REPORT FOR INFORMATION

2015 Mosquito Larvae Survey

Report Purpose
To provide the Priorities Committee with the information gathered during the 2015 Mosquito Larvae Survey conducted in Sherwood Park.

Council History
April 15, 2014 – A report detailing pesticide spraying for mosquitoes in Strathcona County was provided to the Priorities Committee.

Strategic Plan Priority Areas
Economy: n/a
Governance: n/a
Social: n/a
Culture: n/a
Environment: n/a

Other Impacts
Policy: n/a
Legislative/Legal: n/a
Interdepartmental: Planning and Development Services, Utilities

Summary

In the summer of 2015, Agriculture Services retained an Environmental Management student from Lakeland College to conduct a survey for mosquito larvae in wetlands throughout Sherwood Park. The goal was to identify mosquito larvae species and their abundance, to see whether a program of mosquito reduction should be established in Sherwood Park.

Wetland selection for the sampling was based on a mix of permanent and seasonal wetlands as well as natural waterbodies and man-made storm water management facilities. Mosquito larvae were sampled twice per month at each of the 35 waterbodies and larvae counts were totalled at the end of the season (Enclosure 1). The total larvae count for the season from all waterbodies sampled was 1,916 larvae. The survey showed that mosquito larvae counts are strongly correlated to amount of precipitation. (Enclosure 2)

Overall, 15 mosquito species were identified. Not all of the species found adversely affect humans. The most common species found was *Culex territans* (881), which does not adversely affect humans. The second most common species sampled was *Aedes vexans* (449), which do feed on humans and animals. While this species has the potential to carry West Nile virus, the likelihood is minimal. *A. vexans* lays its eggs in soil that occasionally floods and can go from egg to adult in three days in warm, moist conditions. *A. vexans* was the most common species found between July 13th and 24th, which was also when Sherwood Park received over 50 mm of rainfall. (Enclosure 3)

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Associate Commissioner: Kevin Glebe, Infrastructure and Planning Services
Lead Department: Transportation and Agriculture Services

The summer of 2015 had below average precipitation which most likely affected the low number of mosquito larvae found during this survey. This is consistent with the adult mosquito counts found by the City of Edmonton, which also found lower numbers of mosquitoes in their traps. Currently, a mosquito control program is conducted yearly by the City of Edmonton when the threshold of mosquito species that adversely affect humans is exceeded. In the spring the insecticide Dursban is applied to waterbodies within the City limits and surrounding areas (Enclosure 4). When the daytime mean average temperature is above 16^{o}C, the City of Edmonton then applies the insecticide Bti (*Bacillus thuringiensis var. israelensis*).

Based on the results of the 2015 mosquito larvae survey, we recommend that Strathcona County not conduct our own mosquito reduction program at this time. Further sampling of the 35 water bodies will be conducted in 2016 to determine the need for a reduction program in the future.

Enclosure

1 2015 Mosquito Larvae Abundance and Site Sampling Map
2 Total Mosquito Larvae Count vs. Precipitation Chart
3 Mosquito Species Composition vs. Precipitation Chart
4 Boundaries for Edmonton's Mosquito Abatement Program