

UNIVERSITY OF NORTH DAKOTA TICK SURVEY – 2010

TIME PERIOD OF SURVEY TO-DATE: 18 April through 23 June

To-date, 10 counties have been surveyed for ticks using two methods; drag sampling and rodent trapping (Table 1). Most, but not all, of the ticks captured using the drag sampling method were adult ticks. Rodent trapping recovered exclusively immature ticks (larvae and nymphs). Only two species of ticks were collected; *Dermacentor variabilis* (the American dog tick) and *Ixodes scapularis* (the black legged tick). In general, adult ticks were more abundant in the eastern counties of the state (Table 2). Twenty-five rodents were trapped throughout the state (Table 3). *Peromyscus* sp. (white-footed and deer mice) and *Clethrionomys gapperi* (red-backed vole) were the most commonly collected. Voles had a higher prevalence of tick infestation than did deer mice for both *D. variabilis* and *I. scapularis* ticks, although the intensity of *I. scapularis* on infested deer mice was higher than on voles (Table 4). Too few of the other rodent species were collected to make firm conclusions regarding their importance as hosts for immature ticks or potential reservoirs for Lyme disease. Nevertheless, *I. scapularis* immature ticks were found parasitizing *Microtus*, *Glaucomys*, and *Zapus*. To-date, we have collected *Ixodes scapularis* ticks in 6 counties (Eddy, Grand Forks, Pembina, Ramsey, Rolette and Steele). A “hot-spot” of *Ix. scapularis* immature ticks was found in Graham Island State Park (Devil’s Lake, Ramsey county) (Table 2).

Table 1. Summary of North Dakota counties and associated eco-regions sampled for ticks. Values indicate the number of different dates and/or locations that each county was sampled. 18 April through 23 June, 2010.

County	Eco-region	Drag sampling	Rodent Trapping
Billings	Northwestern Great Plains (Little Missouri Badlands)	0	1
Eddy	Northern Glaciated Plains (Drift Plains)	2	1
Grand Forks	Lake Agassiz Plain (Glacial Lake Agassiz Basin)	15	1
McHenry	Northern Glaciated Plains (Glacial Lake Basins)	1	0
McKenzie	Northwestern Great Plains (River Bends)	1	0
Morton	Northwestern Great Plains (Missouri Plateau)	1	1
Pembina	Lake Agassiz Plain (Sand Deltas and Beach Ridges)	2	1
Ramsey	Northern Glaciated Plains (End Moraine Complex)	1	1
Rolette	Northern Glaciated Plains (Turtle Mountains)	2	1
Steele	Lake Agassiz Plain (Glacial Lake Agassiz Basin)	2	0

Table 2. Relative abundance of questing ticks collected by drag sampling. Values indicate the average number of ticks collected per hour of dragging. 18 April through 23 June, 2010.

County	<i>Dermacentor variabilis</i>		<i>Ixodes scapularis</i>	
	Immature	Adult	Immature	Adult
Eddy	0	17.4	0.8	0
Grand Forks	0	22.7	1.7	1.6
McHenry	0	2.5	0	0
McKenzie	0	1.0	0	0
Morton	0	11.1	0	0
Pembina	0	20.8	0	0
Ramsey	0	10.3	150.0	2.6
Rolette	0	36.9	0	0
Steele	0	19.1	0	1.6

Table 3. Number and species of rodents collected and examined for ticks in various North Dakota counties. 18 April through 23 June, 2010.

County	Total No. Rodents Collected	<i>Peromyscus</i> sp.	<i>Clethrionomys gapperi</i>	<i>Zapus hudsonius</i>	<i>Microtus</i> sp.	<i>Glaucomyssabrinus</i>
Billings	3	2	-	-	1	-
Eddy	5	2	2	1	-	-
Grand Forks	5	2	1	1	-	1
Morton	5	5	-	-	-	-
Pembina	3	-	3	-	-	-
Ramsey	1	-	-	-	1	-
Rolette	3	1	2	-	-	-
TOTAL	25	12	8	2	2	1

Table 4. Prevalence, given as a percentage, of rodents harboring infestations of immature ticks. Values in parentheses indicate infestation intensity (*i.e.*, the average number of ticks per infested rodent). Many infested rodents harbored both larval and nymphal life stages simultaneously. 18 April through 23 June, 2010.

Rodent Species	N	<i>Dermacentor variabilis</i>		<i>Ixodes scapularis</i>	
		Larvae	Nymphs	Larvae	Nymphs
<i>Peromyscus</i> spp.	12	50% (5.6)	17% (7.5)	25% (11.3)	8% (5.0)
<i>Clethrionomys gapperi</i>	8	100% (25.5)	50% (2.5)	75% (2.7)	37% (1.0)
<i>Zapus hudsoni</i>	2	50% (19.0)	0%	50% (20.0)	50% (3.0)
<i>Microtus montanus</i>	1	0%	0%	0%	0%
<i>Microtus ochrogaster</i>	1	0%	0%	100% (2.0)	100% (1.0)
<i>Glaucomyssabrinus</i>	1	100% (1.0)	0%	100% (2.0)	100% (1.0)