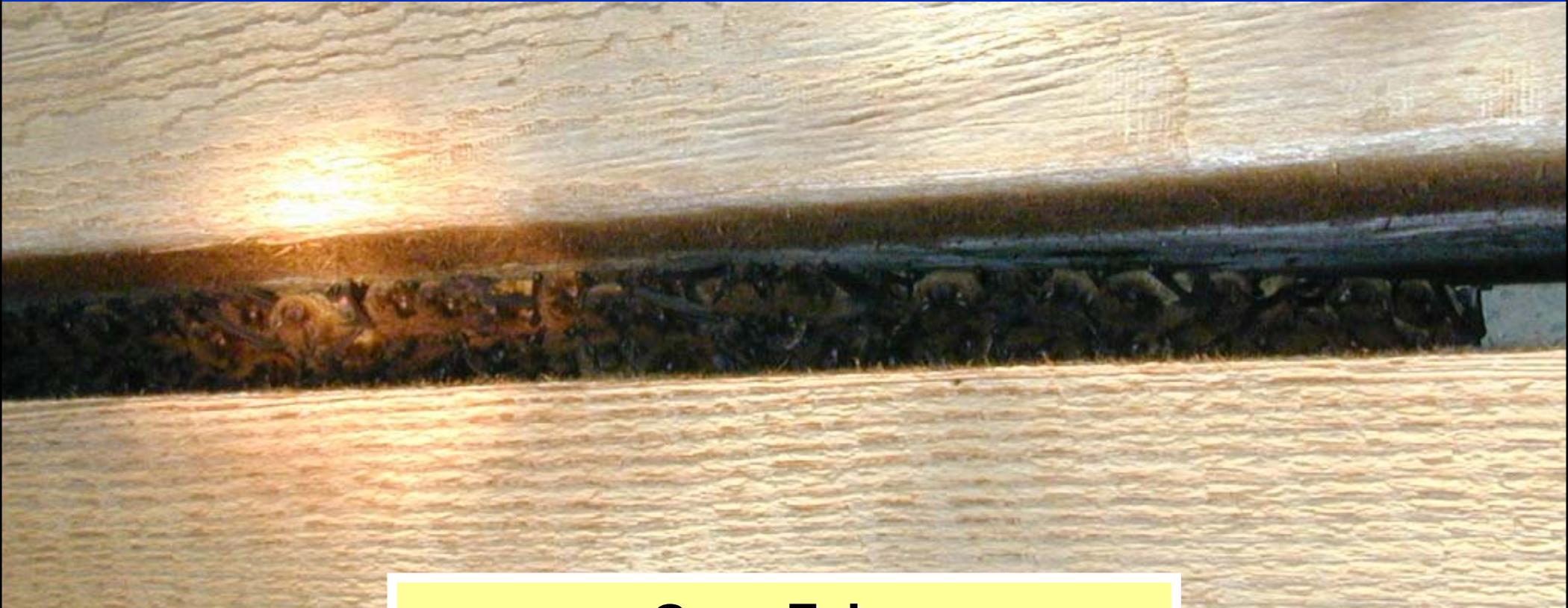


An Overview of an Extraordinary Colony of *Myotis* Bats



Greg Falxa

Cascadia Research Collective

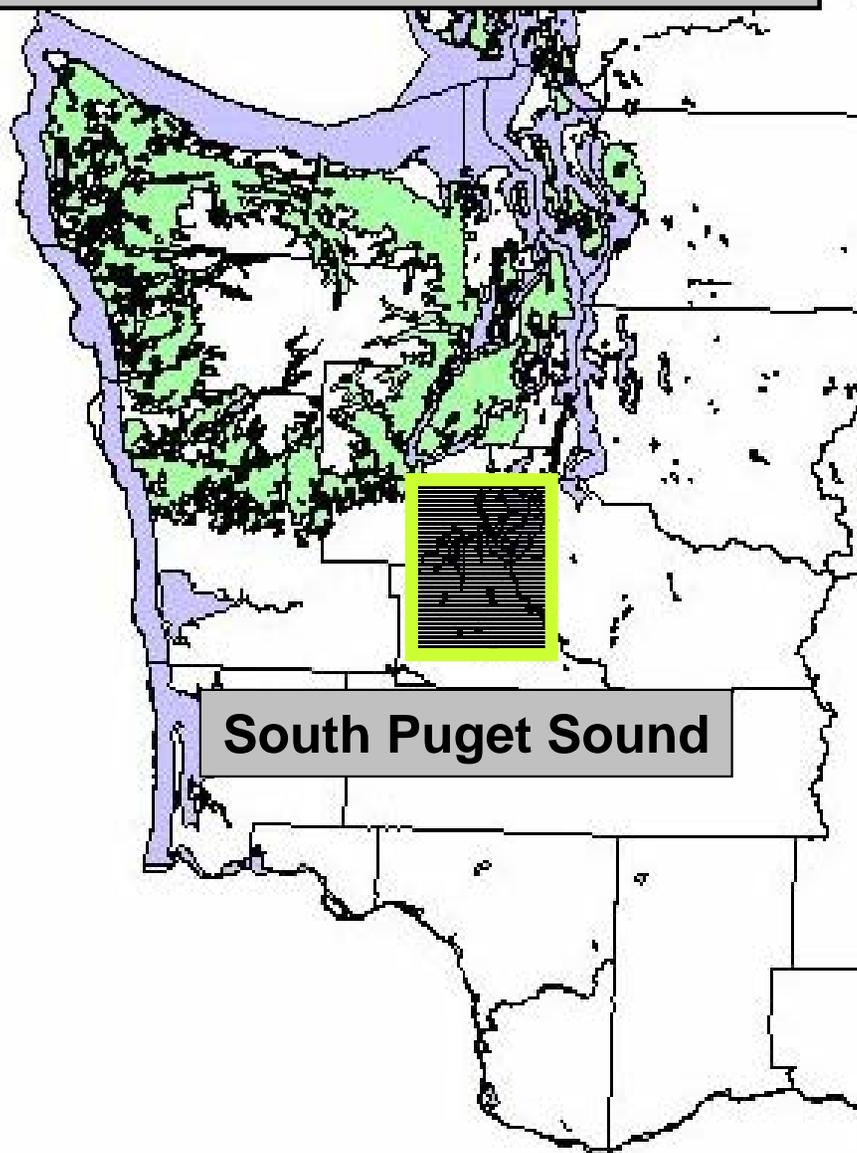
Olympia, Washington

a non-profit biological research organization

gfalxa @ cascadiaresearch.org

Location

Western Washington State:
Southern Puget Sound



South Puget Sound



Woodard Bay
Roost

Olympia

Why study this colony?

1. Largest known bat colony in the state: >3,000.
2. Public ownership, conservation potential.
3. Conversion of the feeding area to inter-tidal / salt water is under consideration.
4. Habitat loss, area is undergoing urbanization.
5. Colony is 4.5 km from my house.



A Trip to the Roost

Woodard Bay

Natural Resources Conservation Area



WASHINGTON STATE DEPARTMENT OF
Natural Resources

The Roost Site

- 800 acres managed for wildlife habitat since 1986. Prior use was a rail terminal 'log dump.'
- 3,000 adult Yuma and Little Brown Myotis Bats - Yuma to L.B. ratio = 2:1

- Aging wooden railroad pier

Roost area



- Roost is over water... *salt water*

The Railroad Pier

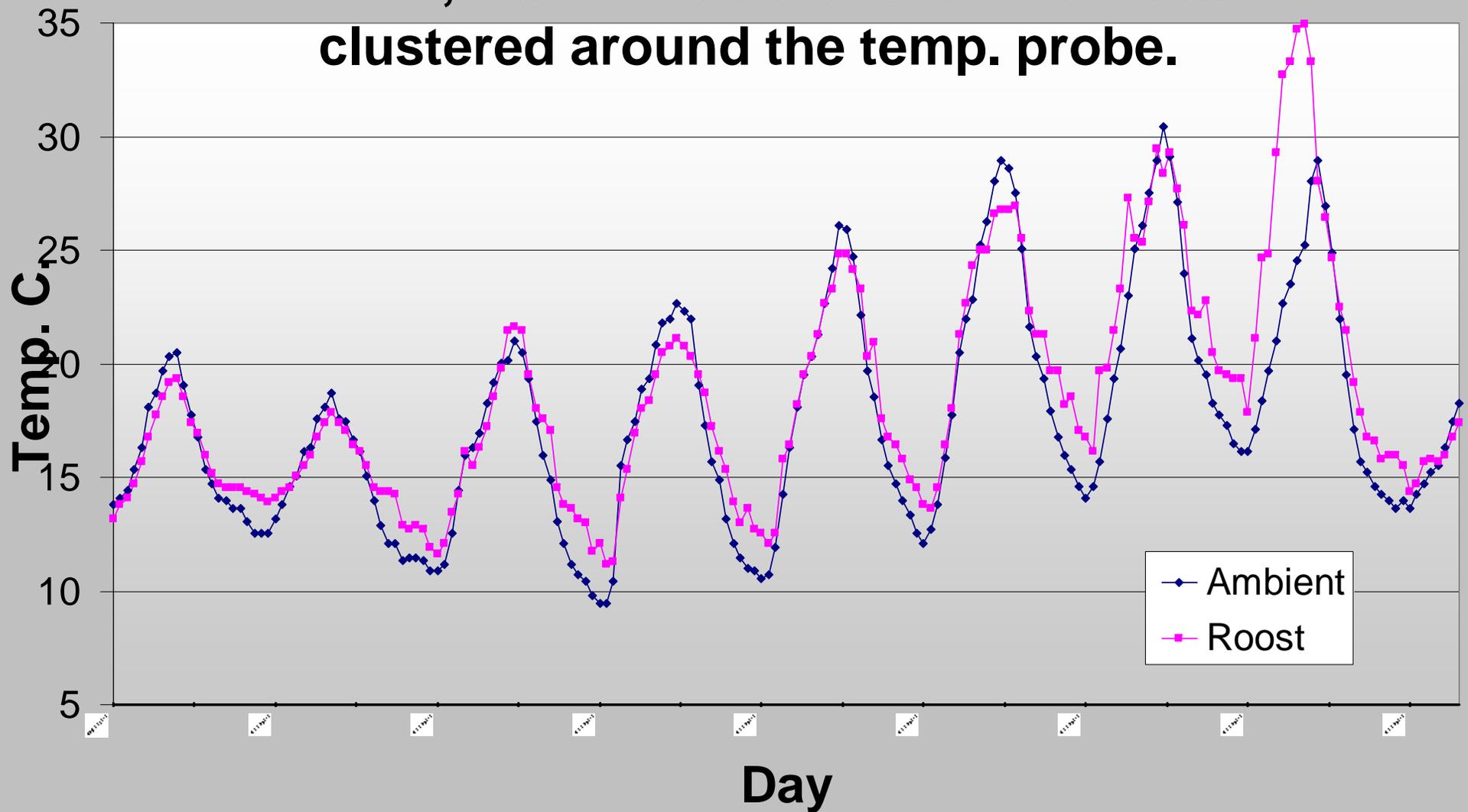
See next photo
for closeup





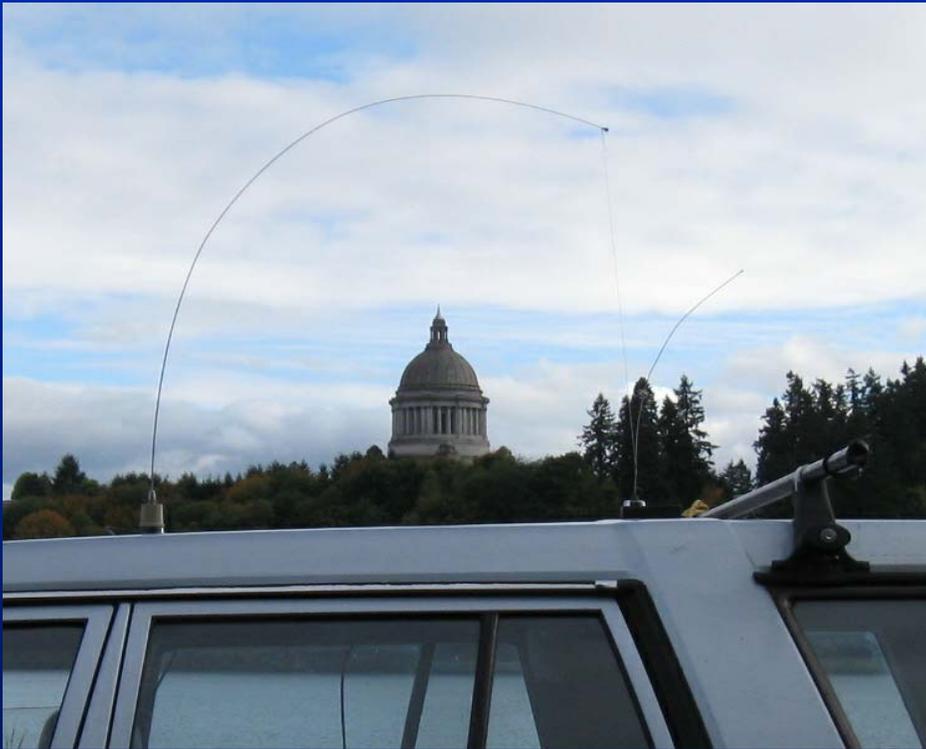
>3,000 adults Mylu & Myyu during June

Ambient & roost temperatures are very close at this site, warm excursions are from bats clustered around the temp. probe.



Tracking

- 14 bats tracked to this colony, mean days = 10.
- Continuous observation of a tagged animal.
- Handheld directional fixes then mobile chase.



- Holohil LB-2N 0.36 gram radio tag (for 6% payload)
- Torbot skin adhesive (replacement or SkinBond)
- Custom made 3 & 4 element Yagi-Uda directional antennae
- Mobile receiver: Yaesu FT-817, low-noise preamp, & DSP noise reduction unit.



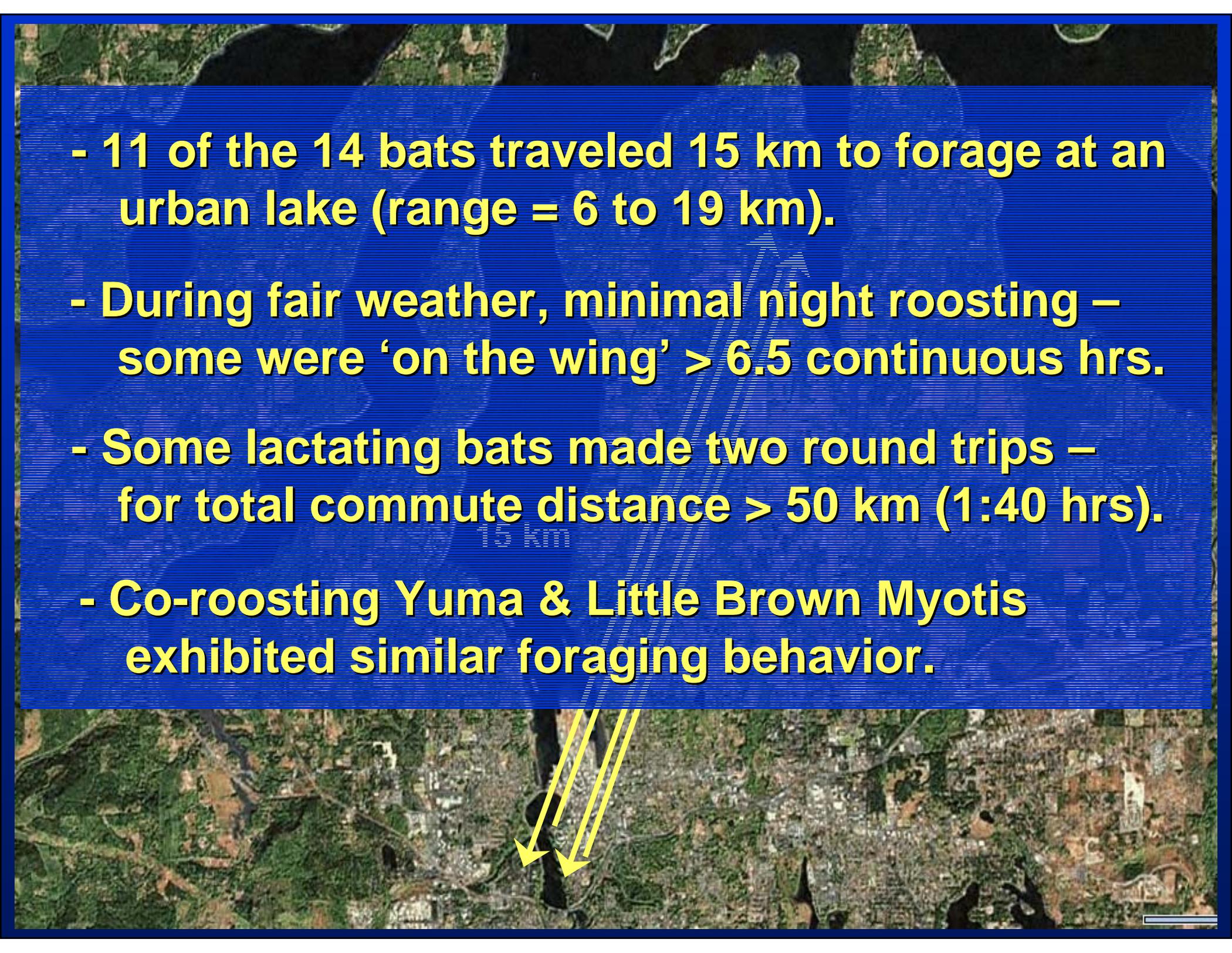
How far should we expect Little brown or Yuma myotis bat to travel between nursery roost and feeding areas?

The literature suggests commute distances of 1.5 - 5 km:

1. Henry, et al - 2002 (*M. lucifugus* study)
2. Lacki, et al - 2007 (table summarizing studies)
3. Pierson - 1998 (table summarizing studies)
4. Evelyn, et al - 2003 (*M. yumanensis* study in S.F. Bay area)

Most of the bats made nightly trips to an urban lake over 15 km from the nursery colony.



- 
- 11 of the 14 bats traveled 15 km to forage at an urban lake (range = 6 to 19 km).
 - During fair weather, minimal night roosting – some were ‘on the wing’ > 6.5 continuous hrs.
 - Some lactating bats made two round trips – for total commute distance > 50 km (1:40 hrs).
 - Co-roosting Yuma & Little Brown Myotis exhibited similar foraging behavior.



Are 15 km (one-way) commute distances for Little Brown & Yuma *myotis extraordinary*?



4 & 9 km mean commute distances, max. 25 km.

Arlettaz (1999), a study of *Myotis blythii* & *M. myotis* in Switzerland.

7 km commute distance from day roost:

Butchkoski's Canoe Creek State Park study (2002) has the greatest *M. lucifugus* distances reported (and a few unpublished accounts in the 5 - 7 km range).

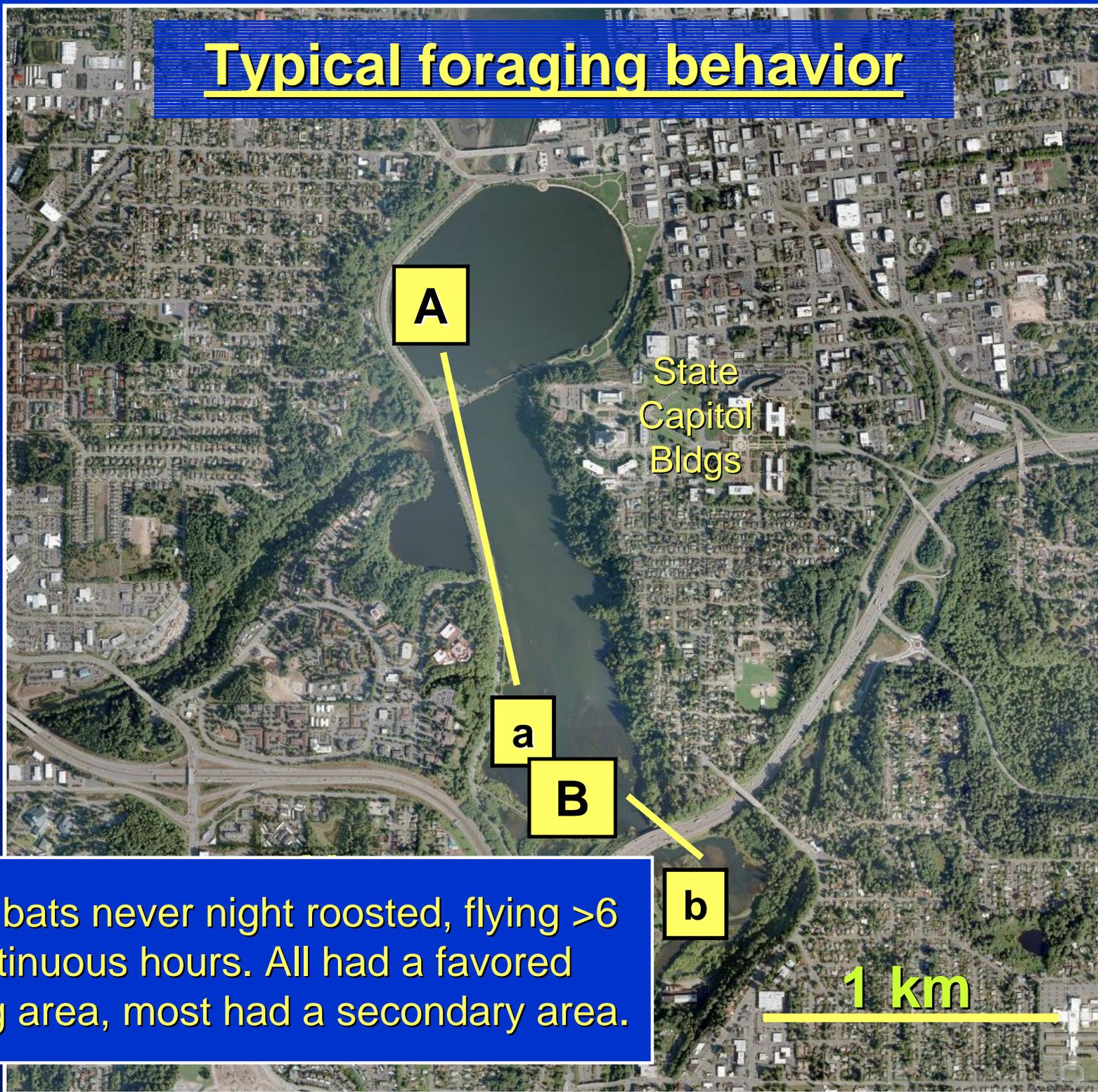
15 km - this study. In this, the Butchkoski, & the Arlettaz studies, the tracked bats were under continuous observation.

Are these long, uninterrupted foraging durations a response to stress?

Long commute distances and long hours of foraging observed in this study may indicate sub-optimal conditions:

- Possible lack of prey abundance; Pacific Northwest evenings are typically cool.
- Lack of secure, suitable roost structures closer to food sources (suggested by tracking data).
- Chruszcz and Barclay (2003) observed similar lack of night roosting in *M. evotis*, in the northern extent of its range.
- And...?

Typical foraging behavior



Some bats never night roosted, flying >6 continuous hours. All had a favored feeding area, most had a secondary area.

Capitol Lake: a *Chiropteria**



* a bat cafeteria

- 650 acre shallow lake.
- Proposals to convert back to intertidal.
- 13 midge species.
- Modified shoreline, ~half is wooded.
- Attracts thousands of bats from local maternity colonies of:
 - *M. yumanensis*
 - *M. lucifugus*
- and some:
 - *M. californicus*
 - *E. fuscus*
 - *L. noctivagans*
 - *L. cinereus*
 - *C. townsendii*

Thank you...

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Cascadia Research - board of directors

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Michael Lacki - motivated me to locate foraging areas