Boundary County Mosquito/West Nile Survey 2007

Prepared by

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The Boundary County Mosquito Survey for 2007 was conducted June through September 2007. The survey was made possible by four traps provided by the Idaho Department of Health and Welfare, Epidemiology and Flood Protection, (OEF), and one trap was provided by the Panhandle Health District (PHD).

The traps are carbon dioxide concentration traps, (CDC Traps). These traps use dry ice as an attractant. Dry ice does not melt. It goes from a solid to a gas, which is carbon dioxide (CO_2). This is called sublimation. The sublimation of dry ice mimics the respiration of a large mammal, thus attracting mosquitoes seeking a blood meal.

The dry ice is hung next to the trap which is suspended about five feet off the ground. The trap has a light for added attraction and a fan which is powered by six "D" batteries. The fan sucks the airborne mosquitoes into a holding chamber made of cloth mosquito netting which is removable.

The Traps were placed out one hour before sunset and collected at approximately 8:00 a.m. Trapping has to be done on the weekends since the nearest suppliers of dry ice are Yokes in Sandpoint, or Albertsons in Coeur d'Alene and they usually have it in on Friday. Trapping sites were chosen where mosquito complaints have occurred in the past as well as wet areas.

Trapped specimens were sorted, frozen and taken to PHD where they were sent to Boise for separation into species (speciating), then tested for West Nile Virus at the Idaho Bureau of Laboratories.

There are 51 species of mosquitoes found in Idaho. Sixteen species were identified in this survey in Boundary County. Nine of the 16 species found are capable of transmitting West Nile Virus. (See chart A). These 16 species can be divided into two general groups; pond mosquitoes and floodwater mosquitoes.

Pond mosquitoes reproduce in permanent ponds or areas that hold water after a rain or irrigation event. The female lays floating eggs in the water.

Floodwater mosquitoes lay their eggs on the ground. The floodwater event be it rain, melting snow or a flood will fill depressions in the land such as uneven fields or animal tracks with water allowing the eggs to hatch and mature. Small depressions in fields can produce hundreds of thousands of mosquito larva in the spring.

The primary vectors (carriers) of West Nile Virus are the Culex species in Idaho. The Sate Laboratory only tests this type for WNV. These are a pond type of mosquito that start appearing later in the summer in standing water. 2007 was a very dry summer that had very little standing water. Most of the normal wet sites were dried up. Therefore not many Culex spp. Were trapped. I believe more would be produced in a year with normal rainfall. None of the mosquitoes trapped in the survey tested positive for West Nile Virus.

The traps were set out 14 weekends and caught 7883 mosquitoes. (see table 5)

Chart A

Genera Species	16-Jun	23-Jun	30-Jun	7-Jul	14-Jul	21-Jul	29-Jul	4-Aug	11-Aug	18-Aug	26 Aug	4-Sep	9-Sep	22-Sep	Total
Anopheles															
earlei	2	3	5	32		9	12	10	9		2	3			87
freeborni							1				2				3
punctipen	2	2		6			8	9		3	3				33
sp/spp	1						3			6		1	1		12
Aedes															
cinereus		23		9						1	1				34
vexans	56	230	220	485		2	39	14	20	97	39	47	24	23	1296
Ochlerotatus															
increpitus	8	76	4	197			2	10							297
increp like							1	52				3			56
sierrensis				3			1								4
sticticus	150	655	7	73											885
sp/spp	5	8	1	9			8	2	1	23	1	1			59
Culex															
pipiens															
tarsalis	2	4	8	34	134	6	35	84	2	44	1				354
sp/spp											1				1
Culiseta															
incidens	2		2				1								5
inornata		4		7				1	1	6	5				24
minnesot				9											9
sp/spp								1	1			1			3
Coquillettidia															
perturban		2	45	683		532	500	129	23	12	8				1934
Unidentified					1759	602	426								2787
															7883
Total	228	1007	292	1547	1893	1151	1037	312	57	192	63	56	25	23	7883

Chart B

Table 5. Mosquito species producing WNV

Aedes aegypti	Anopheles hermsi
Aedes albopictus	Anopheles punctipennis *
Aedes atlanticus/tormentor	Anopheles quadrimaculatus
Aedes atropalpus	Anopheles walkeri
Aedes canadensis	Coquillettidia perturbans *
Aedes cantator	Culex apicalis
Aedes cinereus *	Culex coronator
Aedes condolescens*	Culex erraticus
Aedes dorsalis	Culex erythrothorax
Aedes dupreei	Culex nigripalpus
Aedes fitchii	Culex pipiens *
Aedes fulvus pallens	Culex quinquefasciatus
Aedes grossbecki	Culex restuans
Aedes infirmatus	Culex salinarius
Aedes japonicus	Culex stigmatosoma
Aedes melanimon	Culex tarsalis *
Aedes nigromaculis	Culex territans
Aedes provocans	Culex thriambus
Aedes sollicitans	Culiseta incidens *
Aedes squamiger	Culiseta impatiens
Aedes sticticus	Culiseta inornata *
Aedes stimulans	Culiseta melanura
Aedes taeniorhynchus	Culiseta morsitans
Aedes triseriatus	Deinocerites cancer
Aedes trivittatus	Mansonia tittilans
Aedes vexans *	Orthopodomyia signifera
Anopheles atropos	Psorophora ciliata
Anopheles barberi	Psorophora columbiae
Anopheles crucians/bradleyi	Psorophora ferox
Anopheles franciscanus	Psorophora howardii
Anopheles freeborni *	Uranotaenia sapphirina

Source: Centers for Disease Control and Prevention,
http://www.cdc.gov/ncidod/dvbid/westnile/mosquitoSpecies.htm

* Trapped in Boundary County in 2007 Survey