

Bird Roost Research Study of The Lower Mainland



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WHO?

- Culex Environmental Ltd
- Fraser Health
- Vancouver Coastal Health

WHAT?

- Assessment of the link between large bird roosts and competent mosquito vector populations
- *Assess roost size and bird dispersion patterns at the Still Creek roost*
- *Assess the abundance and distribution of WNV vector mosquitoes breeding at surface water and catch basin sites near the Still Creek Roosts*
- *Identify and characterise other crow roosts in the Lower Mainland*

WHAT?

- *Results will be used to design a research study of possible interventions and treatments for control of adult mosquitoes within bird roosts*
- *Results may be used in future modeling exercises to investigate the potential link between bird roosts and West Nile Virus amplification or West Nile virus risk*

WHEN?

- February 2006 to July 15 2006

WHERE?

- Still Creek Roost in Burnaby
- Additional crow roosts in the Lower Mainland

WHY?

HYPOTHESIS:

Presence of large crow roosts may enhance amplification of West Nile virus and roosts may act as foci of outbreaks of West Nile virus.

- ***Biological Plausibility***
- ***Empirical Evidence***
- ***Future Ability to Evaluate***
- ***Future Ability to Mitigate***
- ***Public Concern***

Biological Plausibility

- Bird roosts may offer selective advantages for both the virus and the mosquito.
- **Virus:**
 - concentration of potential hosts*
 - hosts disperse over large geographic areas*
- **Mosquito:**
 - concentration of food for biting females*
 - enriched surface water for larvae*

Empirical Evidence

- William Reisen study
- Role of Corvids in the epidemiology of WNV in Southern California (submitted for publication)
- Infection rates of *C. pipiens quinquefasciatus* were found to be statistically higher near American crow roosts than in counties with no clusters of American crows
- Infection rates of *C. tarsalis* were did not differ in counties with and without American crow roosts
- Incidence of human cases was higher in counties with American crow roosts

HOW?

- With the help of local ornithology groups, Culex Environmental will investigate the distribution and density of corvid and sparrow roosts in the Lower Mainland and Fraser Valley

Goal: prioritize in terms of risk based on density of birds, patterns of dispersal, proximity to people

- Characterize the Still Creek roost in detail

Goal: estimate the number of birds in the roost during winter and summer and understand the birds' dispersion patterns





HOW?

- Assess the abundance of adult mosquitoes and frequency and timing of egg laying by WNV vector mosquito species at different distances from the bird roost

Goal: assess interactions between roosting birds and vector mosquitoes

- Larval mosquito sampling

Goal: assess the abundance and distribution of WNV vector mosquitoes breeding at surface water and catch basin sites near the Still Creek Roost

