



Delta Waterfowl & Predator Management - 2003

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2003 Predator Management Site Selection/Location:

In total, the State of Louisiana allocated \$120,000 in support of Delta Waterfowl's 2003 Predator Management efforts. As a direct result of these funds, four 36 square mile blocks (92,160 acres in total) of land (Mountrail, Towner, Benson and Eddy Counties) were trapped by professionals from the approximate period of 1 March through 30 June.

In addition, LA funds paid for nest searching activities on four 36 square mile untrapped control areas, each paired with a trap block of comparable habitat composition (agriculture, hay land, CRP, native pasture, etc). Delta assumed financial responsibility for all nest searching activities conducted on each of four LA funded trap blocks.

With aid of a Predator Management Site Selection Matrix (Figure 1) developed by the US Fish and Wildlife Service's Habitat and Population Evaluation Team (HAPET) located in Bismarck, ND, representatives from Delta Waterfowl and the LA Department of Wildlife and Fisheries (LDWF) reached a mutual agreement (5 March 2003) on location of each LA funded predator management site (Figure 2).

In late-April, with aid of GIS generated land cover maps, a mutual agreement between Delta Waterfowl (Joel Brice) and the LDWF (Mike Olinde) was reached for the approximate location of each control site (Figure 2).

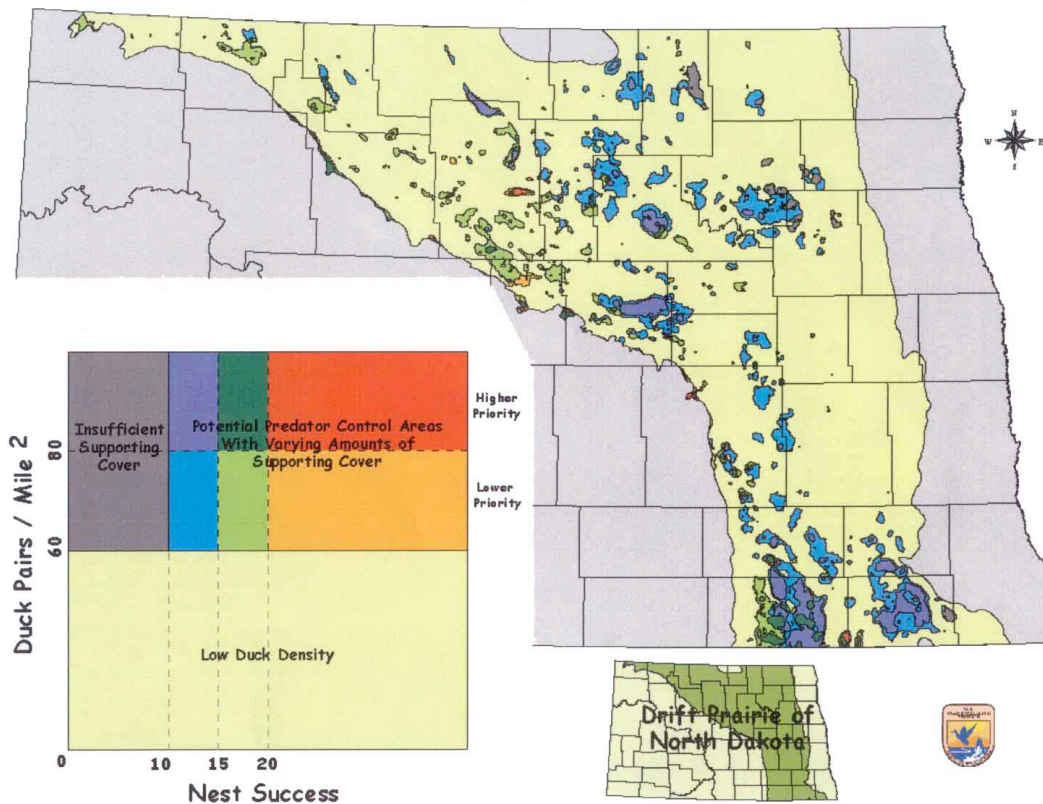


Figure 1. Predator Management Site Selection Matrix created by the US Fish and Wildlife Service's Habitat and Population Evaluation Team (HAPET).

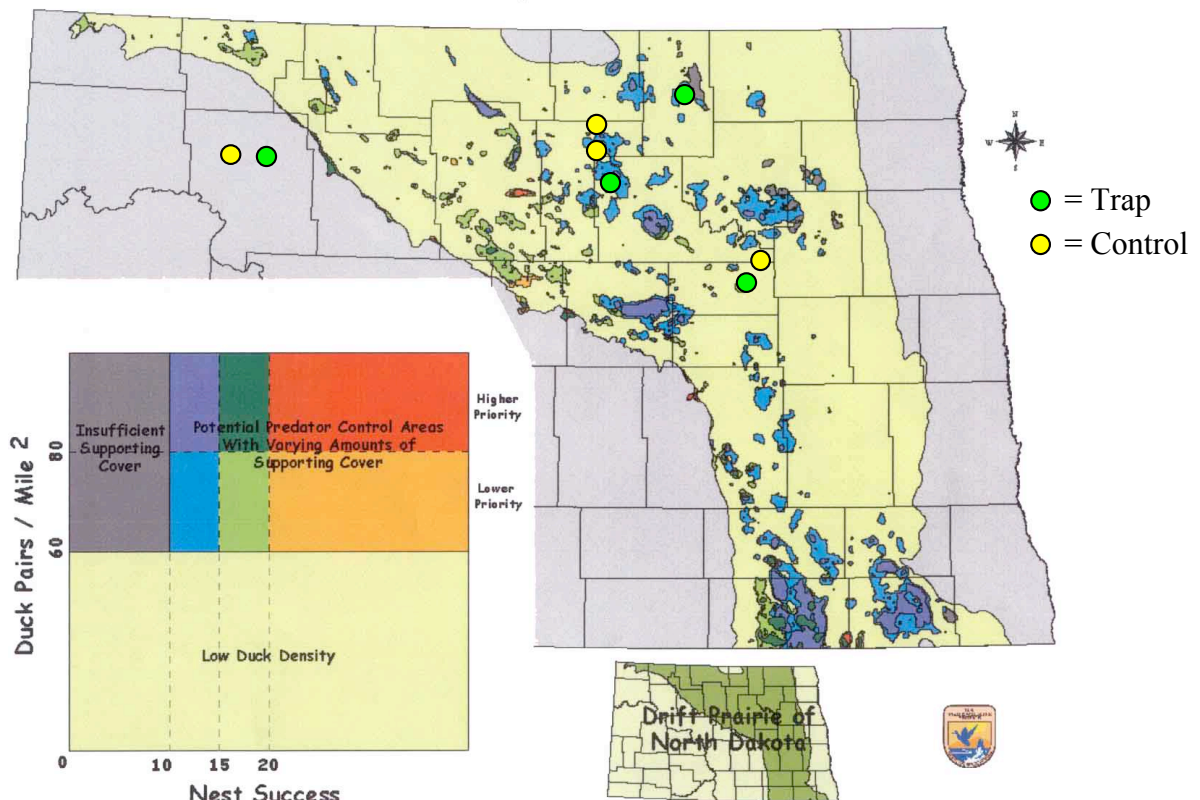


Figure 2. Approximate location of each LA funded trap (green) and paired control site (yellow).

Timetable of 2003 Trapping and Nest Searching Activities:

Trapping:

Prior to placing traps in the field, each trapper was required to personally visit each trap block landowner and receive written permission to trap on their land. Trap placement began as soon as possible thereafter. The date of first animal caught ranged from 13 March (Mountrail County) to 17 March (Towner County).

Trappers were required to trap daily until contract termination. The date of last animal caught ranged from 3 July (Eddy County) to 14 July (Benson County).

Nest Success Evaluation:

Summer technicians were hired to conduct all nest success evaluation duties (nest dragging). Between 15 May and 19 May, all technicians reported to North Dakota for project training. Nest dragging was conducted from the period of 20 May through 20 June. All nests were followed until a known fate (hatched, depredated or abandoned) was determined (approximate date of 15 July).

Sample Size, Acres and Time Searched Per Site:

A minimum sample size of 75 nests per site was identified at the 5 March meeting between Delta Waterfowl and LDWF personnel. In all cases, the minimum goal was exceeded (Table 1), with sample sizes ranging from 120 (Benson County control) to 416 nests (Mountrail County trap).

An effort was made to conduct nest dragging activities over a similar area on each paired trap and control site. In all cases, in order to obtain a comparable sample size of nests, more acres were searched and more time (except for Mountrail) was spent on each control site (Table 1).

Table 1. Number of nests located, acres searched and hours searched on each trap and paired control block.

	# of nests	Acres searched	Hours searched
Towner Trap	171	1605	37.5
Towner Control	120	2755	56.8
Benson Trap	136	890	42.6
Benson Control	140	1195	41.6
Mountrail Trap	416	2080	96.8
Mountrail Control	221	2507	86.3
Eddy Trap	147	1420	57.0
Eddy Control	146	2515	116.6

Species Composition of Predators Removed:

On all trap sites, skunk and raccoon were the top two predators captured. When combined, skunk and raccoon comprised from 78% (Mountrail County) to 92% (Benson County) of the total catch on each site (Table 2). In total, the number of predators removed per site ranged from 163 (Eddy County) to 318 (Benson County) animals (Table 2). Poorly represented species such as Franklin's ground squirrel (n=5) and weasels (n=2, long and short-tailed) are not included in Table 2.

Table 2. Number of predators removed by species per trap site and cumulative total removed by species.

	Skunk	Raccoon	Red Fox	Coyote	Mink	Badger	Total
Towner	81	74	2	1	9	15	182
Benson	130	163	3	2	9	10	318
Mountrail	86	43	3	6	3	22	166
Eddy	64	81	3	5	5	4	163
Total	361	361	11	14	26	51	829
% Total	43.8	43.8	1.3	1.7	3.2	6.2	100.0

Mayfield Nest Success Estimates:

As a result of seasonal predator removal, nest success was 28.7% higher on trap blocks (n=4) in comparison to the untrapped control areas (n=4). Results from 2003 predator management efforts proved consistent with predator management research previously conducted by Delta Waterfowl (1994 – 2002) and resulted in a doubling to tripling in overall nest success. Mayfield nest success estimates are presented in Figure 3 for each trap and paired control site.

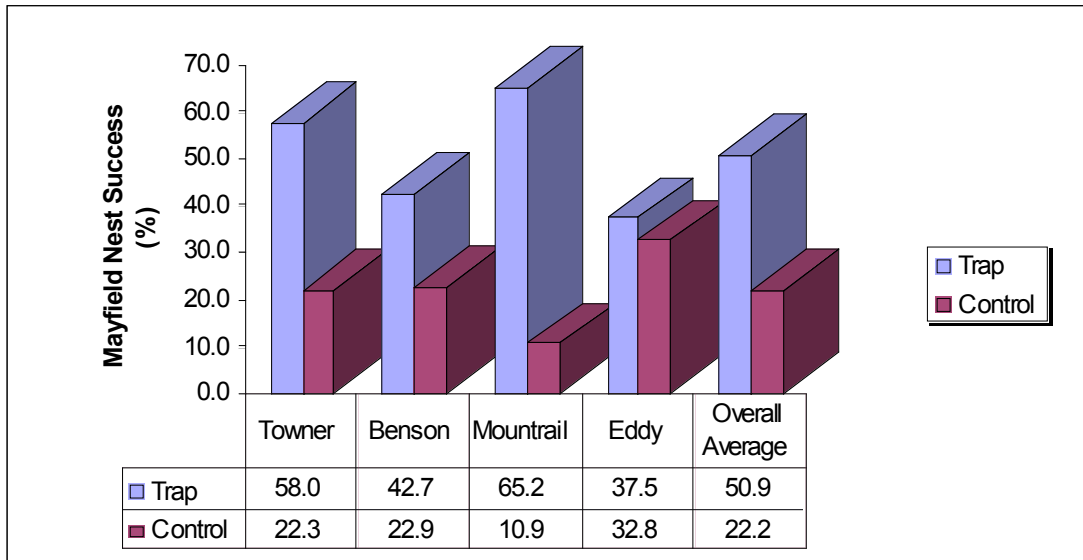


Figure 3. Mayfield nest success estimates for each paired trap and control site – estimates by site and overall trap vs. control average.

Waterfowl Species Composition:

On all sites, mallards, blue-winged teal and gadwall represented the top three duck species present (Table 3). Poorly represented species such as green-winged teal (n=9), redheads (n=4) and ring-necked ducks (n=1) are not included in Table 3. Mallards, blue-winged teal and gadwall also represent three of the top four duck species harvested by Louisiana duck hunters during the 2002 – 2003 waterfowl hunting season (Figure 4).

Table 3. Number of duck nests detected by species for each paired trap and control site.

	BW Teal	Gadwall	Mallard	Shoveler	Pintail	Scaup	Wigeon	Total
Towner Trap	55	48	29	26	12			170
Towner Control	61	33	15	9	2			120
Benson Trap	60	33	23	8	4	5	1	134
Benson Control	75	28	27	6	4			140
Mountrail Trap	113	118	85	35	32	16	14	413
Mountrail Control	94	60	24	17	13	3	7	218
Eddy Trap	84	20	28	10	1	2		145
Eddy Control	71	32	36	3	3			145
Total	613	372	267	114	71	26	22	1485
%Total	41.3	25.0	18.0	7.7	4.8	1.7	1.5	100

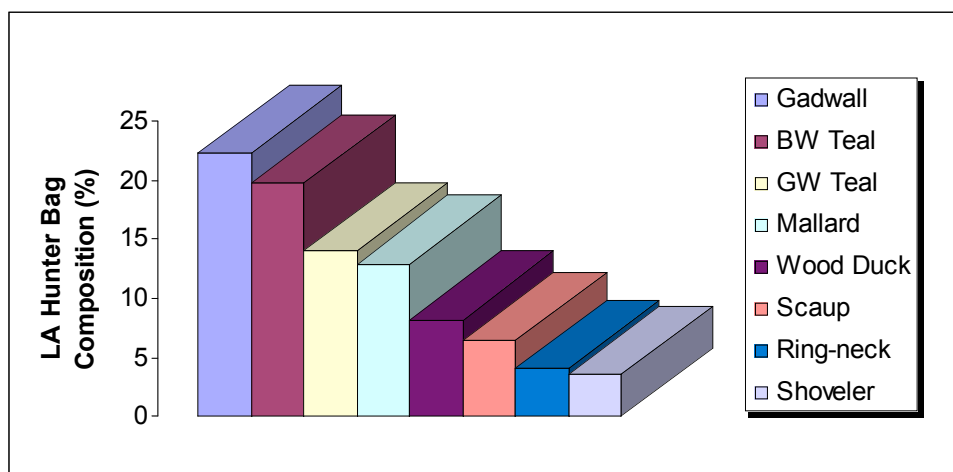


Figure 4. Percent bag composition by species for the 2002-2003 LA waterfowl hunting season – top eight species.

Other Areas:

In 2003, the State of Arkansas renewed its support of predator management and allocated \$50,000 for a third year in a row to fund trapping on two 36 square-mile blocks. Delta assumed sole financial responsibility for nest success evaluation on both Arkansas funded blocks. Control block evaluation of Arkansas sites was not required.

Since the Arkansas and Louisiana sites located in Benson County shared a common boundary and were characterized by similar land cover composition, the Louisiana funded Benson County control site (Mayfield: 22.9%) serves as a reliable comparison for both Benson County trap sites. A control site similar in land cover composition to the Arkansas funded Towner County trap site was not evaluated.

Data collection procedures were identical for both Arkansas and Louisiana funded sites. An overview of results for both Arkansas funded sites is included in Table 4.

Table 4. Overview of Arkansas funded trap site results.

	# of nests	Acres Searched	Hours Searched	Predators Removed	Mayfield Nest Success (%)
Towner County	305	1200	34.5	255	80.2
Benson County	153	1810	45.3	179	42.38

2004 Site Selection:

With dry conditions once again returning to the prairies, December and January will likely be the best time to decide 2004 Predator Management site locations. At that time, we will have a better idea of winter snowfall and at least a glimpse of what spring might hold. We propose the LDWF office in Baton Rouge as a possible meeting location.

Site - 2003	Mayfield (%)	95% CI
Benson Trap	42.70	33.77 – 53.90
- Mallard	41.80	22.43 – 77.04
- Gadwall	28.93	15.47 – 53.49
- Blue-winged teal	55.95	42.51 – 73.49
Benson Control	22.87	16.21 – 32.18
- Mallard	11.81	4.25 – 31.88
- Gadwall	25.25	12.31 – 51.03
- Blue-winged teal	30.84	20.43 – 46.34
Eddy Trap	37.52	29.04 – 48.38
- Mallard	43.02	23.58 – 77.72
- Gadwall	27.74	12.21 – 61.85
- Blue-winged teal	43.50	32.37 – 58.31
Eddy Control	32.78	24.55 – 43.67
- Mallard	44.46	27.18 – 72.24
- Gadwall	17.57	7.84 – 38.68
- Blue-winged teal	34.06	22.78 – 50.70
Towner Trap	57.98	48.33 – 69.50
- Mallard	38.18	18.30 – 78.47
- Gadwall	57.92	40.94 – 81.68
- Blue-winged teal	60.29	45.96 – 78.94
Towner Control	22.26	15.21 – 32.44
- Mallard	18.51	5.50 – 59.82
- Gadwall	12.96	5.36 – 30.65
- Blue-winged teal	32.78	21.11 – 50.63
Mountrail Trap	65.22	59.68 – 71.25
- Mallard	67.73	54.84 – 83.31
- Gadwall	59.88	50.33 – 71.19
- Blue-winged teal	65.72	55.72 – 77.45
Mountrail Control	10.90	7.71 – 15.37
- Mallard	14.09	5.05 – 38.22
- Gadwall	7.12	3.32 – 15.03
- Blue-winged teal	13.56	8.35 – 21.87

****Confidence limits for nest success are asymmetrical because they are derived exponentially.** (Klett, A.T., H.F. Duebbert, C.A. Faanes, and K.F. Higgins. 1986. Techniques for studying nest success of ducks in upland habitats in the prairie pothole region. 24 p. U.S. Fish and Wildl. Serv. Resour. Publ.; 158.)

Nest Fate Summary Table - 2003

Nest Fate Cause of Failure	Abandoned				Destroyed		Nonviable		Unknown		Successful	Total nests
	Investigator	Predator	Unknown	Other	Predator	Other	Predator	Unknown	Lost	Terminated		
Benson Trap	-	2	4	-	51	-	-	-	1	1	77	136
Benson Control	2	3	9	-	76	5 - cattle	-	-	-	-	50	140
Towner Trap	3	5	7	1-flooded	31	-	1	3	-	-	120	171
Towner Control	1	4	3	-	59	1 - tractor	-	-	-	-	52	120
Eddy Trap	1	3	5	-	56	-	-	1	-	-	81	147
Eddy Control	1	2	5	-	58	-	-	-	1	-	78	146
Mountrail Trap	7	7	10	-	86	2 - haying,cattle	-	-	-	2	302	416
Mountrail Control	5	2	2	-	163	-	-	-	-	-	49	221

Categorical Explanation:

Abandoned:

- Investigator: All incidents occurred during egg laying stage. Same number of eggs present (less than full clutch) in nest bowl on subsequent nest checks and no hen present.
- Predator: Occurred either during egg laying or incubation. Fewer eggs present (typically less than three eggs missing) on subsequent nest checks and no hen present.
- Unknown: Cause of abandonment unknown.
- Other: Detailed in table.

Destroyed:

- Predator: Evidence present linking destruction of nest to either mammalian or avian predation.
- Other: Detailed in table.

Nonviable:

- Unknown: Hen present and incubating eggs that are not advancing in growth stage.

Unknown:

- Lost: Previously sampled nest unable to be relocated.
- Terminated: Technician field season ended prior to nest hatching or being destroyed.

2003 Trapping Reports

Mountrail
County

Eddy County

Benson County

Towner County

<u>Date</u>	<u>Species</u>	<u>Date</u>	<u>Species</u>	<u>Date</u>	<u>Species</u>	<u>Date</u>	<u>Species</u>
3/13	SK	3/16	SK	3/15	RCN	3/17	RCN
3/18	SK	3/17	SK	3/15	SK	3/19	RCN
3/21	SK	3/17	SK	3/15	SK	3/19	SK
3/21	SK	3/18	RCN	3/15	SK	3/19	SK
3/22	SK	3/18	SK	3/16	RCN	3/19	SK
3/22	SK	3/18	SK	3/16	RCN	3/21	RCN
3/24	SK	3/19	RCN	3/17	RCN	3/21	RCN
3/27	SK	3/20	RCN	3/17	SK	3/21	SK
3/28	SK	3/20	SK	3/18	MNK	3/21	SK
3/29	RCN	3/20	SK	3/18	RCN	3/21	SK
3/29	SK	3/20	SK	3/18	SK	3/22	RCN
3/29	SK	3/21	SK	3/19	RCN	3/22	SK
3/31	SK	3/21	SK	3/19	RCN	3/22	SK
3/31	SK	3/21	SK	3/19	RCN	3/22	SK
4/2	RCN	3/21	SK	3/19	RCN	3/22	SK
4/8	SK	3/22	RCN	3/19	SK	3/22	SK
4/11	SK	3/22	SK	3/20	RCN	3/24	SK
4/12	RCN	3/23	SK	3/20	RCN	3/24	SK
4/12	SK	3/23	SK	3/20	RCN	3/26	RCN
4/13	BGR	3/23	SK	3/20	RCN	3/26	SK
4/13	SK	3/24	SK	3/20	SK	3/26	SK
4/13	SK	3/24	SK	3/20	SK	3/26	SK
4/14	FGS	3/25	SK	3/21	RCN	3/26	SK
4/14	SK	3/27	RCN	3/21	RCN	3/26	SK
4/14	SK	3/27	SK	3/21	SK	3/29	RCN
4/15	SK	3/28	RCN	3/21	SK	3/29	SK
4/15	SK	3/29	RCN	3/21	SK	3/31	SK
4/16	BGR	3/31	SK	3/21	SK	3/31	SK
4/16	MNK	4/2	FX	3/23	RCN	4/1	BGR
4/16	SK	4/4	COY	3/23	RCN	4/1	RCN
4/17	COY	4/5	SK	3/23	RCN	4/1	RCN
4/17	RCN	4/7	COY	3/23	RCN	4/1	SK
4/18	FX	4/9	RCN	3/23	RCN	4/8	SK
4/18	MNK	4/12	SK	3/23	RCN	4/10	SK
4/18	MNK	4/13	SK	3/23	RCN	4/11	MNK

4/18	RCN	4/14	RCN	3/23	RCN	4/11	RCN
4/18	SK	4/14	SK	3/23	RCN	4/11	SK
4/18	SK	4/15	RCN	3/23	SK	4/11	SK
4/18	SK	4/18	COY	3/23	SK	4/12	MNK
4/19	SK	4/20	FX	3/23	SK	4/12	SK
4/20	SK	4/21	COY	3/23	SK	4/12	SK
4/20	SK	4/21	RCN	3/24	RCN	4/13	RCN
4/21	SK	4/21	SK	3/24	RCN	4/13	RCN
4/22	SK	4/22	MNK	3/24	RCN	4/14	RCN
4/22	SK	4/22	MNK	3/24	RCN	4/14	SK
4/22	SK	4/22	RCN	3/24	RCN	4/14	SK
4/23	RCN	4/23	RCN	3/25	RCN	4/15	FX
4/24	RCN	4/23	SK	3/25	SK	4/16	RCN
4/24	SK	4/25	COY	3/26	RCN	4/19	SK
4/24	SK	4/25	RCN	3/26	RCN	4/20	MNK
4/25	BGR	4/25	SK	3/26	RCN	4/21	MNK
4/25	SK	4/26	RCN	3/26	RCN	4/21	RCN
4/26	RCN	4/27	RCN	3/26	SK	4/21	RCN
4/26	SK	4/28	RCN	3/26	SK	4/22	RCN
4/27	SK	4/29	RCN	3/28	RCN	4/22	RCN
4/28	COY	4/29	RCN	3/28	RCN	4/23	RCN
4/29	FX	4/30	RCN	3/28	RCN	4/24	SK
4/30	FGS	4/30	RCN	3/28	RCN	4/25	MNK
4/30	BGR	4/30	RCN	3/28	SK	4/25	SK
4/30	RCN	4/30	RCN	3/30	RCN	4/26	FX
5/1	SK	4/30	SK	3/31	MNK	4/28	RCN
5/2	RCN	5/1	FX	3/31	MNK	4/28	RCN
5/2	SK	5/2	SK	3/31	RCN	4/28	RCN
5/2	SK	5/3	SK	3/31	RCN	4/28	SK
5/3	RCN	5/3	SK	3/31	RCN	4/29	MNK
5/3	SK	5/4	RCN	3/31	SK	4/29	RCN
5/3	SK	5/5	RCN	3/31	SK	4/30	SK
5/4	BGR	5/5	SK	3/31	SK	4/30	SK
5/5	RCN	5/5	SK	4/3	RCN	4/30	SK
5/7	RCN	5/5	SK	4/4	SK	5/1	RCN
5/7	RCN	5/6	RCN	4/4	SK	5/1	SK
5/7	RCN	5/6	SK	4/6	RCN	5/2	RCN
5/7	SK	5/7	RCN	4/6	RCN	5/3	COY
5/7	SK	5/7	RCN	4/6	RCN	5/3	RCN
5/8	BGR	5/7	RCN	4/6	RCN	5/3	RCN
5/9	SK	5/7	SK	4/6	SK	5/3	RCN
5/10	COY	5/8	RCN	4/6	SK	5/3	RCN
5/11	SK	5/8	RCN	4/6	SK	5/3	SK

5/12	BGR	5/8	SK	4/6	SK	5/5	RCN
5/12	RCN	5/9	MNK	4/6	SK	5/5	RCN
5/13	SK	5/9	RCN	4/8	RCN	5/6	RCN
5/14	BGR	5/9	RCN	4/8	RCN	5/6	SK
5/16	RCN	5/9	SK	4/8	RCN	5/7	SK
5/16	RCN	5/10	RCN	4/8	SK	5/8	RCN
5/16	SK	5/10	RCN	4/8	SK	5/9	MNK
5/16	SK	5/12	SK	4/8	SK	5/9	RCN
5/16	SK	5/12	SK	4/10	MNK	5/9	RCN
5/16	SK	5/12	SK	4/10	RCN	5/9	SK
5/17	RCN	5/13	MNK	4/10	RCN	5/10	RCN
5/17	RCN	5/13	RCN	4/10	RCN	5/11	MNK
5/17	SK	5/13	SK	4/10	RCN	5/12	BGR
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5/21	FX	5/17	SK	4/11	RCN	5/16	SK
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5/28	SK	5/23	RCN	4/15	SK	5/23	BGR
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5/29	SK	5/23	RCN	4/15	SK	5/23	RCN
5/30	RCN	5/23	SK	4/15	SK	5/23	SK
5/31	SK	5/24	MNK	4/15	SK	5/24	BGR
6/1	RCN	5/24	FGS	4/15	SK	5/24	RCN
6/4	SK	5/24	SK	4/17	BGR	5/24	SK
6/5	RCN	5/25	RCN	4/17	RCN	5/25	BGR
6/7	BGR	5/26	RCN	4/17	RCN	5/25	SK
6/7	RCN	5/26	SK	4/17	RCN	5/26	BGR
6/8	SK	5/27	RCN	4/17	SK	5/26	RCN
6/8	RCN	5/27	RCN	4/17	SK	5/26	RCN
6/9	RCN	5/28	RCN	4/17	SK	5/26	SK

6/9	BGR	5/28	SK	4/17	SK	5/26	SK
6/10	RCN	5/28	SK	4/19	BGR	5/27	RCN
6/10	SK	5/28	SK	4/19	RCN	5/27	RCN
6/10	SK	5/29	RCN	4/19	RCN	5/28	RCN
6/11	SK	5/30	RCN	4/19	RCN	5/28	SK
6/11	SK	5/31	RCN	4/19	RCN	5/30	RCN
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6/13	SK	6/1	SK	4/19	SK	5/31	RCN
6/14	SK	6/3	RCN	4/20	BGR	5/31	RCN
6/14	SK	6/4	RCN	4/20	RCN	6/1	SK
6/14	SK	6/4	RCN	4/20	SK	6/1	SK
6/15	SK	6/5	SK	4/20	SK	6/2	SK
6/15	SK	6/6	RCN	4/20	SK	6/4	RCN
6/15	RCN	6/6	SK	4/20	SK	6/4	SK
6/16	BGR	6/6	RCN	4/21	BGR	6/4	SK
6/16	BGR	6/6	SK	4/21	RCN	6/6	RCN
6/16	SK	6/7	SK	4/21	RCN	6/7	SK
6/17	BGR	6/8	RCN	4/21	RCN	6/8	SK
6/17	RCN	6/9	RCN	4/21	SK	6/9	SK
6/18	BGR	6/9	RCN	4/21	SK	6/9	RCN
6/18	BGR	6/11	RCN	4/22	WSL	6/9	RCN
6/18	SK	6/12	RCN	4/22	RCN	6/10	SK
6/19	BGR	6/13	BGR	4/22	RCN	6/10	RCN
6/19	RCN	6/15	RCN	4/22	RCN	6/11	BGR
6/20	RCN	6/16	RCN	4/22	SK	6/12	SK
6/20	RCN	6/17	RCN	4/24	RCN	6/12	SK
6/21	RCN	6/18	RCN	4/24	RCN	6/12	BGR
6/22	SK	6/19	RCN	4/24	SK	6/13	RCN
6/23	COY	6/22	BGR	4/24	SK	6/13	RCN
6/24	RCN	6/22	RCN	4/25	COY	6/13	RCN
6/24	SK	6/23	RCN	4/25	RCN	6/14	BGR
6/25	RCN	6/23	RCN	4/25	SK	6/14	SK
6/29	SK	6/23	RCN	4/25	SK	6/16	SK
6/29	SK	6/24	SK	4/26	FX	6/17	RCN
6/30	RCN	6/26	SK	4/26	RCN	6/18	RCN
7/1	FGS	6/27	RCN	4/26	RCN	6/18	SK
7/1	SK	6/30	RCN	4/26	SK	6/19	RCN
7/1	SK	6/30	SK	4/27	RCN	6/19	RCN
7/1	BGR	7/1	BGR	4/27	SK	6/19	RCN
7/1	BGR	7/2	RCN	4/27	SK	6/20	SK
7/2	RCN	7/2	RCN	4/28	RCN	6/21	SK
7/2	SK	7/3	SK	4/30	BGR	6/21	RCN
7/3	BGR			4/30	MNK	6/21	BGR

7/4 COY
7/6 COY

4/30	RCN	6/21	RCN
4/30	RCN	6/22	SK
4/30	RCN	6/24	RCN
4/30	SK	6/25	RCN
5/1	BGR	6/27	BGR
5/1	RCN	6/27	RCN
5/1	RCN	6/27	RCN
5/1	SK	6/28	SK
5/1	SK	6/28	BGR
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5/2	SK	6/29	RCN
5/3	COY	6/30	RCN
5/3	RCN	7/1	BGR
5/3	SK	7/4	SK
5/3	SK	7/4	SK
5/3	SK	7/11	BGR
5/3	SK	7/11	SK
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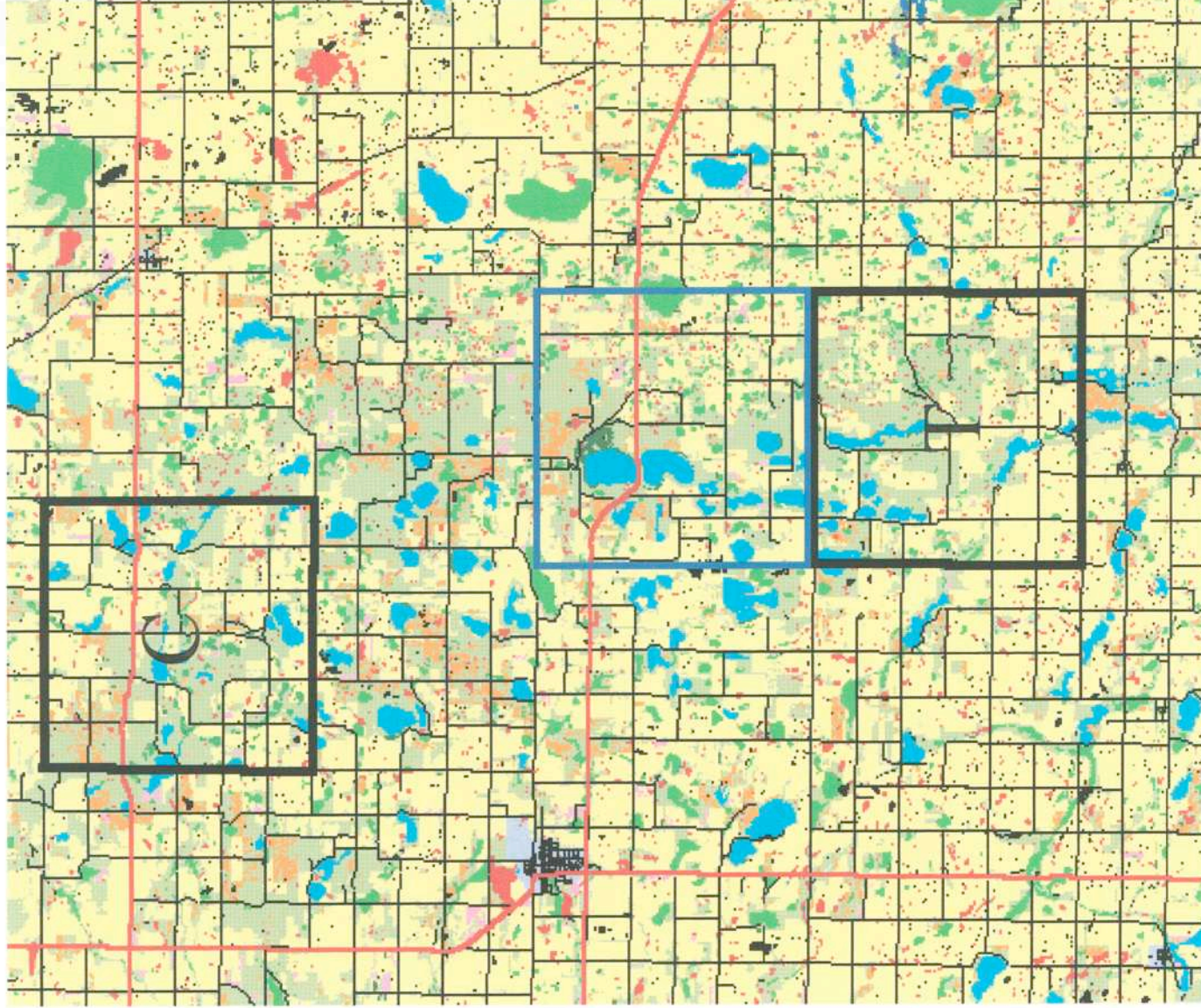
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5/16	SK
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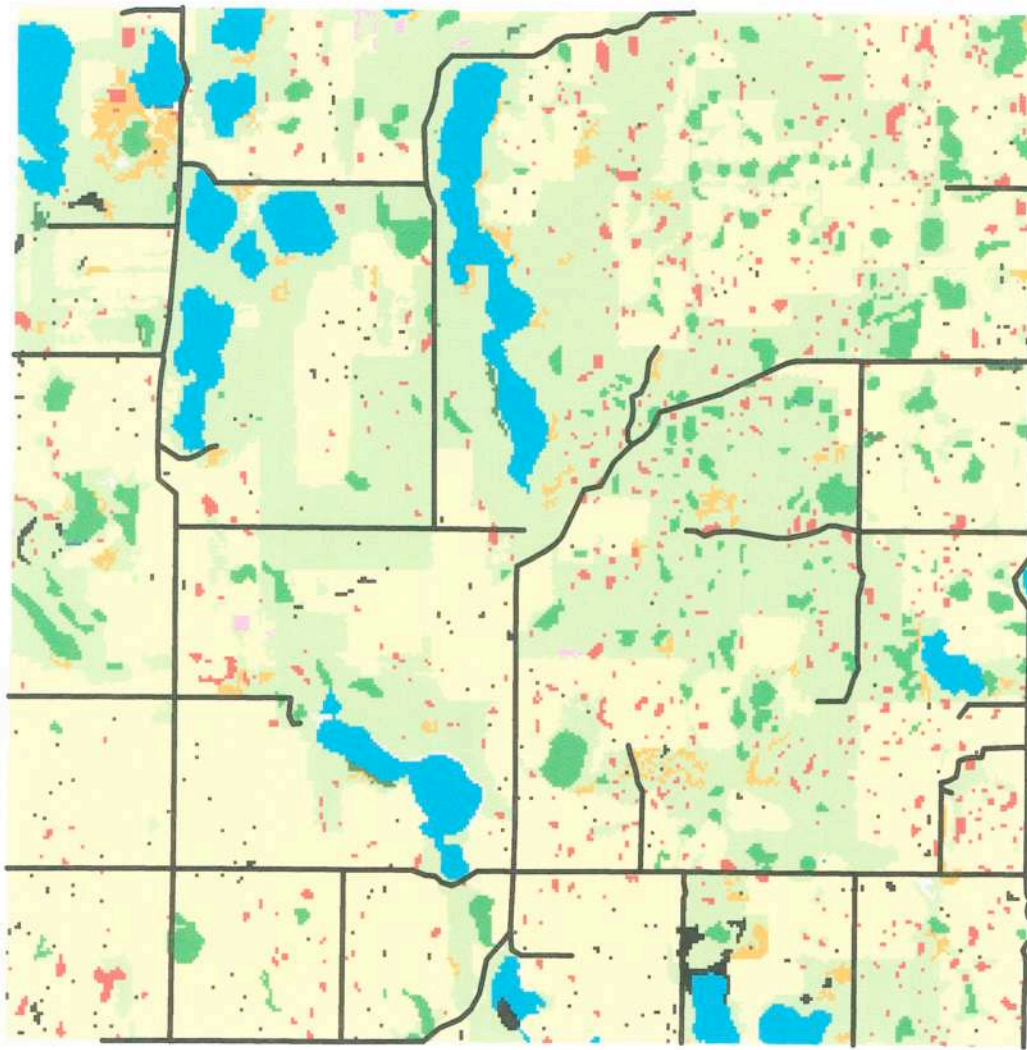
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7/1	RCN
7/3	SK
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7/4	RCN
7/5	RCN
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7/11	RCN
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7/14	RCN
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7/14	RCN
7/14	RCN

Benson County Trap and Control Sites – 2003

*Blue outline denotes an additional trapped area.



Benson County Trap Site - 2003

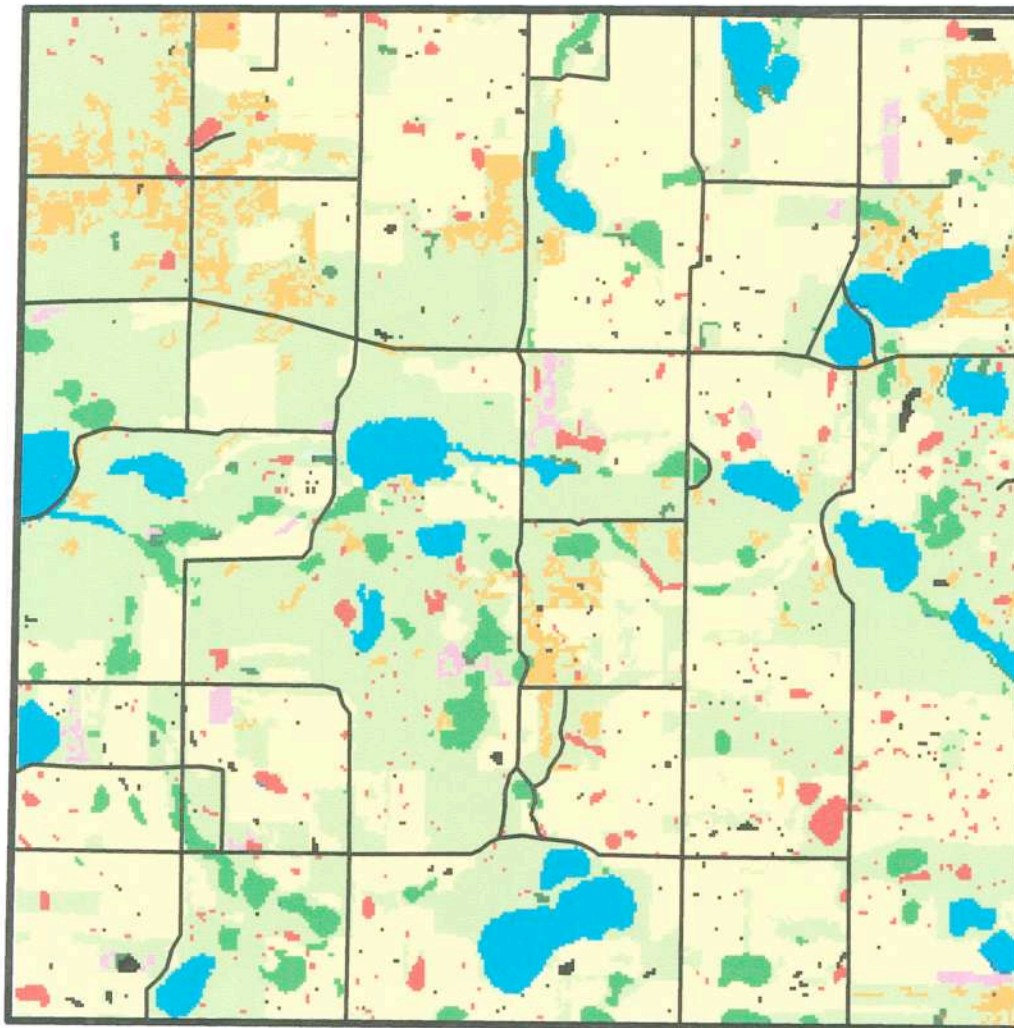


roads

- Other Water
- Native Grassland/Pasture
- Undisturbed Grassland/CRP
- Alfalfa Hayland
- Cropland
- Forest
- Urban
- Temporary Wetland
- Seasonal Wetland
- Semipermanent Wetland
- Lake
- Other Grassland



Benson County Control Site - 2003



roads

- Other Water
- Native Grassland/Pasture
- Undisturbed Grassland/CRP
- Alfalfa Hayland
- Cropland
- Forest
- Temporary Wetland
- Seasonal Wetland
- Semipermanent Wetland
- Lake
- Other Grassland

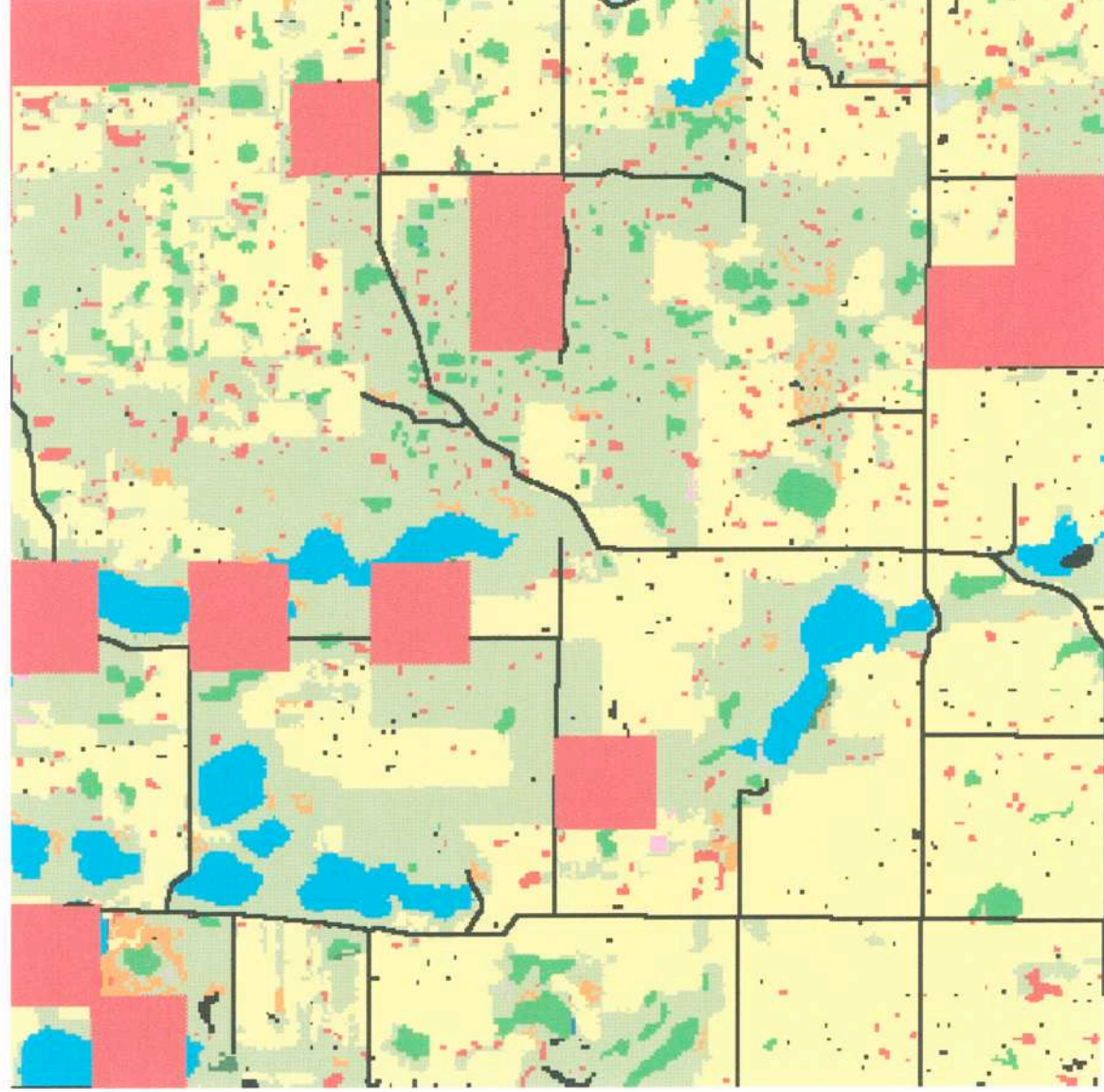


Benson County Land Use Summary (in acres):

	Trap	Control	% difference
Other Water	4	7.8	48.7
Native Grassland/Pasture	8778.4	9604.8	8.6
Undisturbed Grassland/CRP	336.7	1034.8	67.5
Alfalfa Hayland	22.8	177.9	87.2
Cropland	10754.6	9333.8	-15.2
Forest	34.9	82.3	57.6
Urban	6.9	0	-
Barren	0	0	-
Temporary Wetland	150.2	130.1	-15.4
Seasonal Wetland	505.9	421.5	-20.0
Semipermanent Wetland	1027.2	821	-25.1
Lake	1319.2	1385.9	4.8
River	0	0	-
Other Grassland	21.1	3.6	-486.1

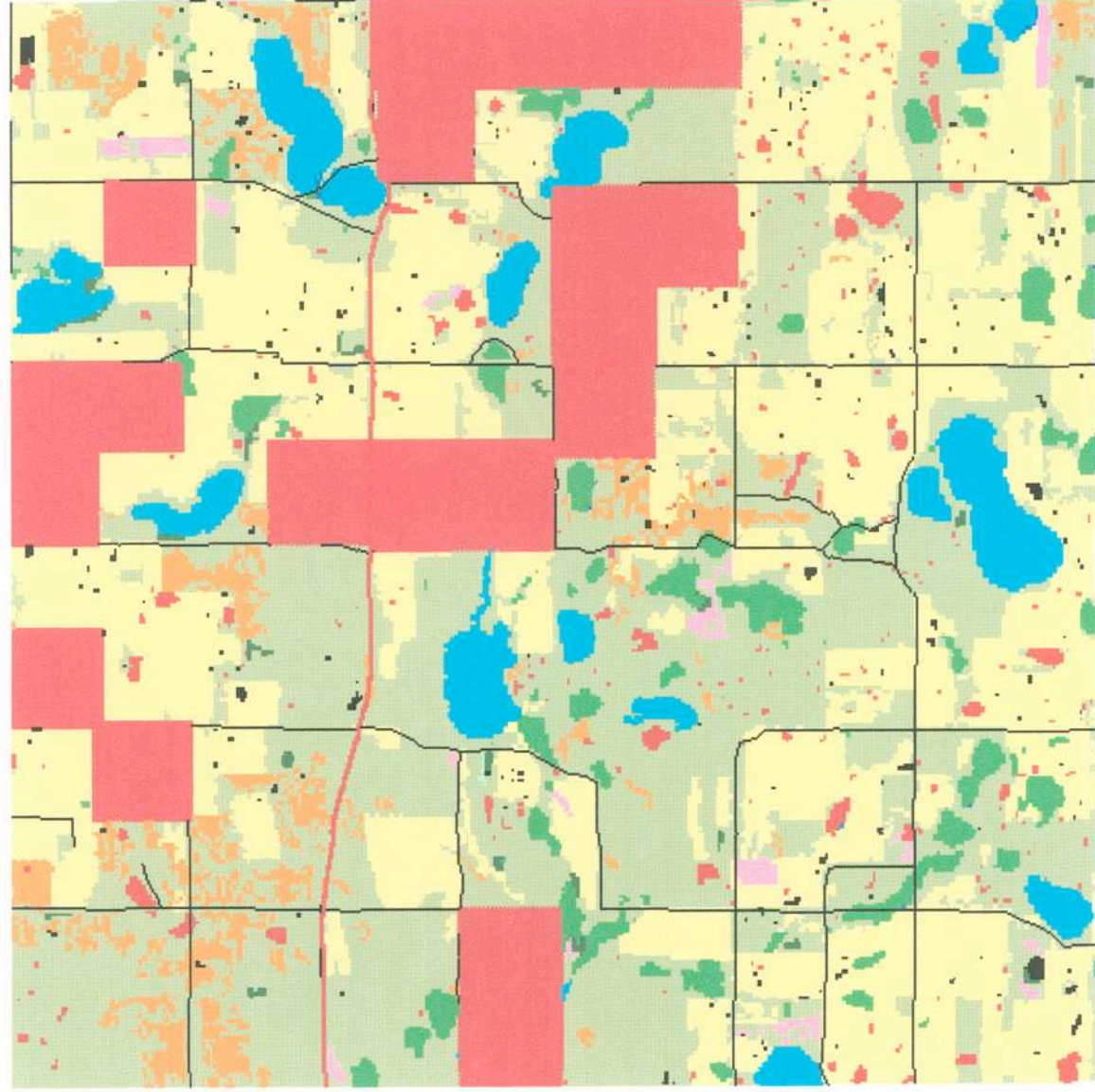
Benson County Trap Site – 2003

*Large red blocks denote the location of nest searching efforts.

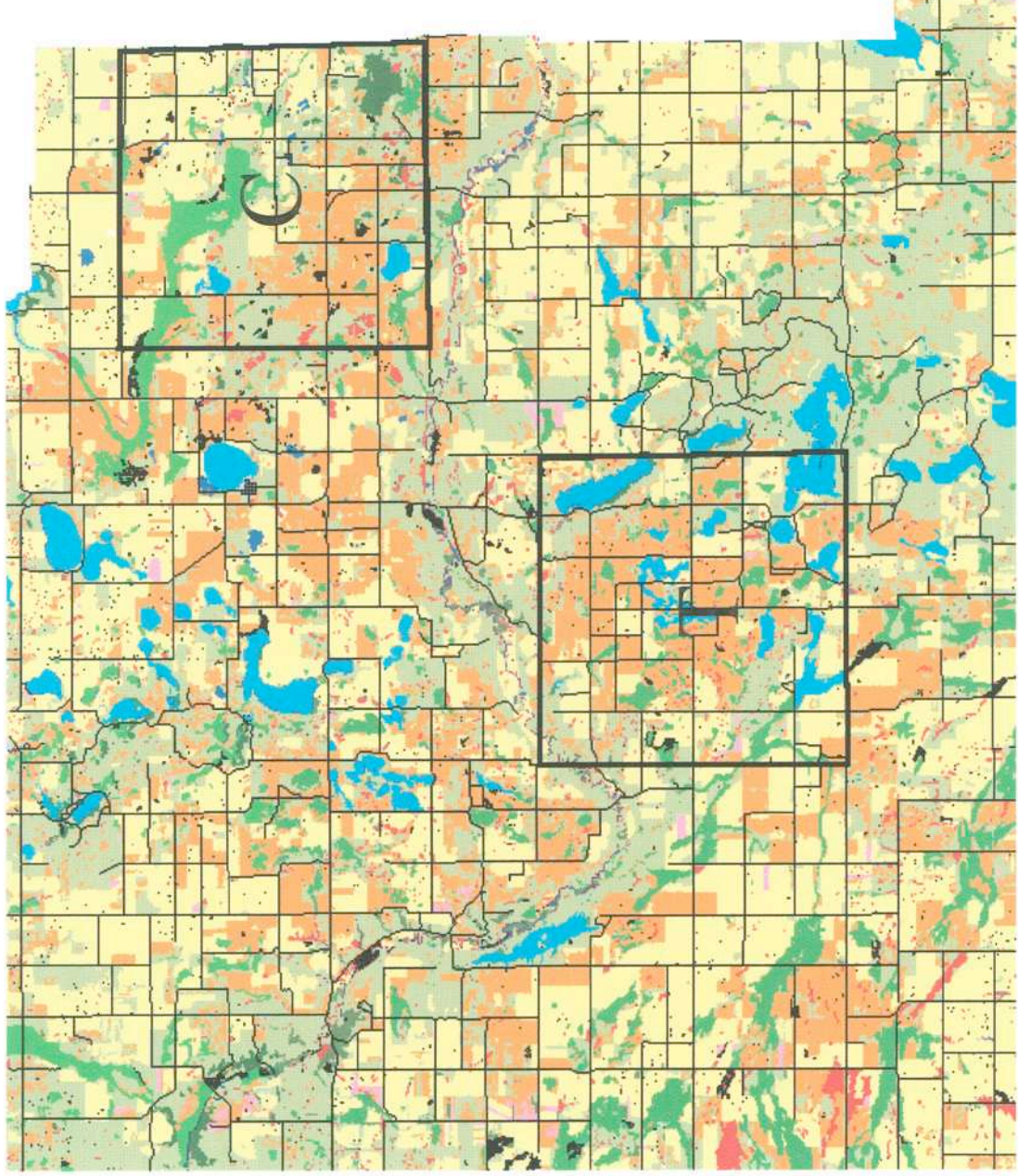


Benson County Control Site – 2003

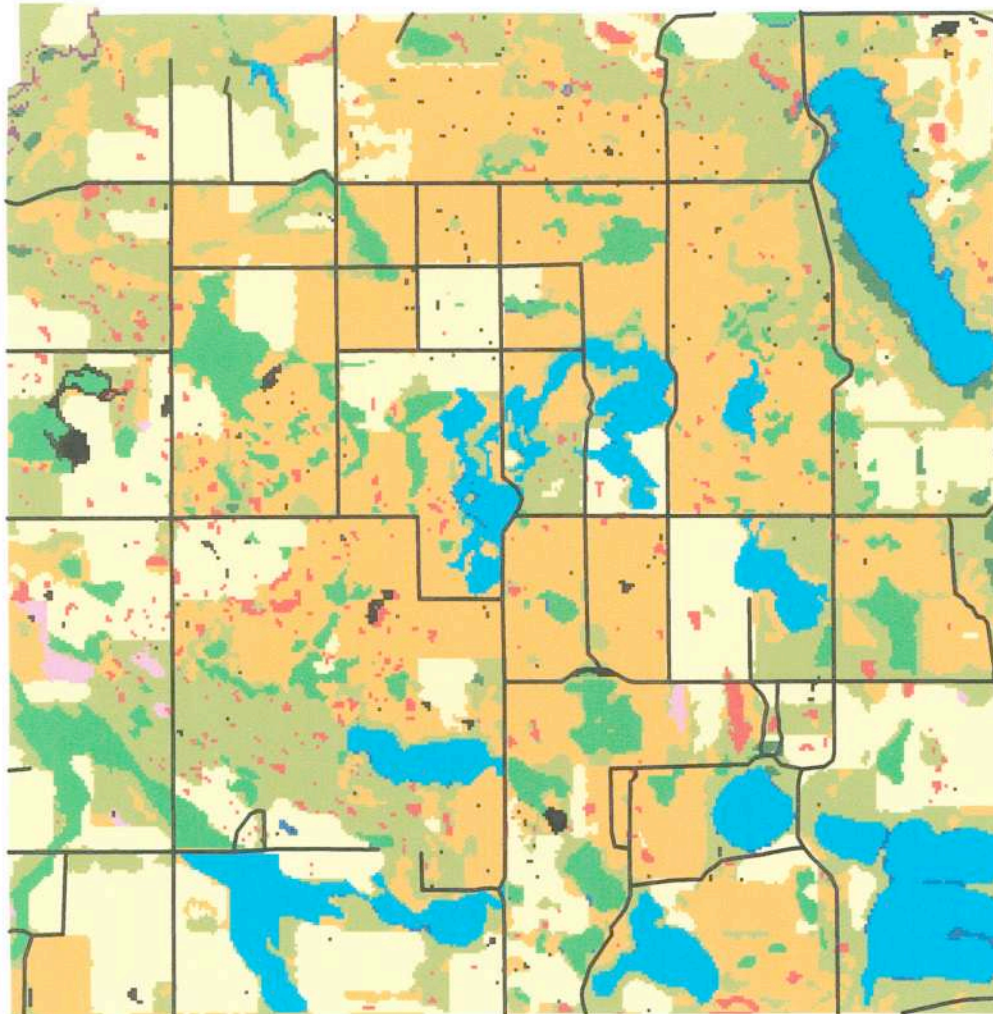
* Large red blocks denote the location of nest searching efforts.



Eddy County Trap and Control Sites – 2003



Eddy County Trap Site - 2003

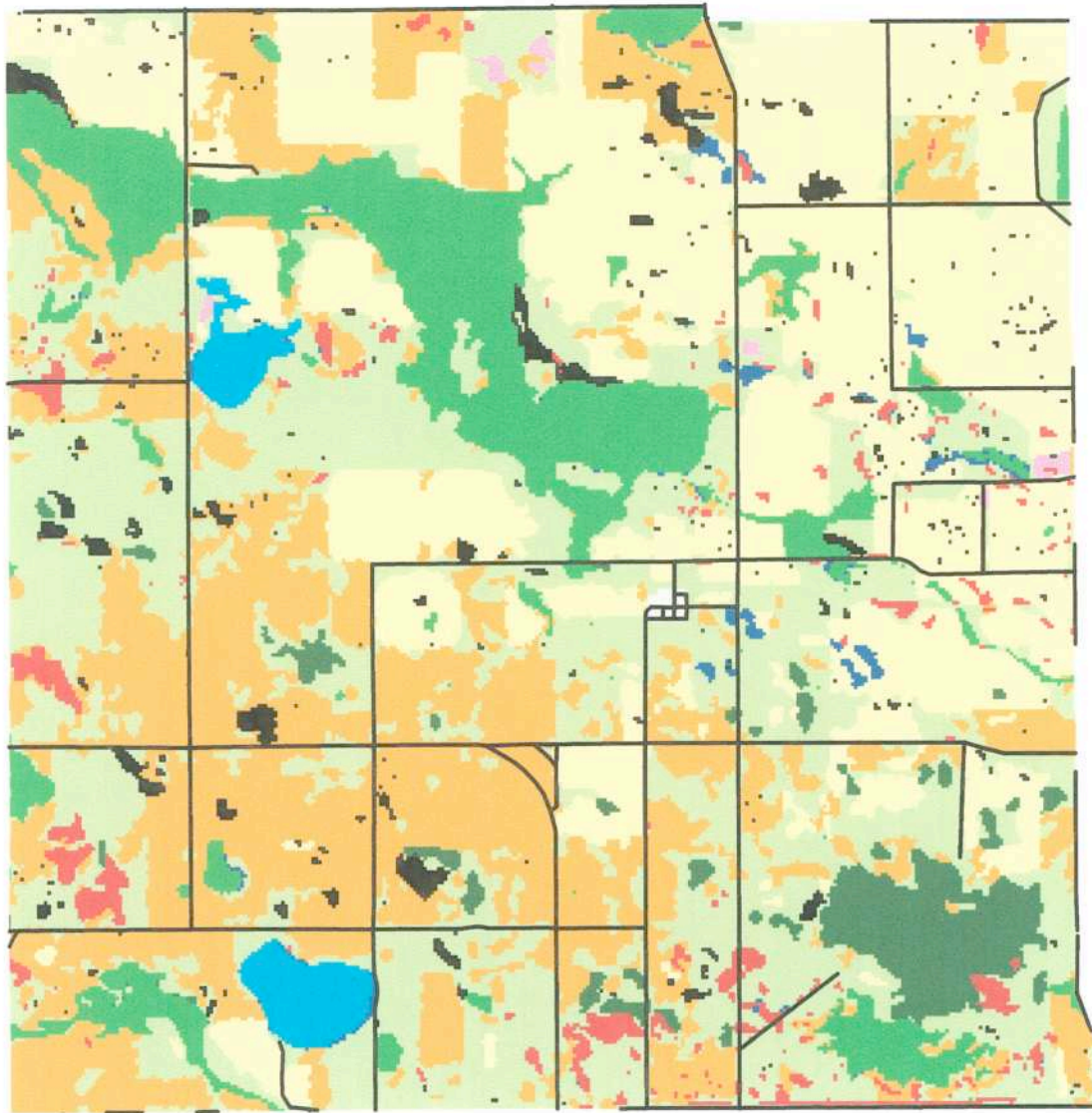


roads

- Other Water
- Native Grassland/Pasture
- Undisturbed Grassland/CRP
- Alfalfa Hayland
- Cropland
- Forest
- Temporary Wetland
- Seasonal Wetland
- Semipermanent Wetland
- Lake
- River



Eddy County Control Site - 2003



roads

- Other Water
- Native Grassland/Pasture
- Undisturbed Cover/CRP
- Alfalfa Hayland
- Cropland
- Forest
- Urban
- Temporary Wetland
- Seasonal Wetland
- Semipermanent Wetland
- Lake

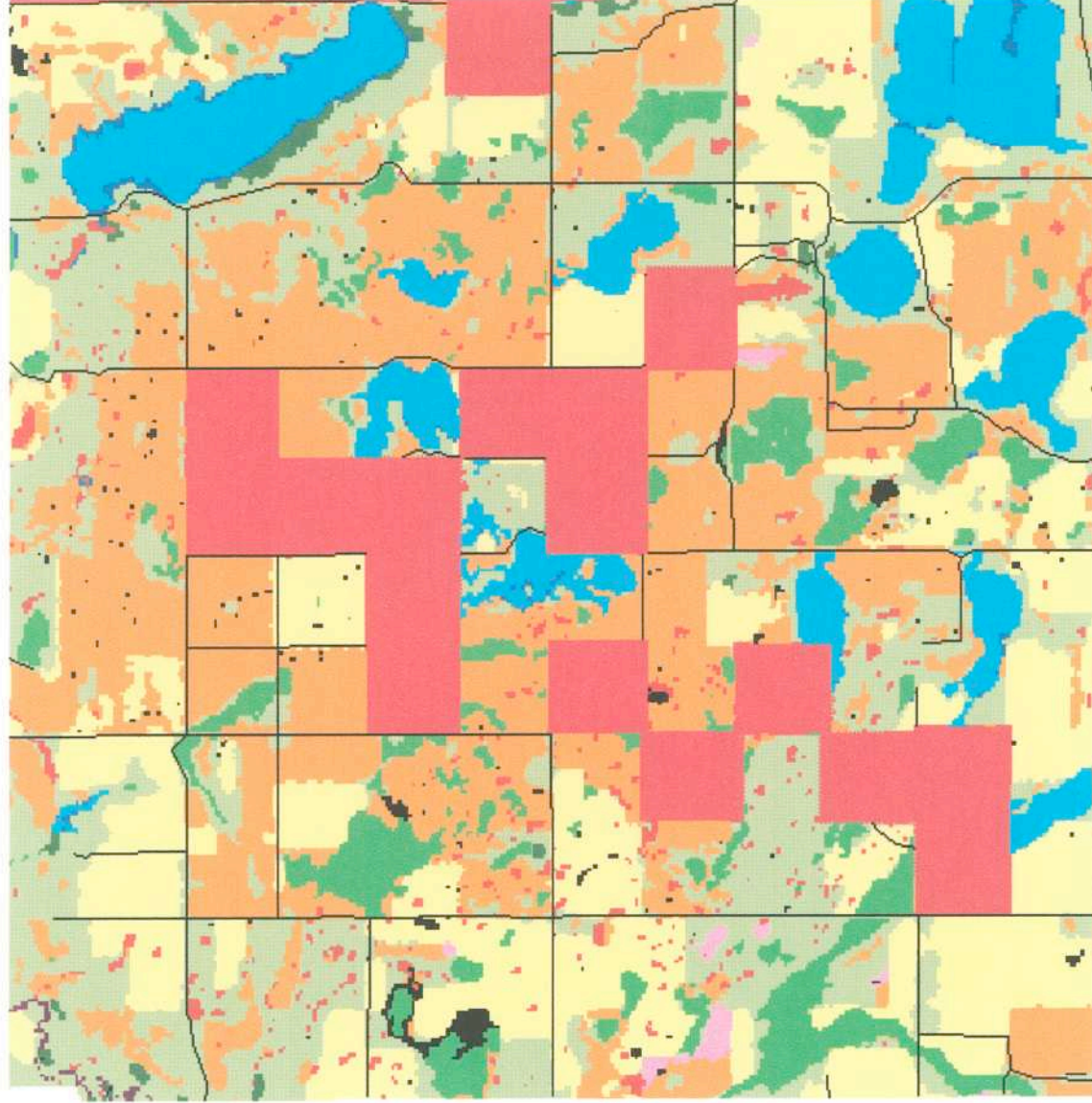


Eddy County Land Use Summary (in acres):

	Trap	Control	% difference
Other Water	122.2	116	-5.3
Native Grassland/Pasture	5535.3	6609.5	16.3
Undisturbed Grassland/CRP	7346.4	5507.1	-33.4
Alfalfa Hayland	82.2	52.3	-57.2
Cropland	5315.6	6171.3	13.9
Forest	119.2	654.3	81.8
Urban	0	23.1	-
Barren	0	0	-
Temporary Wetland	115.6	412.8	72.0
Seasonal Wetland	410.4	466.8	12.1
Semipermanent Wetland	1606.9	2226.9	27.8
Lake	2252.4	303.8	-641.4
River	19.3	0	-
Other Grassland	0	0	-

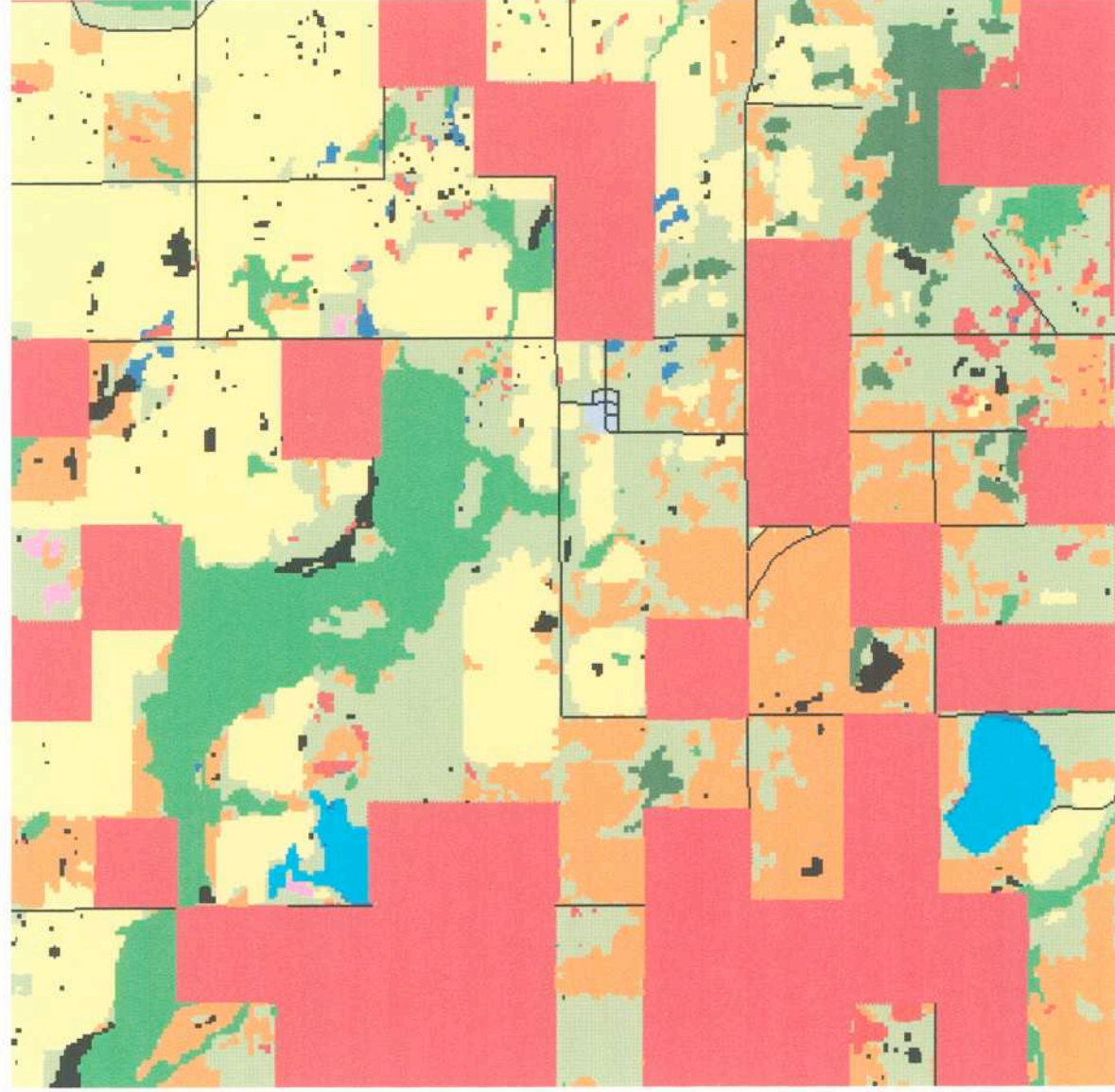
Eddy County Trap Site – 2003

*Large red blocks denote the location of nest searching efforts.

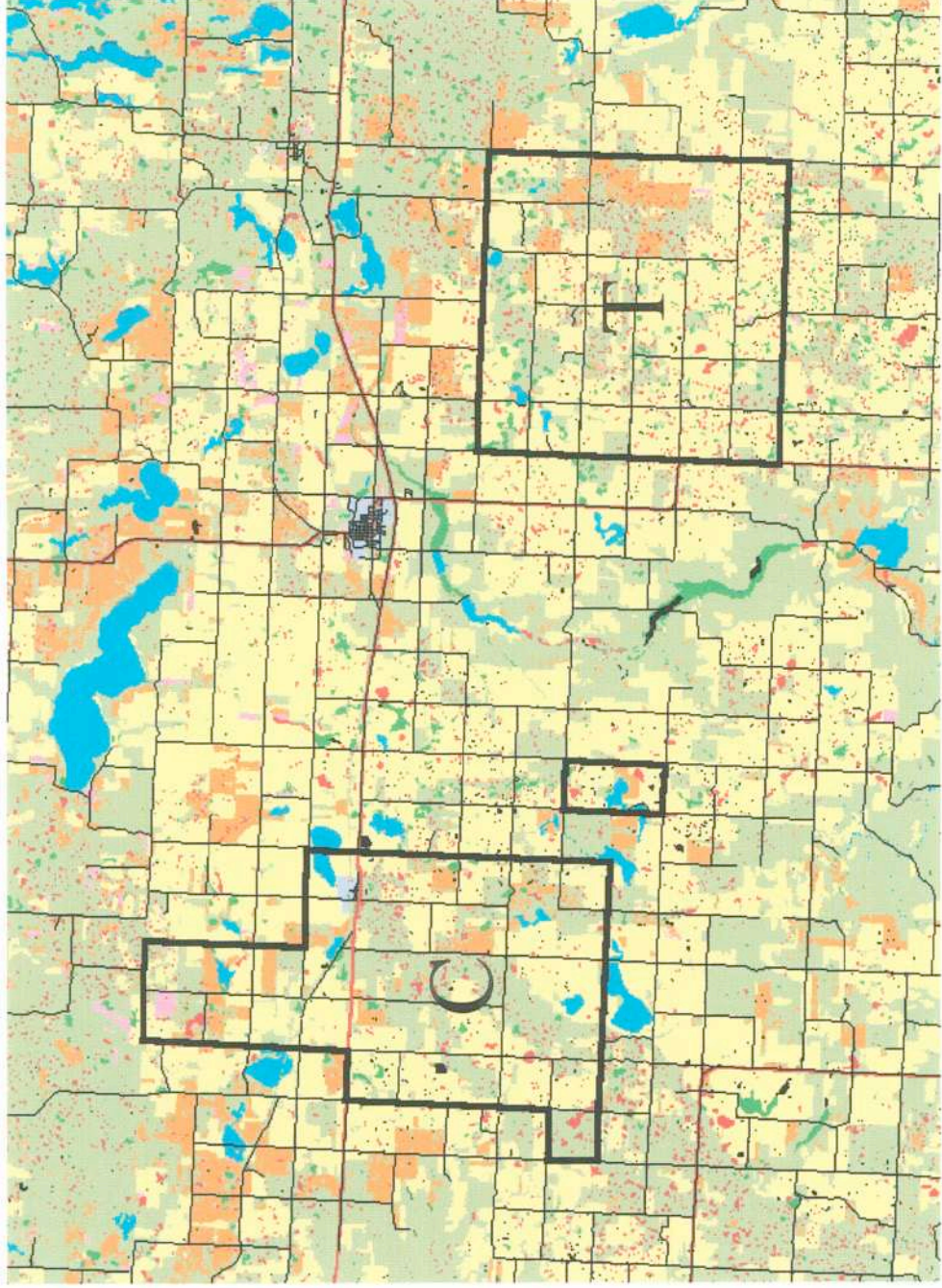


Eddy County Control Site – 2003

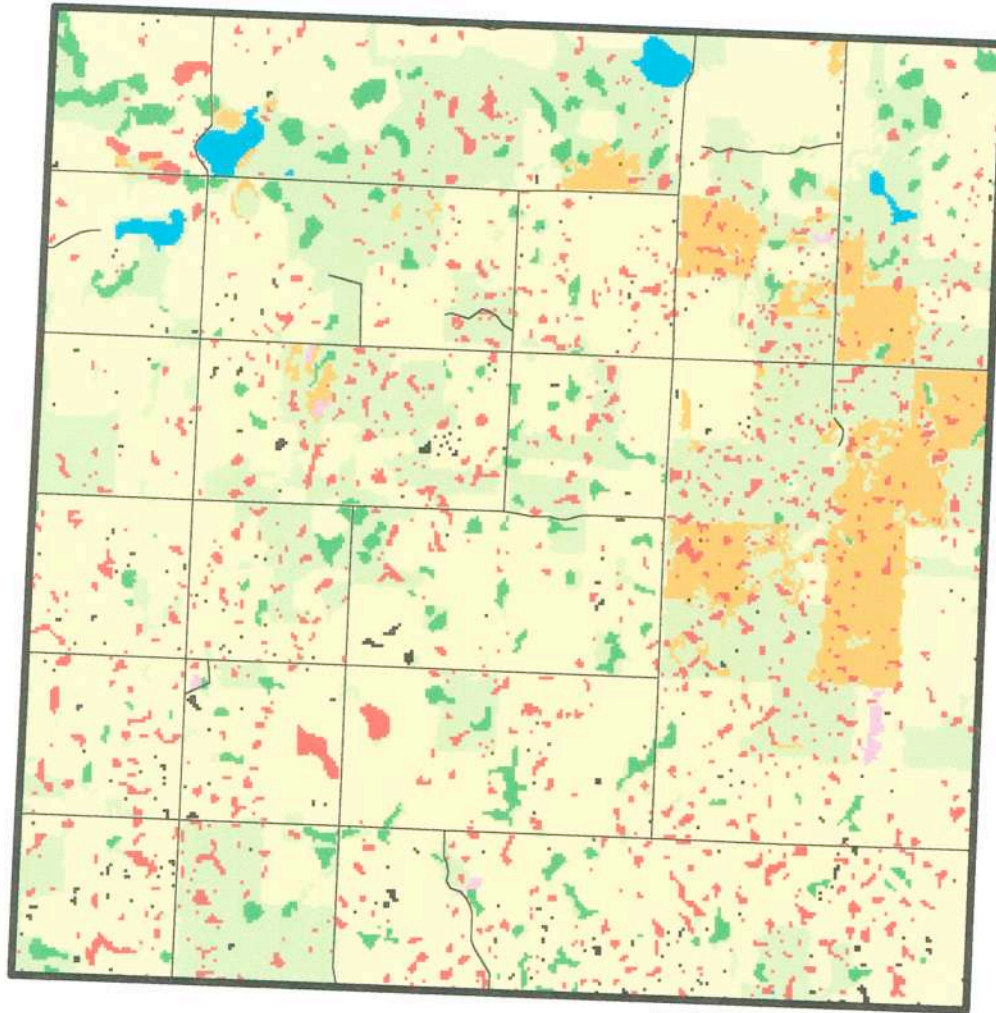
* Large red blocks denote the location of nest searching efforts.



Mountrail County Trap and Control Sites – 2003



Mountrail County Trap Site - 2003

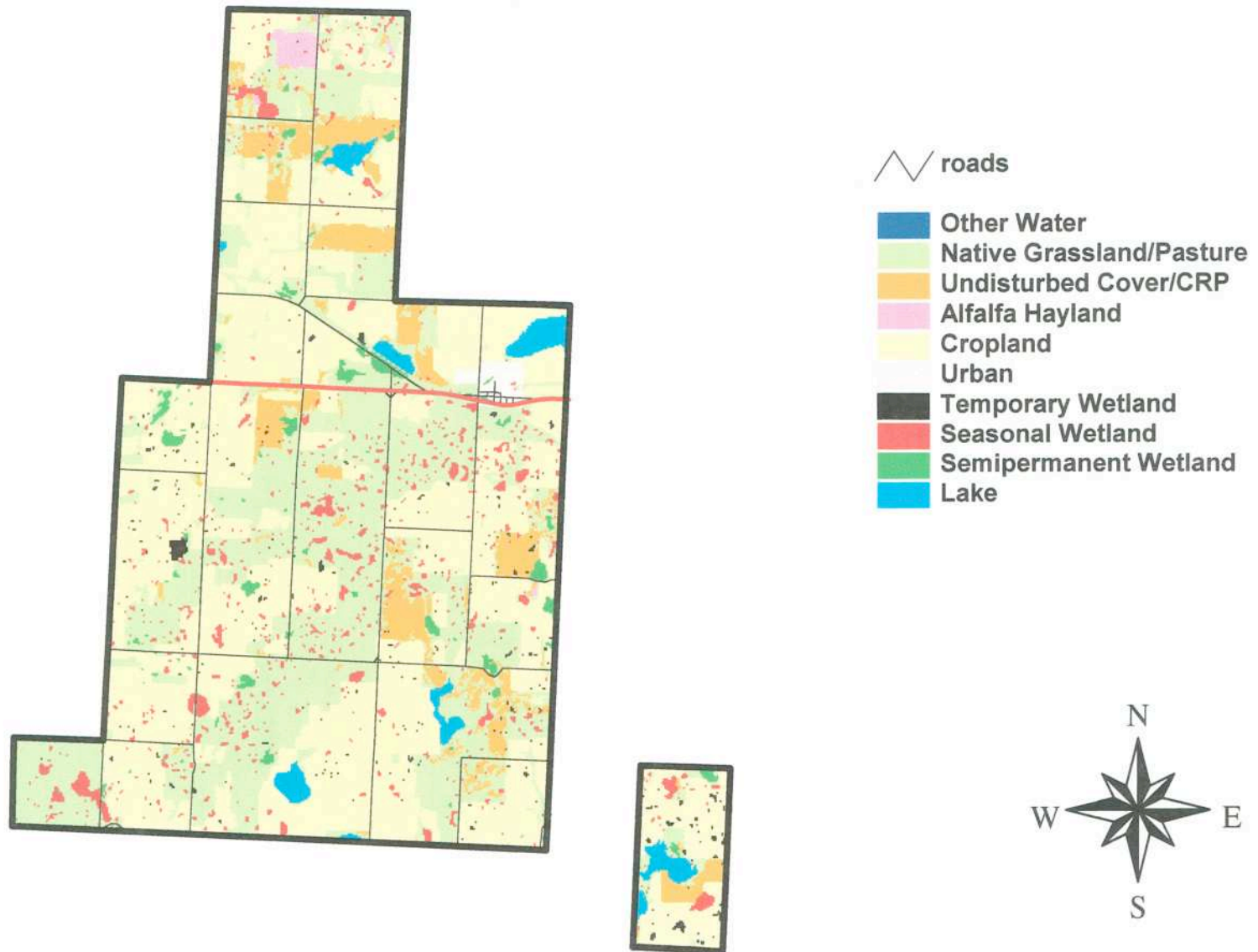


roads

- Other Water
- Native Grassland/Pasture
- Undisturbed Cover/CRP
- Alfalfa Hayland
- Cropland
- Temporary Wetland
- Seasonal Wetland
- Semipermanent Wetland
- Lake



Mountrail County Control Site - 2003



Mountrail County Land Use Summary (in acres):

	Trap	Control	% difference
Other Water	1.3	0.4	-225.0
Native Grassland/Pasture	6078.4	8650.7	29.7
Undisturbed Grassland/CRP	1270.3	1641.5	22.6
Alfalfa Hayland	43.6	141.2	69.1
Cropland	13376.5	10860.9	-23.2
Forest	0	0	-
Urban	0	171.9	-
Barren	0	0	-
Temporary Wetland	103.6	120.1	13.7
Seasonal Wetland	1109.2	815.8	-36.0
Semipermanent Wetland	750.8	322.6	-132.7
Lake	157	429.8	63.5
River	0	0	-
Other Grassland	0	0	-

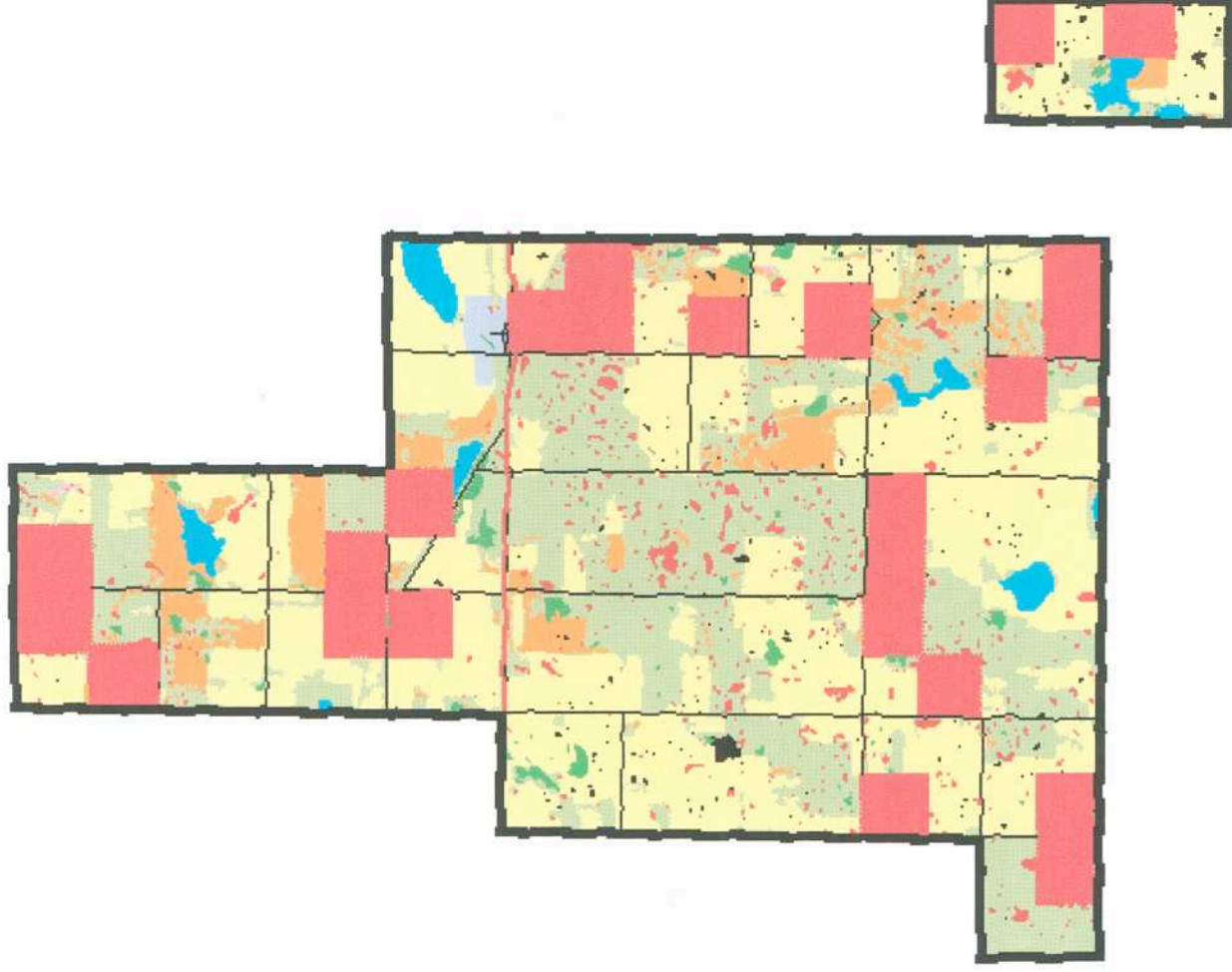
Mountrail County Trap Site – 2003

*Large red blocks denote the location of nest searching efforts.



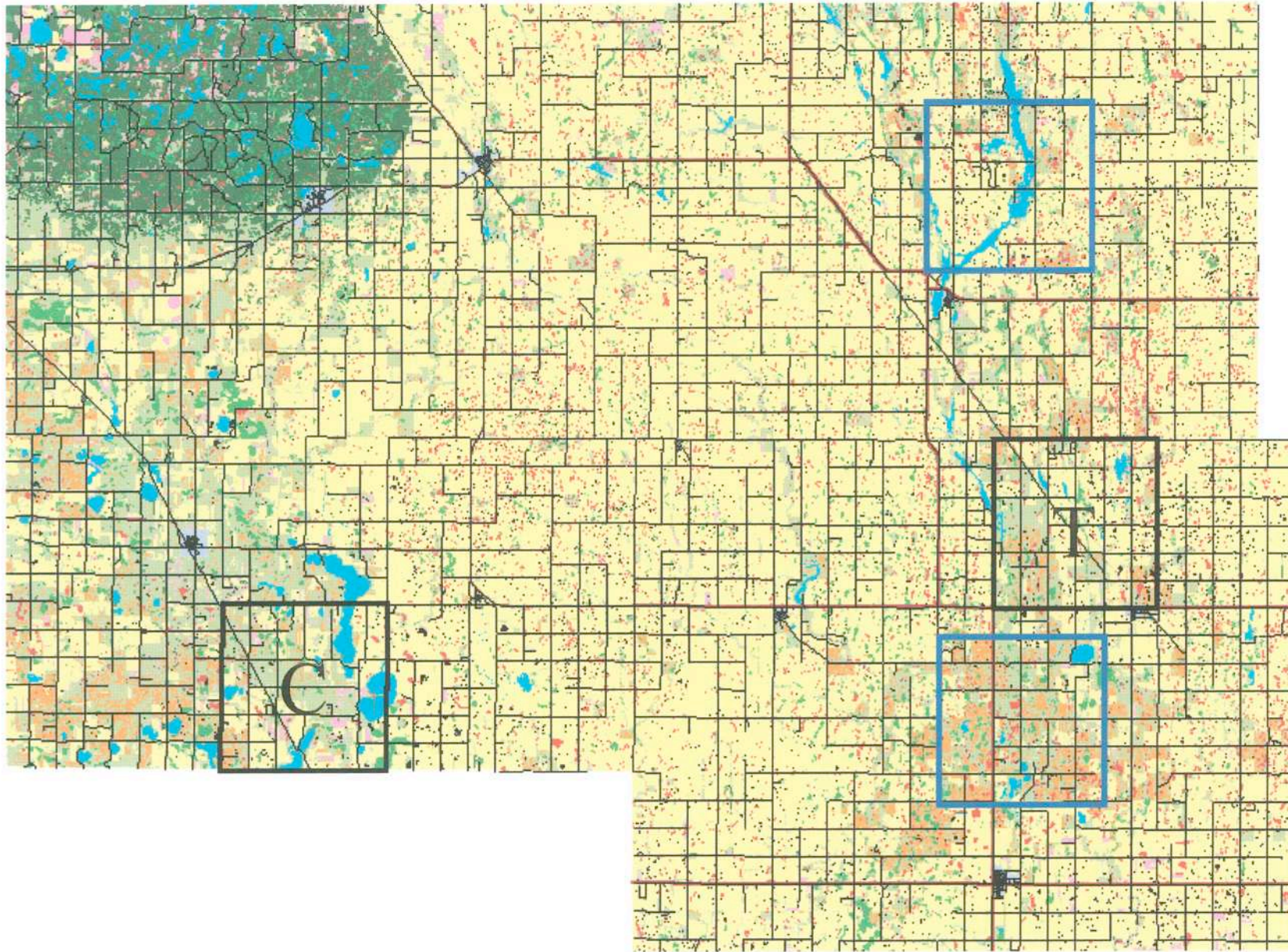
Mountrail County Control Site – 2003

*Large red blocks denote the location of nest searching efforts.

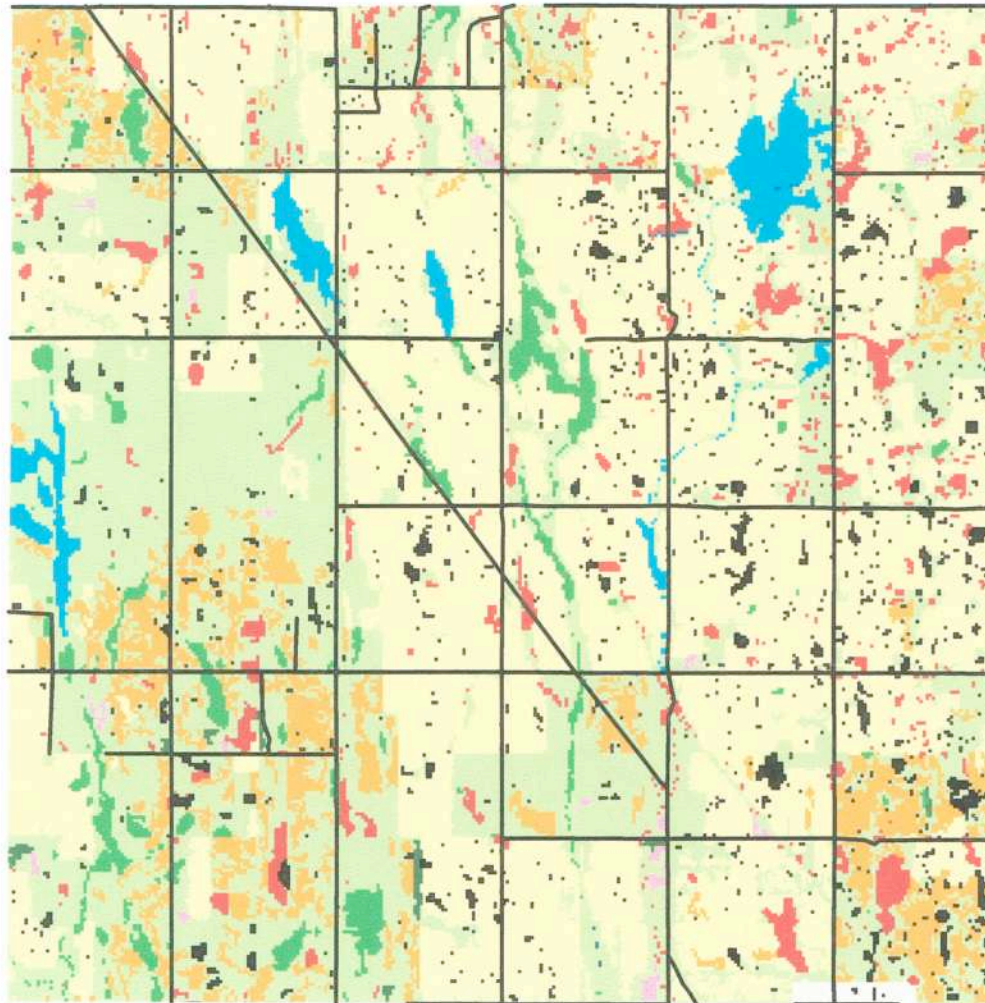


Towner County Trap and Control Sites – 2003

*Blue outlines denote additional trapped areas.



Towner County Trap Site - 2003



roads

- Other Water
- Native Grassland/Pasture
- Undisturbed Cover/CRP
- Alfalfa Hayland
- Cropland
- Forested
- Urban
- Temporary Wetland
- Seasonal Wetland
- Semipermanent Wetland
- Lake
- River



Towner County Control Site - 2003



-  roads
-  Other Wetland
-  Native Grassland/Pasture
-  Undisturbed Grassland/CRP
-  Alfalfa Hayland
-  Cropland
-  Forest
-  Temporary Wetland
-  Seasonal Wetland
-  Semipermanent Wetland
-  Lake
-  Other Grassland

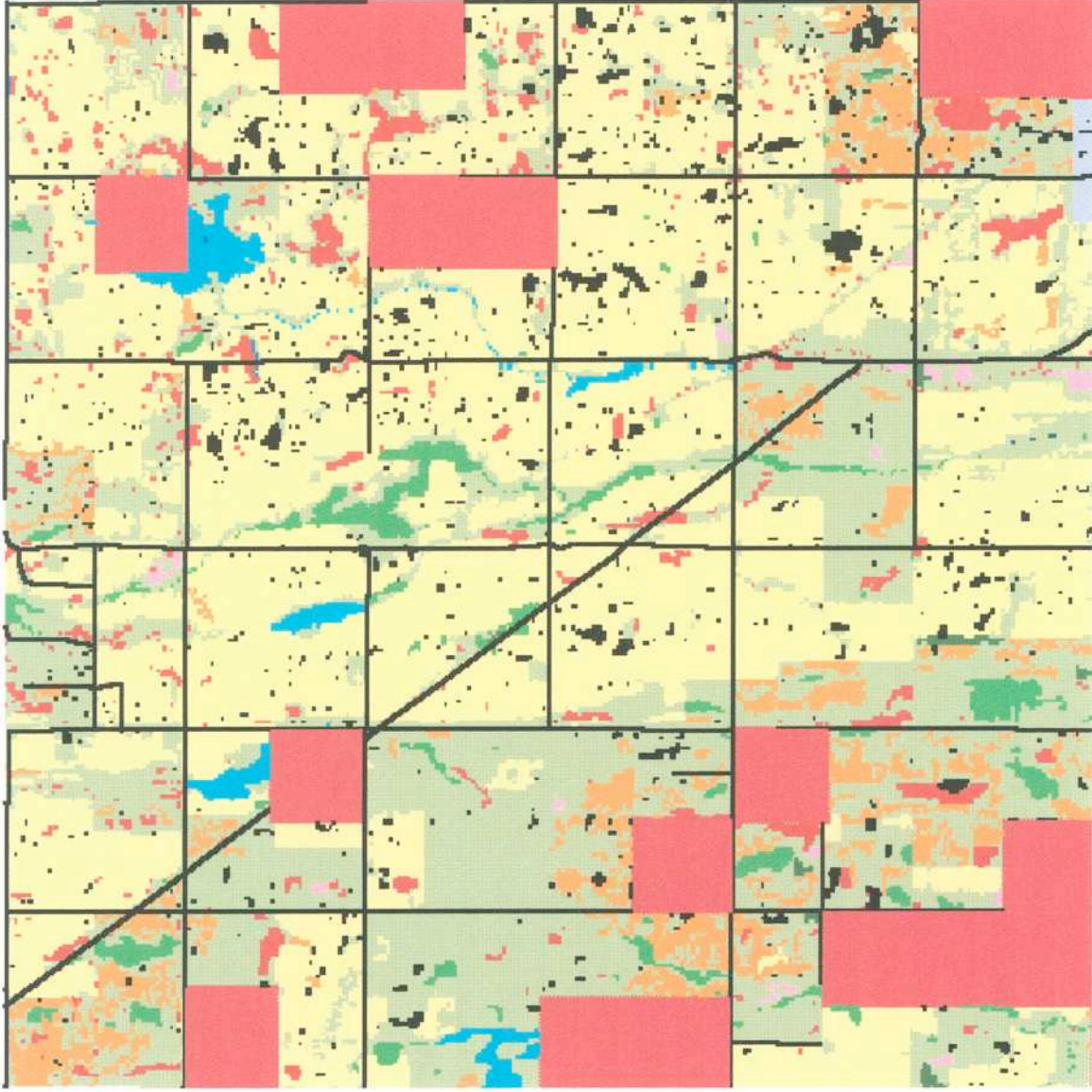


Towner County Land Use Summary (in acres):

	Trap	Control	% difference
Other Water	4.4	6.4	31.3
Native Grassland/Pasture	7969.6	9378.3	15.0
Undisturbed Grassland/CRP	1702.9	1278.1	-33.2
Alfalfa Hayland	76.6	891.6	91.4
Cropland	10454.1	7523.9	-38.9
Forest	43.5	178.2	75.6
Urban	63.8	0	-
Barren	0	0	-
Temporary Wetland	684.1	337.2	-102.9
Seasonal Wetland	798.2	443.1	-80.1
Semipermanent Wetland	602.7	703.2	14.3
Lake	446.2	2273.3	80.4
River	1.1	0	-
Other Grassland	0	4.9	-

Towner County Trap Site – 2003

*Large red blocks denote the location of nest searching efforts.



Towner County Control Site – 2003

*Large red blocks denote the location of nest searching efforts.

