



Year 3: South River Bird Study



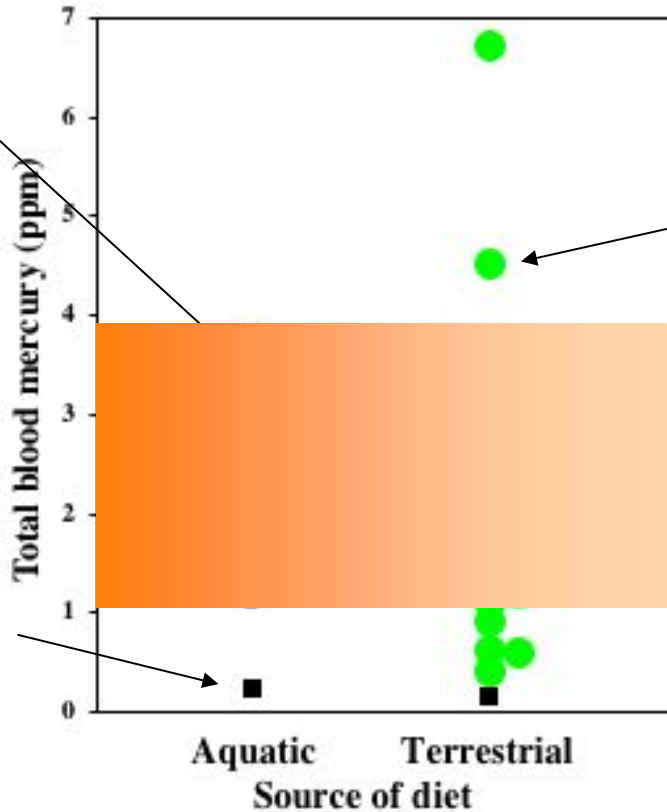
Objectives for 2007

- Tree swallow survivorship
- Mercury content in prey collected from birds nesting at various distances from river





2005-2006 blood mercury results



Same species
Same samples sizes
Reference sites

Mercury is not just a problem for aquatic-feeding birds

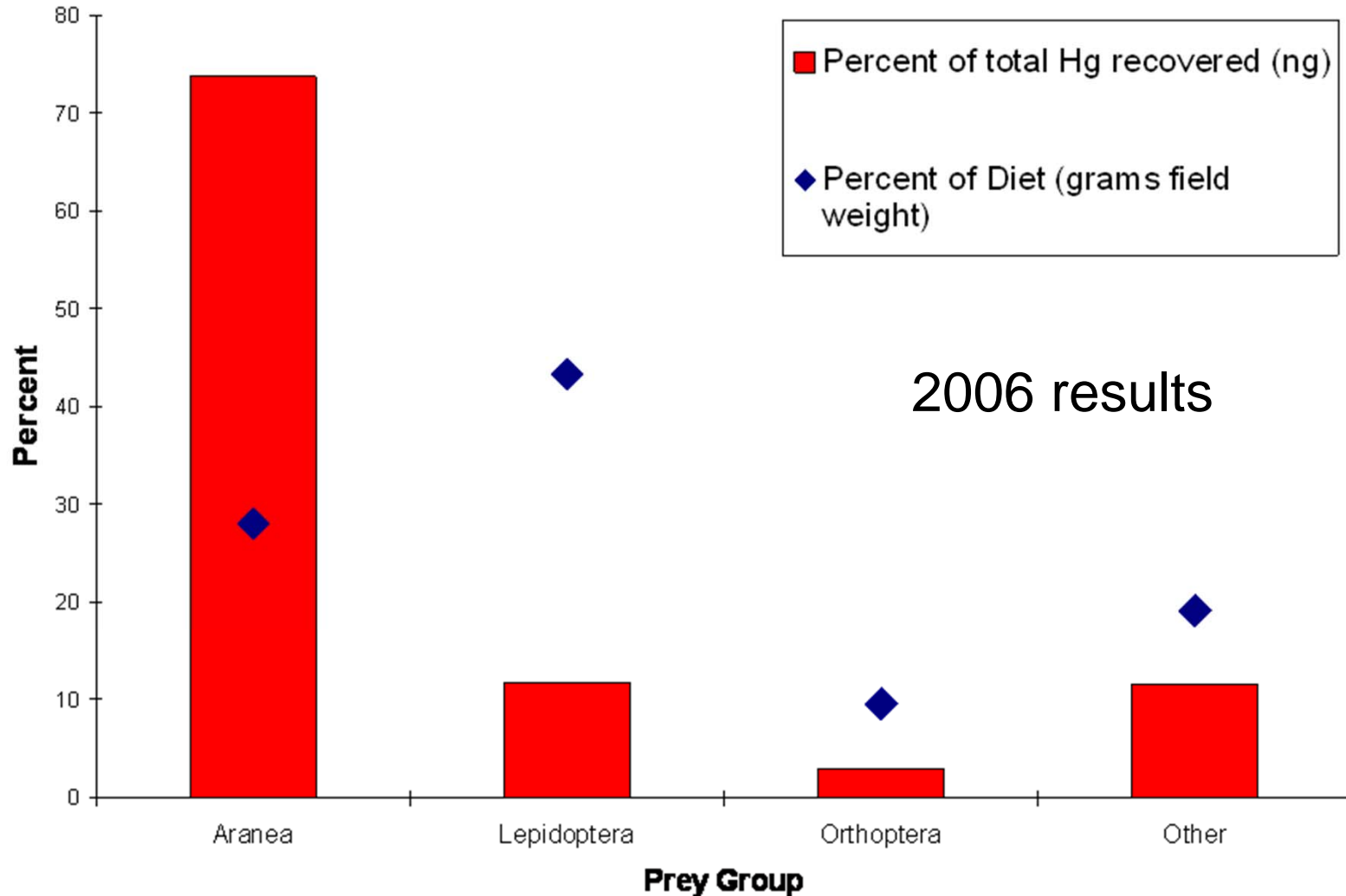


Collection of Prey with Ligatures



Spiders are providing most of the mercury to wrens

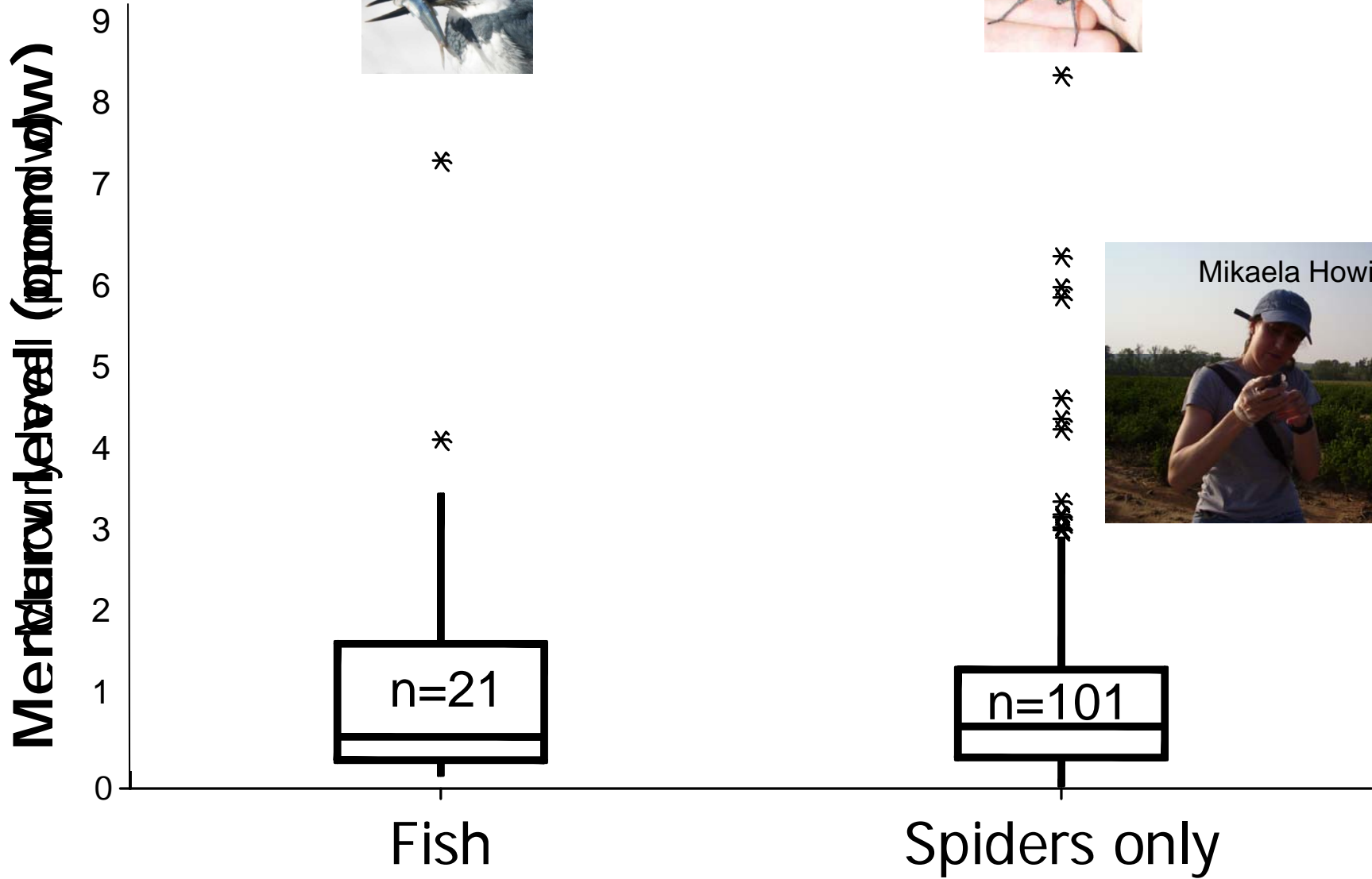
Results from 206 nestling
prey items, 191 of which were
analyzed for total mercury



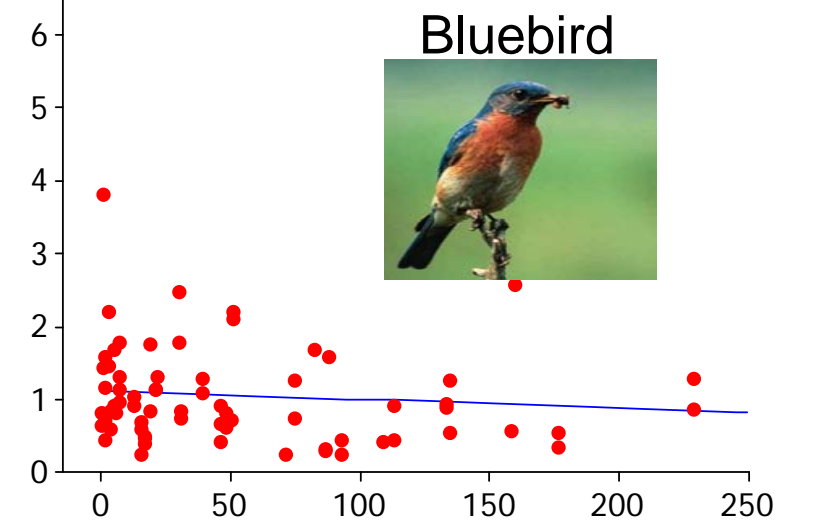
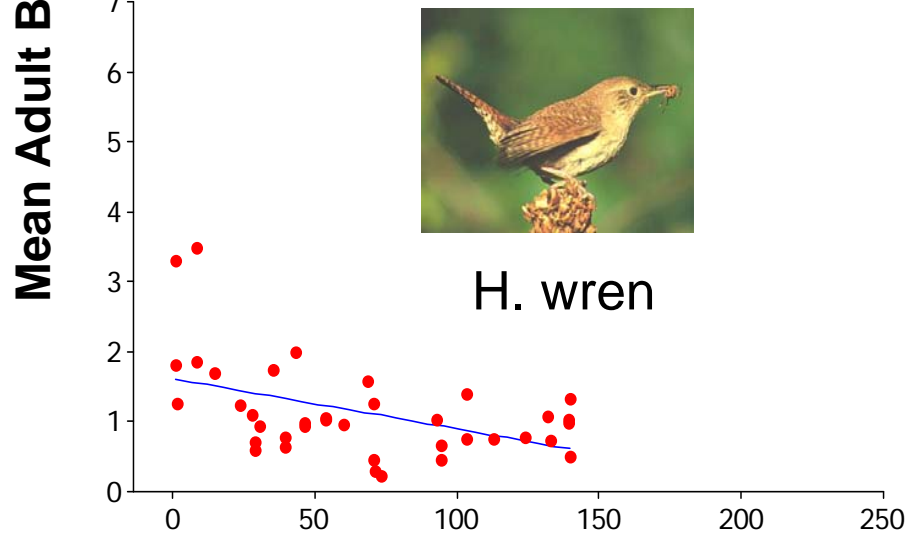
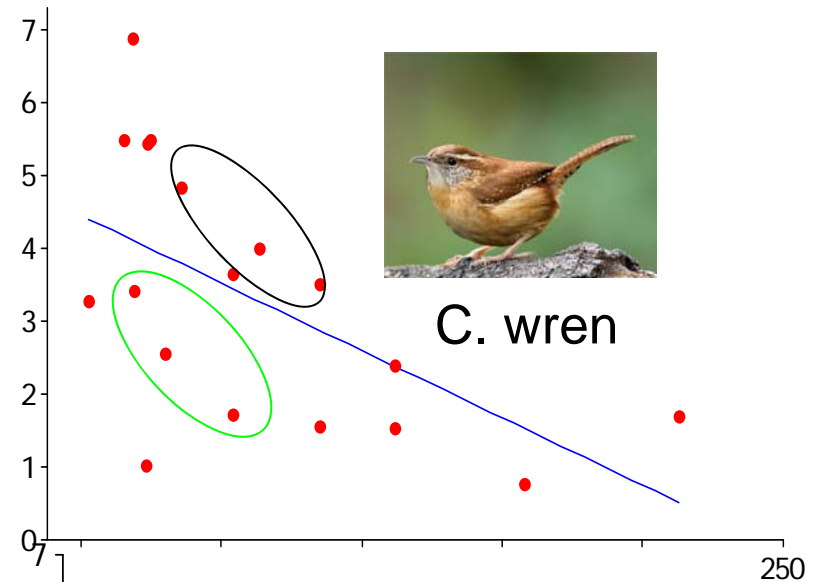
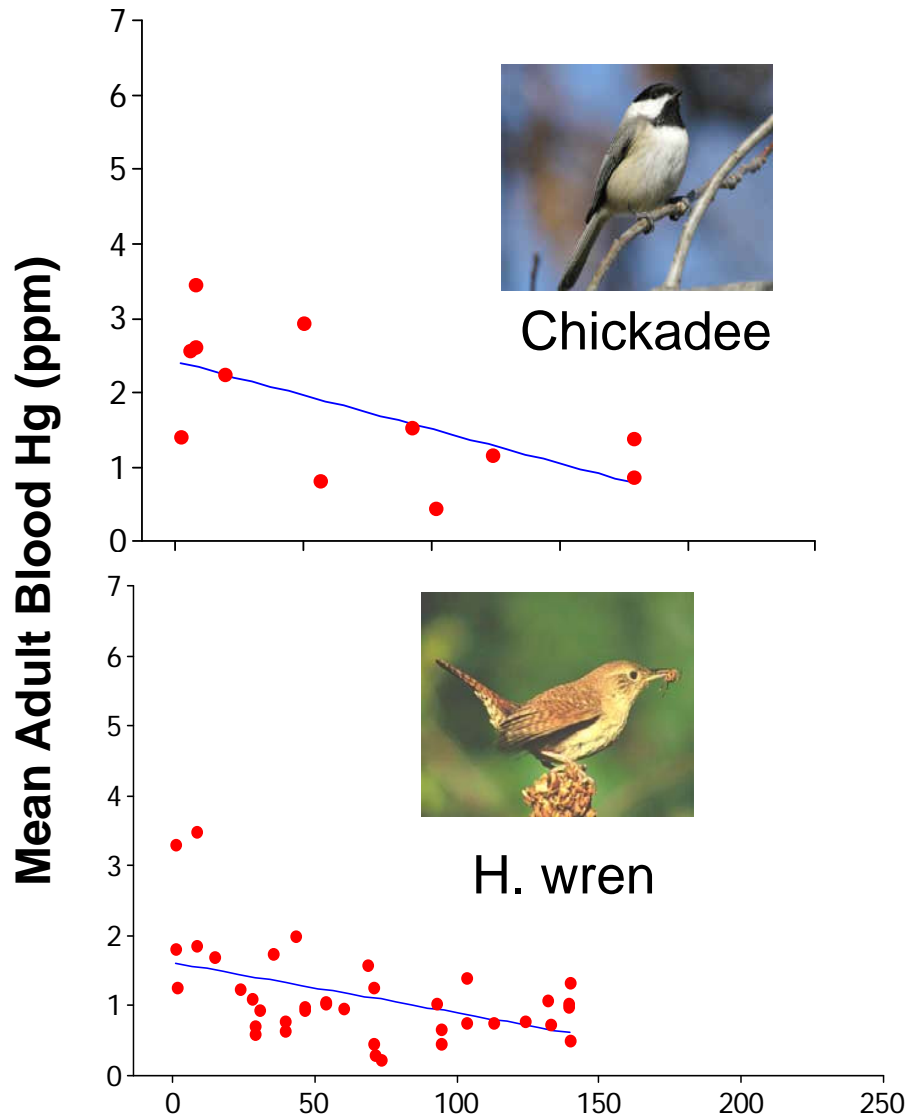
How do spiders compare to fish?



2006 data



Preliminary Results 2007

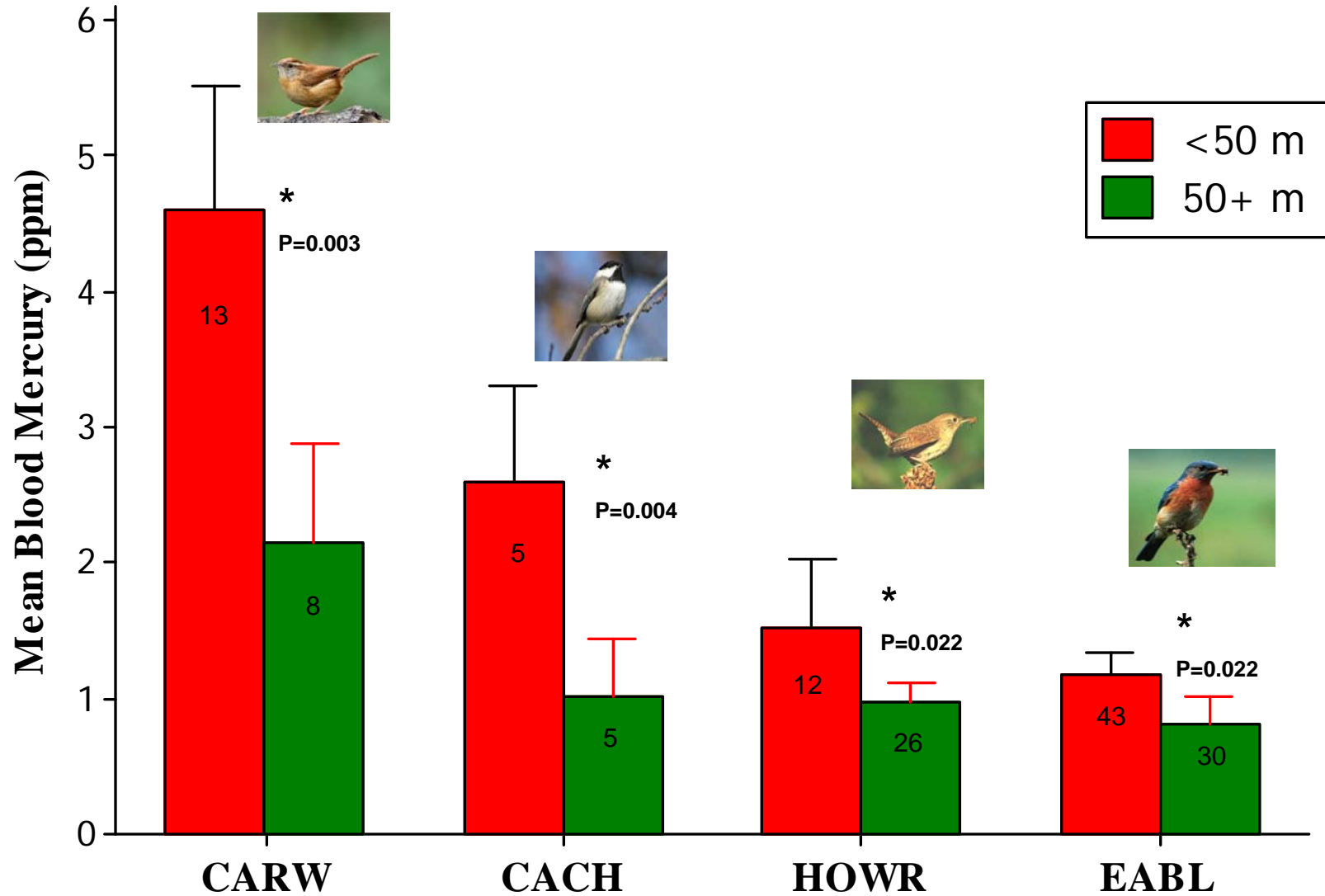


Distance to River (m)

Preliminary Results

2007

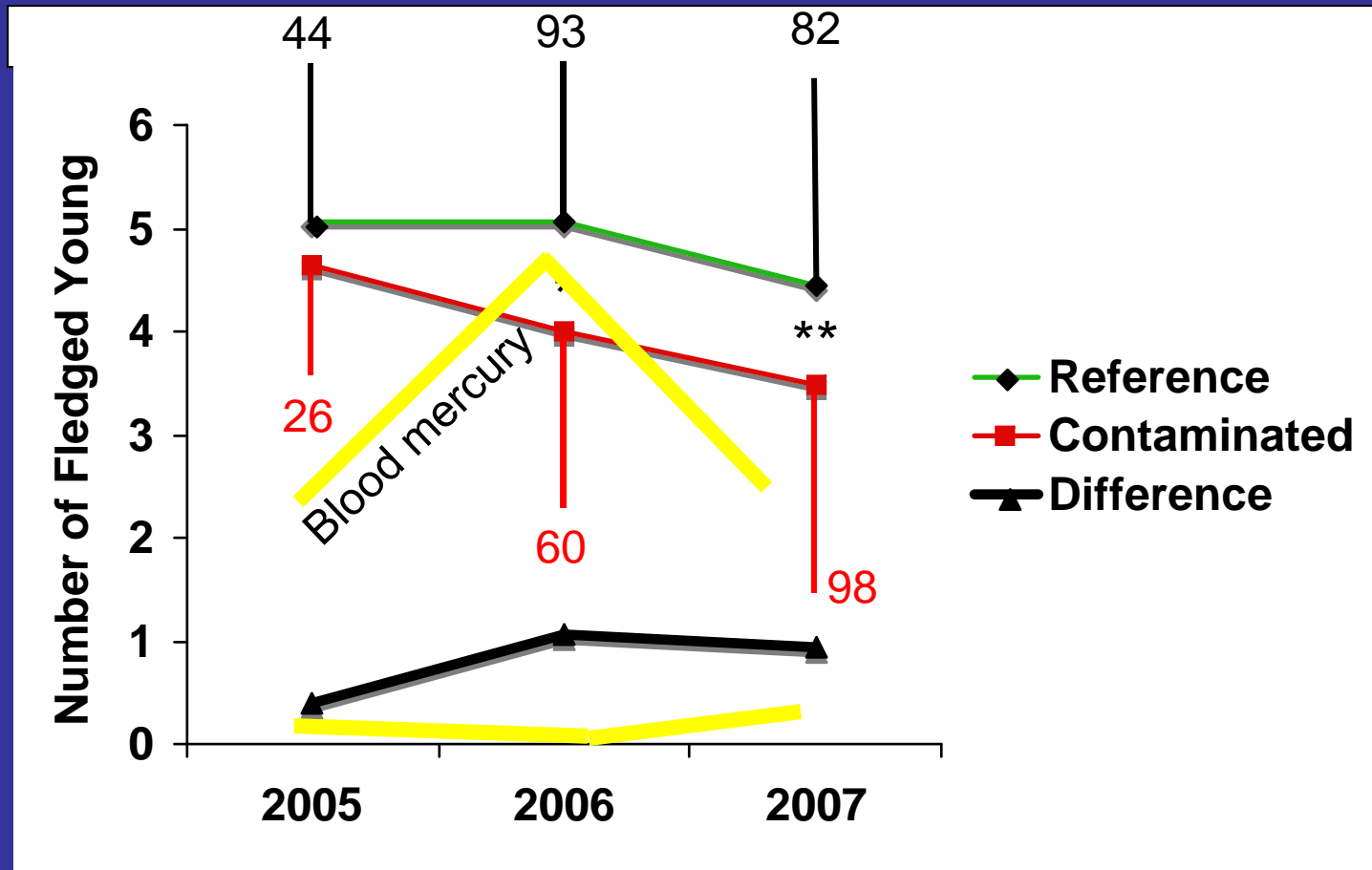
Adult Blood Mercury Level by Distance Category



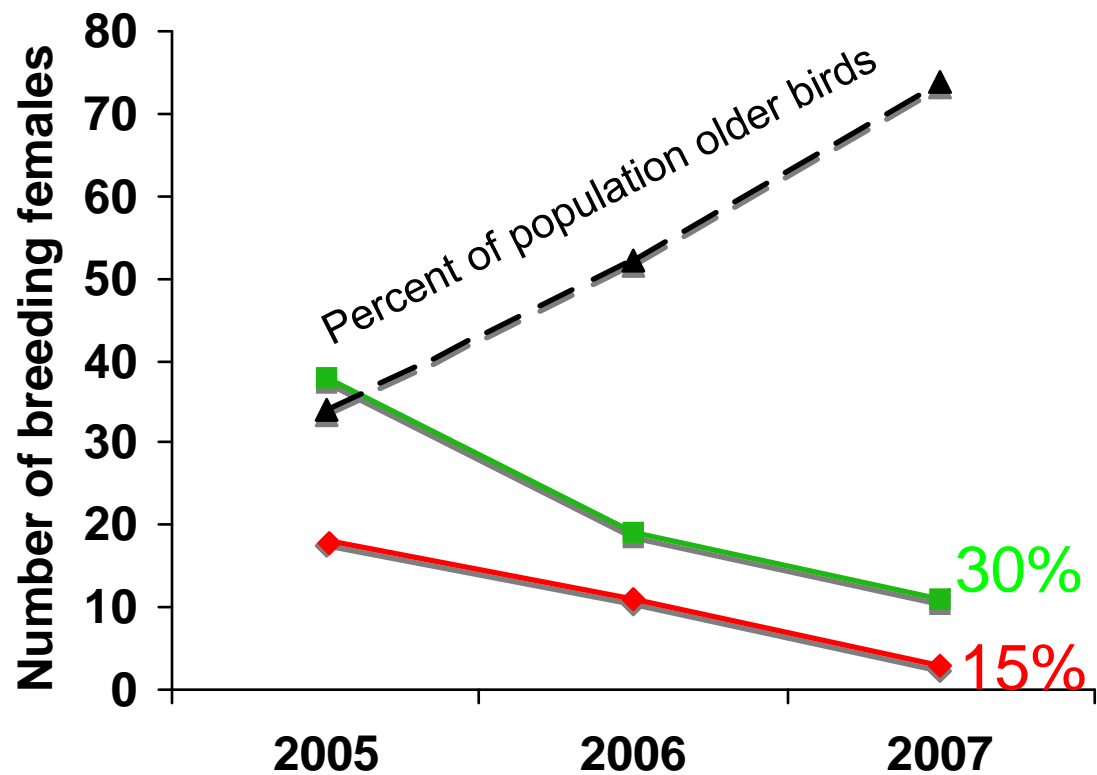
Tree swallow survivorship and reproduction: 2005-2007



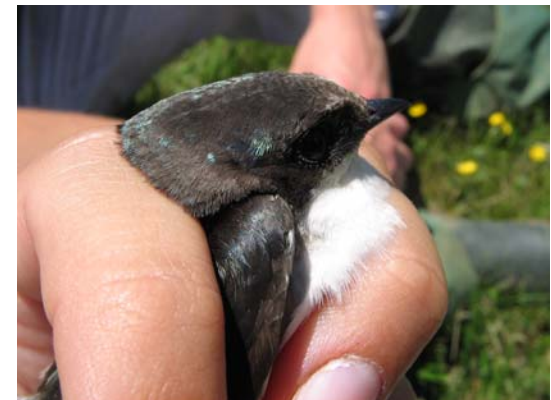
Mean (\pm SD) Fledged Young (all ages of parents)



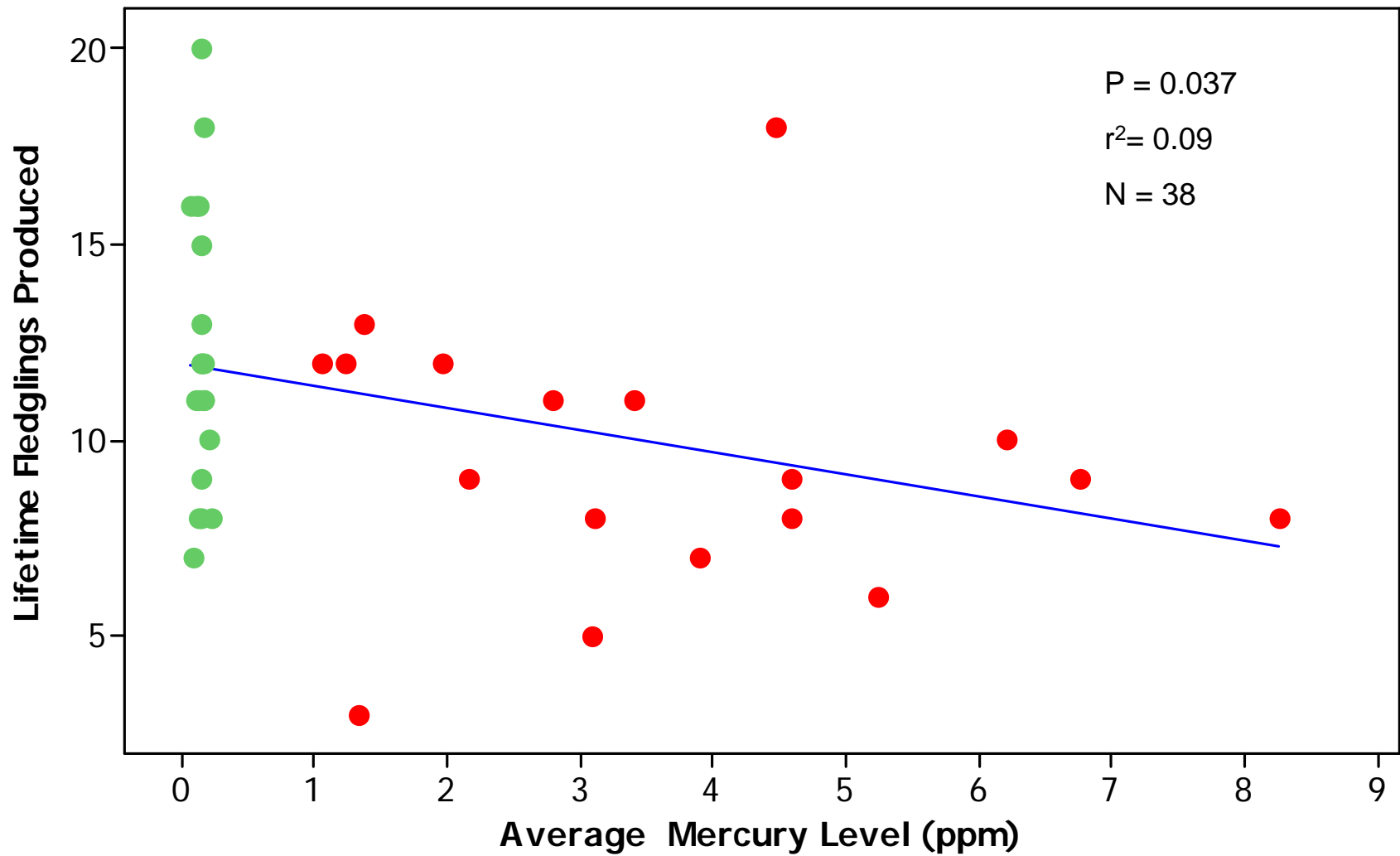
Return rate of 2005 breeding females



—◆— Contaminated
—■— Reference

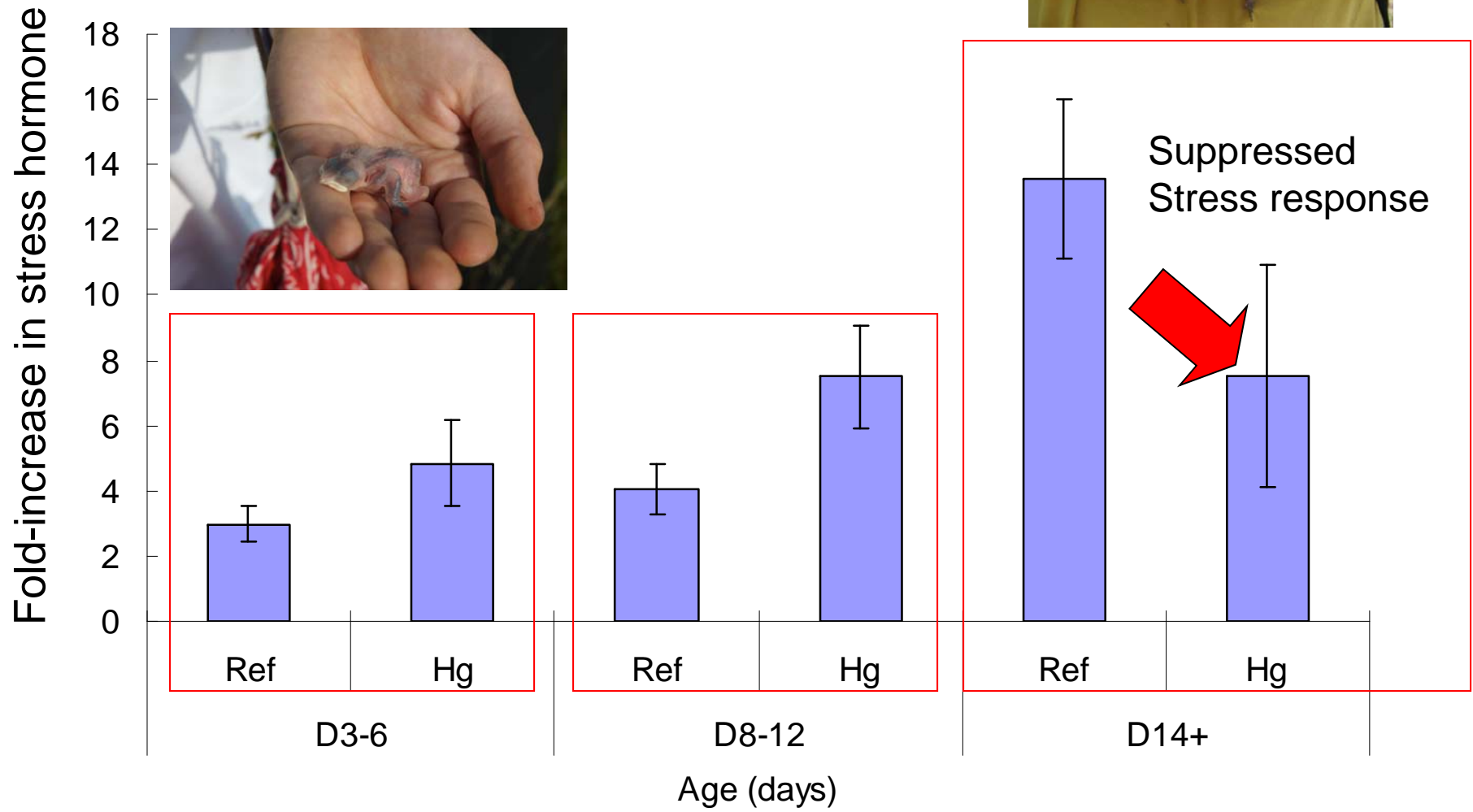


Tree Swallow Lifetime* Reproductive Success



*2005-2007; some birds will breed again in 2008

Magnitude of increase in stress hormone after mild stress



Biomarker study: Corticosterone in nestling swallows

Next steps:

1. Final year of swallow survivorship
2. Source of spider mercury - river or land?
 - PCR on stomach contents to ID
 - Isotope signatures
3. Continue Biomarker studies
 - Corticosterone in adults and nestlings
 - Immune response and infection rates
 - Oxidative damage to chromosomes