corduliidae	313	Somatochlora albicincta (Burmeister)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Hilchie, G.; Hilchie, J.	male	adult
Corduliidae	320	Somatochlora forcipata (Scudder)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Corduliidae	320	Somatochlora forcipata (Scudder)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Corduliidae	320	Somatochlora forcipata (Scudder)	22-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Corduliidae	320	Somatochlora forcipata (Scudder)	22-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13036	-119.92274	Macaulay, D.	male	adult
Corduliidae	321	Somatochlora franklini (Selys)	22-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13036	-119.92274	Macaulay, D.	male	adult
Corduliidae	321	Somatochlora franklini (Selys)	22-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	3	54.13572	-119.92570	Macaulay, D.	male	adult
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Corduliidae	321	Somatochlora franklini (Selys)	22-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Corduliidae	324	Somatochlora hudsonica (Selys)	22-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Corduliidae	324	Somatochlora hudsonica (Selys)	22-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	3	54.13036	-119.92274	Macaulay, D.	male	adult
Corduliidae	326	Somatochlora kennedyi Wlk.	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	female	adult
Corduliidae	333	Somatochlora semicircularis (Selys)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
Corduliidae	333	Somatochlora semicircularis (Selys)	25-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Hilchie, G.; Hilchie, J.	male	adult
Corduliidae	333	Somatochlora semicircularis (Selys)	24-Jul-06	Emerald Lakes, 140km SW of Grande Prairie	6	54.08617	-119.94236	Macaulay, D.; Lawrie, D.	male	adult
Corduliidae	333	Somatochlora semicircularis (Selys)	22-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Corduliidae	333	Somatochlora semicircularis (Selys)	22-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Corduliidae	333	Somatochlora semicircularis (Selys)	22-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Corduliidae	333	Somatochlora semicircularis (Selys)	22-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Corduliidae	333	Somatochlora semicircularis (Selys)	22-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Corduliidae	333	Somatochlora semicircularis (Selys)	22-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	3	54.13036	-119.92274	Macaulay, D.	male	adult
Corduliidae	333	Somatochlora semicircularis (Selys)	22-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	3	54.13036	-119.92274	Macaulay, D.	male	adult
Corduliidae	333	Somatochlora semicircularis (Selys)	22-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
Corduliidae	333	Somatochlora semicircularis (Selys)	18-Jul-06	Pond by Kakwa River	7	54.08483	-119.77670	Macaulay, D.	male	adult
Corduliidae	333	Somatochlora semicircularis (Selys)	18-Jul-06	Pond by Kakwa River	7	54.08483	-119.77670	Macaulay, D.	male	adult
Corduliidae	333	Somatochlora semicircularis (Selys)	18-Jul-06	Pond by Kakwa River	7	54.08483	-119.77670	Macaulay, D.	male	adult
Corduliidae	333	Somatochlora semicircularis (Selys)	18-Jul-06	Pond by Kakwa River	7	54.08483	-119.77670	Macaulay, D.	male	adult
Corduliidae	333	Somatochlora semicircularis (Selys)	18-Jul-06	Pond by Kakwa River	7	54.08483	-119.77670	Macaulay, D.	male	adult
Corduliidae	333	Somatochlora semicircularis (Selys)	18-Jul-06	Pond by Kakwa River	7	54.08483	-119.77670	Macaulay, D.	male	adult
Corduliidae	333	Somatochlora semicircularis (Selys)	18-Jul-06	Pond by Kakwa River	7	54.08483	-119.77670	Macaulay, D.	female	adult

337	<i>Somatochlora whitehousei</i> Walker	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
337	Somatochlora whitehousei Walker	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
337	Somatochlora whitehousei Walker	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
337	Somatochlora whitehousei Walker	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
379	Leucorrhinia hudsonica (Selys)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
379	Leucorrhinia hudsonica (Selys)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
379	Leucorrhinia hudsonica (Selys)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
379	Leucorrhinia hudsonica (Selys)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
379	Leucorrhinia hudsonica (Selys)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	female	adult
379	Leucorrhinia hudsonica (Selys)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	female	adult
379	Leucorrhinia hudsonica (Selys)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
379	Leucorrhinia hudsonica (Selys)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
379	Leucorrhinia hudsonica (Selys)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
379	Leucorrhinia hudsonica (Selys)	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
379	Leucorrhinia hudsonica (Selys)	16-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
379	Leucorrhinia hudsonica (Selys)	16-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
379	Leucorrhinia hudsonica (Selys)	20-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
379	Leucorrhinia hudsonica (Selys)	20-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
379	Leucorrhinia hudsonica (Selys)	22-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	female	adult
379	Leucorrhinia hudsonica (Selys)	22-Jul-06	nr. Deadhorse Meadows, 136km SW of Grande Prairie	2	54.13572	-119.92570	Macaulay, D.	male	adult
379	Leucorrhinia hudsonica (Selys)	23-Jul-06	Rim Ridge Fen, 143km SW of Grande Prairie	8	54.00980	-119.73788	Hilchie, G.; Hilchie, J.	male	adult
397	Libellula quadrimaculata Linnaeus	24-Jul-06	Emerald Lake Uplands, 140km SW of Grande Prairie	5	54.08812	-119.91752	Macaulay, D.; Lawrie, D.	male	adult
	337 337 337 337 379 379 379 379	337 Walker 337 Somatochlora whitehousei Walker 337 Somatochlora whitehousei Walker 338 Somatochlora whitehousei Walker 339 Leucorrhinia hudsonica (Selys) 379 Leucorrhinia hudsonica (Selys)	337 Walker 24-Jul-06 337 Somatochlora whitehousei Walker 24-Jul-06 337 Somatochlora whitehousei Walker 24-Jul-06 337 Somatochlora whitehousei Walker 24-Jul-06 338 Leucorrhinia hudsonica (Selys) 24-Jul-06 339 Leucorrhinia hudsonica (Selys) 24-Jul-06 34-Jul-06 359 Leucorrhinia hudsonica (Selys) 20-Jul-06 359 Leucorrhinia hudsonica (Selys) 20-Jul-06 379 Leucorrhinia hudsonica (Selys) 20-Jul-06 379 Leucorrhinia hudsonica (Selys) 22-Jul-06	Walker 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie	Walker 24-Jul-06 Emerald Lake Uplands, 140km SW of Grande Prairie 5	337 Walker	Walker	Walker 24-Jul-06 Emerald Lake Uplands, 140km SW of Crande Prairie 5 54.08812 -119.91752 Macaulay, D.; Lawrie, D.	Walker