



## MEMORANDUM

### ENVIRONMENTAL SCIENCES & ENGINEERING • PLANNING & MANAGEMENT

<b>DATE:</b>	<b>31 August 2010</b>
<b>TO:</b>	<b>Graham Suther, MoE Ft St John and Purnima Govindarajulu, MoE Victoria</b>
<b>FROM:</b>	Brian Paterson (Hemmera), David Nagorsen (Mammalia) and Charlie Palmer (Hemmera)
<b>RE:</b>	<b>Eastern Red Bat – presence in British Columbia</b>

#### Background

On 3 August 2010, during a twice-weekly monitoring for bird and bat impacts at the Bear Mountain Wind Park near Dawson Creek, northeast B.C., two deceased Eastern Red Bat (*Lasiurus borealis*) were discovered. The initial identification by Brian Paterson (Hemmera) was confirmed via photograph on 6 August 2010 and by physical examination on 19 August 2010 by David Nagorsen (Mammalia).

The observation is the first documented and confirmed occurrence of the Eastern Red Bat in B.C. It is present across eastern Canada (Cryan 2003), though previously the western-most record was from southern Alberta (four historic records, Smith 1993). Recent records from Fort McMurray, AB (one record from 2001, Patriquin 2004) and Nahanni National Park, NWT (acoustic records from 2006, Lausen 2006), plus the Bear Mountain, B.C. record documented here, suggest a wider range (see also Alberta SRD). Detections of Eastern Red Bat in B.C. reported on the SRD website are likely acoustic bat files that on detailed examination were found to be species other than red bats (D. Nagorsen *pers. obs*), or from bat studies unknown to the authors.

The Eastern Red Bat is not listed by COSEWIC (i.e., it is “secure” both federally and in Alberta). Alberta acknowledges lack of population and mortality information at current and potential wind energy projects” (Alberta SRD).

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## Identification

The two bats were confirmed as Eastern Red Bat (not Western Red, *Lasiurus blossevillii*) from the general pelage colour, heavy frosting pattern, and the completely furred upper surface on the tail membrane (Schmidly 1991). The general location and forearm lengths (42 mm) are also consistent with an Eastern Red Bat<sup>1</sup>. Western Red Bat is present south of the USA border in western states, and only known in B.C. from the Skagit and Okanagan Valleys. Eastern Red Bat does occur east of the Rockies (as noted above). One of the specimens is an adult female (no evidence of breeding), while the other is an adult and possibly a male - though a large impact wound on the ventral surface of this specimen makes sexing difficult.

## Biology

The Eastern Red Bat is a tree roosting bat that migrates long distances from Canada to overwinter in the US. While bat migration patterns in western Canada are poorly known (except for Manitoba, see Barclay 1984), the 3 August date for the two fatalities at Bear Mountain would be consistent with early fall migrants. In the eastern USA the Eastern Red Bat may constitute up to 60% of the bat fatalities at some wind farms.

## Recommendations

1. The monitoring program at Bear Mountain is considered sufficiently rigorous to continue to adequately document the presence of bats and fatalities. Twice weekly monitoring of all turbines through spring, summer and fall, plus associated bias trials (searcher efficiency and scavenger removal) is considered the standard for such facilities. While it is unfortunate that this discovery was during the carcass search monitoring, it should be noted that concurrently Bear Mountain Wind is also monitoring bats acoustically with four Anabat detectors (three mounted at 30m, with one of these paired with a detector at 5m), and monitoring weather conditions that are known to dictate bat presence (warm temperatures and low wind speeds).
2. No changes to operations at Bear Mountain are proposed for fall 2010. Since 3 August no further Eastern Red Bat have been documented by carcass searches, and none have been documented by acoustic files. A full review of acoustic files to 28 July has been completed, and a preliminary review of acoustic files after that date has been conducted. Full analysis will be completed post-field work, including analysis of acoustic, meteorological and fatality data; after this is complete recommendations for 2011 will be developed.
3. Confirmation of Eastern Red Bat in B.C. is considered information that needs to be disseminated to the scientific community. In addition to the Ministry of Environment (this memo), the

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<sup>1</sup> This measurement alone does not necessarily differentiate this specimen from a Western Red Bat.

Conservation Data Centre, other consultants and BCBAT (an informal group of BC bat biologists, <http://bcbats.tripod.com/index.html>) will be notified.

4. The two Eastern Red Bat carcasses have been retained as voucher specimens, and will ultimately be deposited in a natural history museum collection (e.g., Beaty Biodiversity Museum at UBC or the Royal B.C. Museum).
5. Bear Mountain Wind will take wing punch and hair samples and distribute these to an appropriate and interested researcher(s) for DNA and stable isotope analyses to assist in ascertaining migration patterns in this species.

## References

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