The Comet Darnet (Anax longipes: Aeshnidae): possibly breeding in Canada

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A truly magnificent dragonfly. Fast flying and elusive. I have never captured a male. And they are not common in our state or any state. I have seen them lift saddlebags out of the air and make feints toward small birds.

- Herschel Raney, Arkansas

Abstract: We captured and photographed a male Comet Darnet (Anax longipes) from the Crieff area, in southern Wellington County, during the 2005 Hamilton Odonate Count. It was in suitable breeding habitat for this species, and may have emerged at the site, although searches for reproductive evidence later in the season were unsuccessful. There are three previous Canadian records for Anax longipes—this is the first Canadian record likely to represent a breeding population. Its presence at Crieff, with a rich assemblage of other odonate species, emphasizes the importance of fishless aquatic habitats for the maintenance of odonate diversity in Ontario.

Background: The Comet Darnet is a striking large aeshnid; mature males sport green thoraxxes and brilliant scarlet abdomens. It averages larger than the more familiar Common Green Darnet (Anax jenius), and has extremely long red-and-black legs. In North America, it’s a species of the southeast, with records from Florida to Texas, and north to Michigan and New Brunswick (Natureserve 2005). The northerly records are sparse; of all the jurisdictions in which it is ranked, the Comet Darnet is secure (S5) only in Tennessee, and apparently secure (S4) only in North Carolina (Natureserve 2005).

The attempt to delineate the Comet’s range, however, is complicated by this species’ habit of vagrancy. Even within the core of its range, it is a strongly aerial species, typically seen high above the ground, cruising “far and wide” (Dunkle 2000). Many of the records from the periphery of its range are likely of vagrant individuals, and do not indicate breeding populations.

Figure 1. Male Anax longipes collected at the gravel pit pond near Crieff. Photo by C. Rothfels.

The previous Canadian records are presumed to fall into this vagrant category: In June 1918, F.M. Gaige caught a Comet Darnet at the south end of Pelee Island (Walker and Corbet 1975); David D’hondt was able to carefully observe one near Windsor, Ontario, on July 4, 1995; and, also from 1995, a lone male was observed on June 26 in St. John County, New Brunswick, by Karl Dexter (Brunelle 2002).

When breeding, the Comet Darnet prefers shallow fishless ponds. Dunkle (1989), for example, describes its breeding habitat as “borrow pits and semi-permanent, usually grassy, ponds” and proceeds to note that “apparently its larvae do not compete well with other dragonflies or with fish.”

Interestingly, one of the best-documented breeding sites is in Livingston County, Michigan, north of sections of southern Ontario (Kielb and O’Brien 1996). At this location, Anax longipes is common, and occurs with Anax jenius in a series of fishless artificial ponds. This population appears stable, albeit small and isolated. Kielb and O’Brien hypothesize that it was established by a fecund vagrant “foundress,” and may thus be the result of a single migration event.
Crieff Record:
On July 3, 2005, Heather Ducharme, Ian Vaithilingam, Diane Green, and I were covering the northern portion of the count circle for the Hamilton Odonate Count. One of our stops was a gravel pit pond on the northwestern edge of the Fletcher Creek Ecological Preserve, approximately two kilometers southeast of Crieff. This pond complex is on the southern edge of Wellington County, approximately one kilometer north of the City of Hamilton: NAD83 17T 571056 4807800.

The Comet was one of the first dragonflies we saw as we entered the site. It flashed up from somewhere around the pond, and hung from a small willow overhanging the path, about 4m above the ground. I was shocked; I'm not sure any of us believed our eyes, or breathed, until we heard the rustle of wings in the net. My hands shook as I pulled the Comet out! We kept it until we had access to a digital camera and released it back at the site a few hours later.

It was a fresh male; neither the wings nor the body showed any signs of wear. We did not get an opportunity to watch it fly, but the wings felt firm.

The Site:
The site consists of one larger pond (approximately 30m across, up to at least 3m deep, with several small islands), and one smaller pond (10m across, up to 60cm deep), surrounded on three sides by open regenerating gravel flats and on the fourth by early successional forest. The large pond is rimmed with patches of cattail (Typha sp.) and Common Reed (Phragmites australis), with patches of pondweed (Potamogeton sp.) in the deeper areas (see Figure 1). The smaller pond is dominated by dense rushes (Juncus spp.) and cattails, and in some years may dry out completely. Both are approximately 15 to 20 years old (Costie pers. comm.)

Generally, the smaller pond seems to support a richer odonate fauna (including one-visit counts of nearly 900 Azure Bluets – *Enallagma aspersum*), although most flying individuals cannot be traced to one pond over the other.

On the day that we observed the Comet Darner, we also found the following adult odonates onsite: *Enallagma aspersum* (898); *Lestes eurinus* (12); *Argia fumipennis violacea* (10); *Celithemis elisa* (8); *Leucorrhinia intacta* (8); *Enallagma erbum* (6); *Libellula luctuosa* (5); *Ischnura verticalis* (4); *Libellula pulchella* (4); *Tramea carolina* (4); *Libellula lydia* (3); *Epitheca princeps* (2); *Anax junius* (2); *Enallagma carunculatum* (1); *Gomphus lividus* (1); *Libellula julia* (1); *Libellula quadrimaculata* (1).

Additional species observed at this location on other visits include: *Lestes unguiculatus*, *Enallagma cf. boreale*, *Enallagma civile*, *Aeshna tuberculifera*, *Somatochlora walshii*, *Perithemis tenera*, and *Sympetrum vicinum*.

Subsequent Visits:
Gordon Lewer and I returned to the site for an hour and half on July 28 to attempt to confirm breeding. We did not see any *Anax longipes*, although there were four adult *Anax junius* present. We combed the emergent vegetation around the ponds, and found four *Anax* exuvia at each. We also found *Anax* naiads in the smaller pond, among the emergent vegetation; our searches for naiads at the larger pond were unsuccessful, but it’s a much more difficult area to search. Unfortunately, by size (Kielb and O’Brien 1996) and labium characters (Bright and O’Brien 1999), we determined the exuvia and naiads to belong to *Anax junius*.

Discussion:
While inconclusive, the presence of a very fresh *Anax longipes* in classic habitat for this species strongly suggests the possibility of an ephemeral breeding population, which would be the first for Canada.

The associated species on this site are also interesting. At least four of them (*Enallagma aspersum*, *Lestes eurinus*, *Tramea carolina*, *Gomphus lividus*) are regionally rare, and at least two (*Enallagma aspersum*, *Lestes eurinus*) are strongly linked to fishless habitats. The *Tramea carolina* is a very rare breeder in Ontario, especially this far north; the capture of *T. carolina* larvae onsite (subsequently reared) during our search for *A. longipes* naiads was the second great surprise from this area this season. The presence of this *Tramea* is either indicative of habitat characteristics, or an odd coincidence, since Herschel Raney, writing of Arkansas, specifically notes that the two ponds he knows of with Comet Darner populations (rare in Arkansas) also support *T. carolina* (Raney 2003).
Figure 2. Shallow Gravel pit pond near Crieff where *Anax longipes* was found on 3 July 2005. Photo by C. Rothfels.

**Conclusion:**
The Comet Damer is an exciting addition to the odonata fauna of Wellington County. If we are able to confirm breeding, the Crieff site will be likely the northernmost population of this species in the world. Furthermore, the extremely rich odonate community at the Crieff site—with *Anax longipes* as the most notable component—emphasizes the importance of fishless aquatic habitats for the maintenance of odonate diversity in Ontario. Hopefully the presence of charismatic species like the Comet Darter will attract increased attention to these interesting and valuable habitats.

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**Literature Cited:**

Report to the Atlantic Canada Conservation Data Centre.


