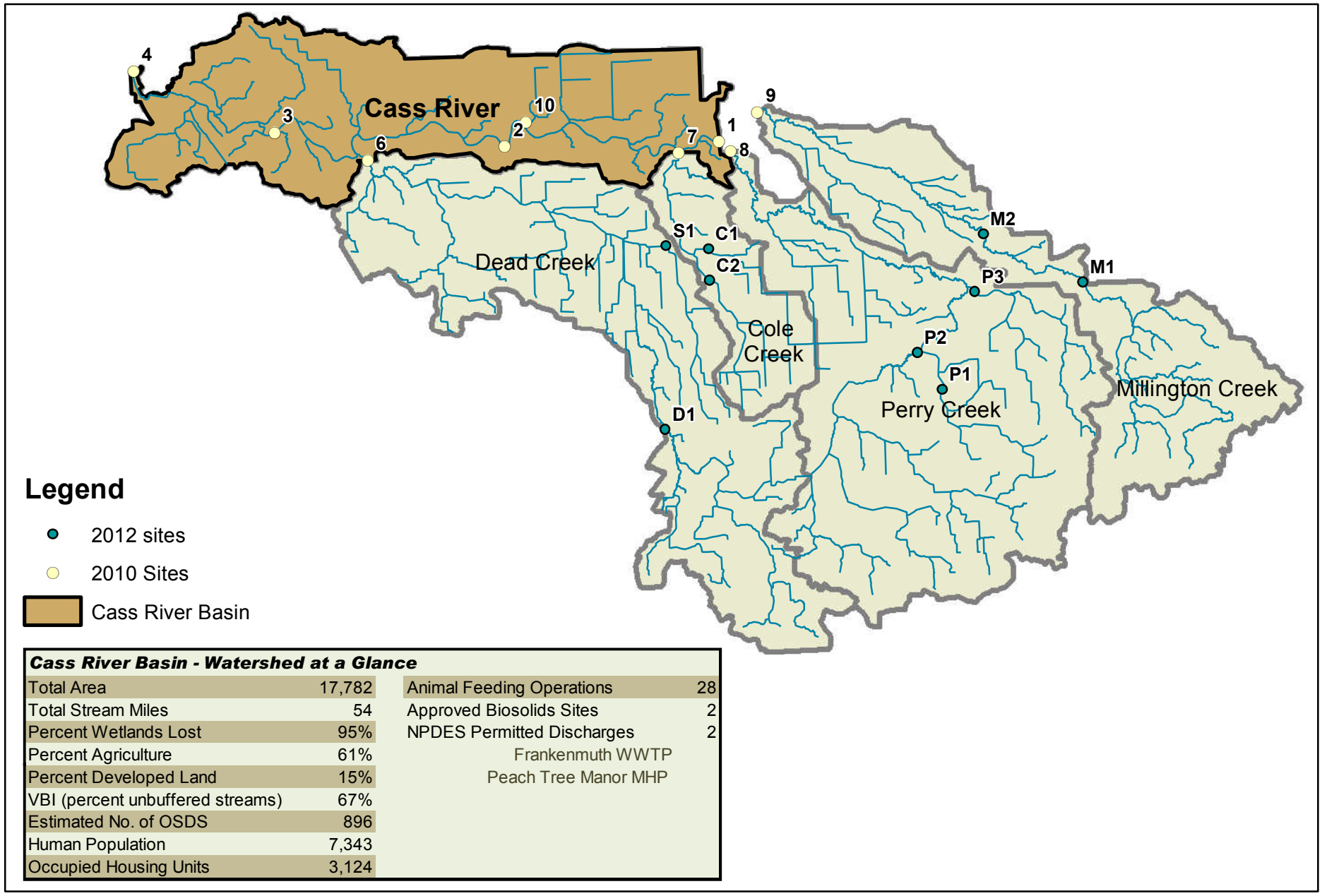


Cass River Basin - Watershed at a Glance			
Total Area	17,782	Animal Feeding Operations	28
Total Stream Miles	54	Approved Biosolids Sites	2
Percent Wetlands Lost	95%	NPDES Permitted Discharges	2
Percent Agriculture	61%	Frankenmuth WWTP	
Percent Developed Land	15%	Peach Tree Manor MHP	
VBI (percent unbuffered streams)	67%		
Estimated No. of OSDS	896		
Human Population	7,343		
Occupied Housing Units	3,124		

Figure A. The location of the Cass River basin within the watershed and demographics relevant to source assessment.

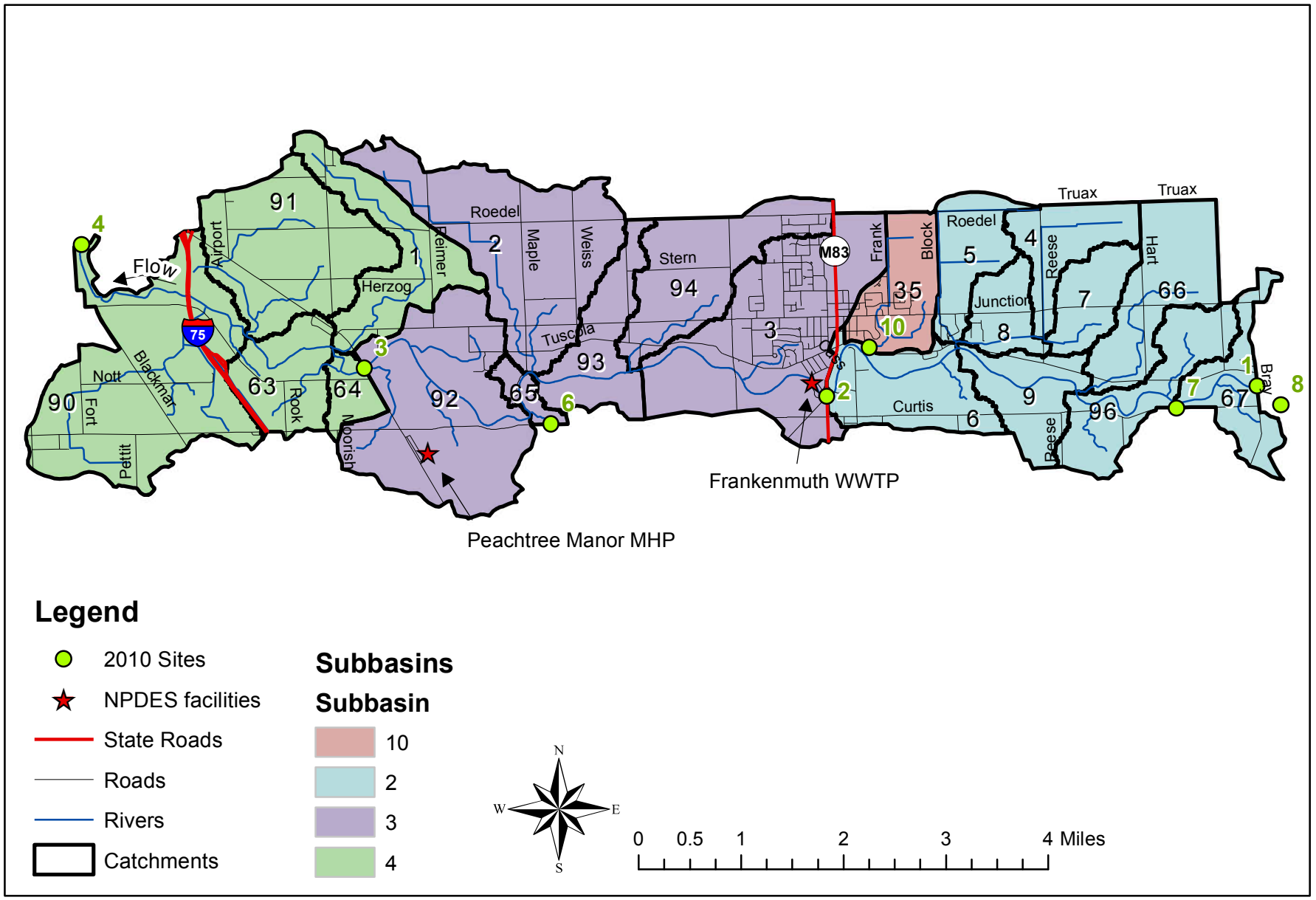


Figure B. Locations of sites, subbasins, catchments, and NPDES facilities within the basin.

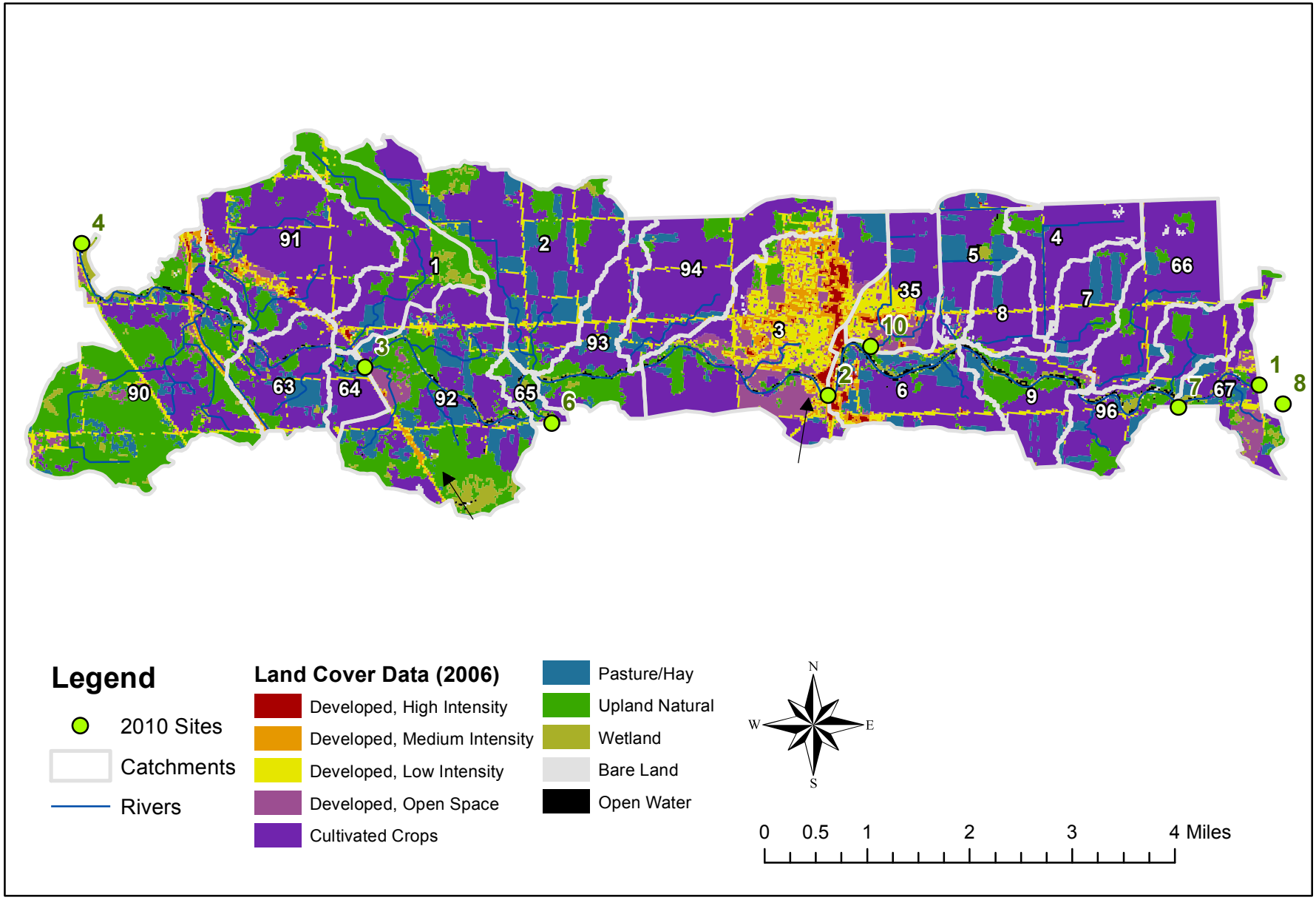


Figure C. 2006-era landcover data (NOAA, 2008), sampling sites, and catchments within the basin.

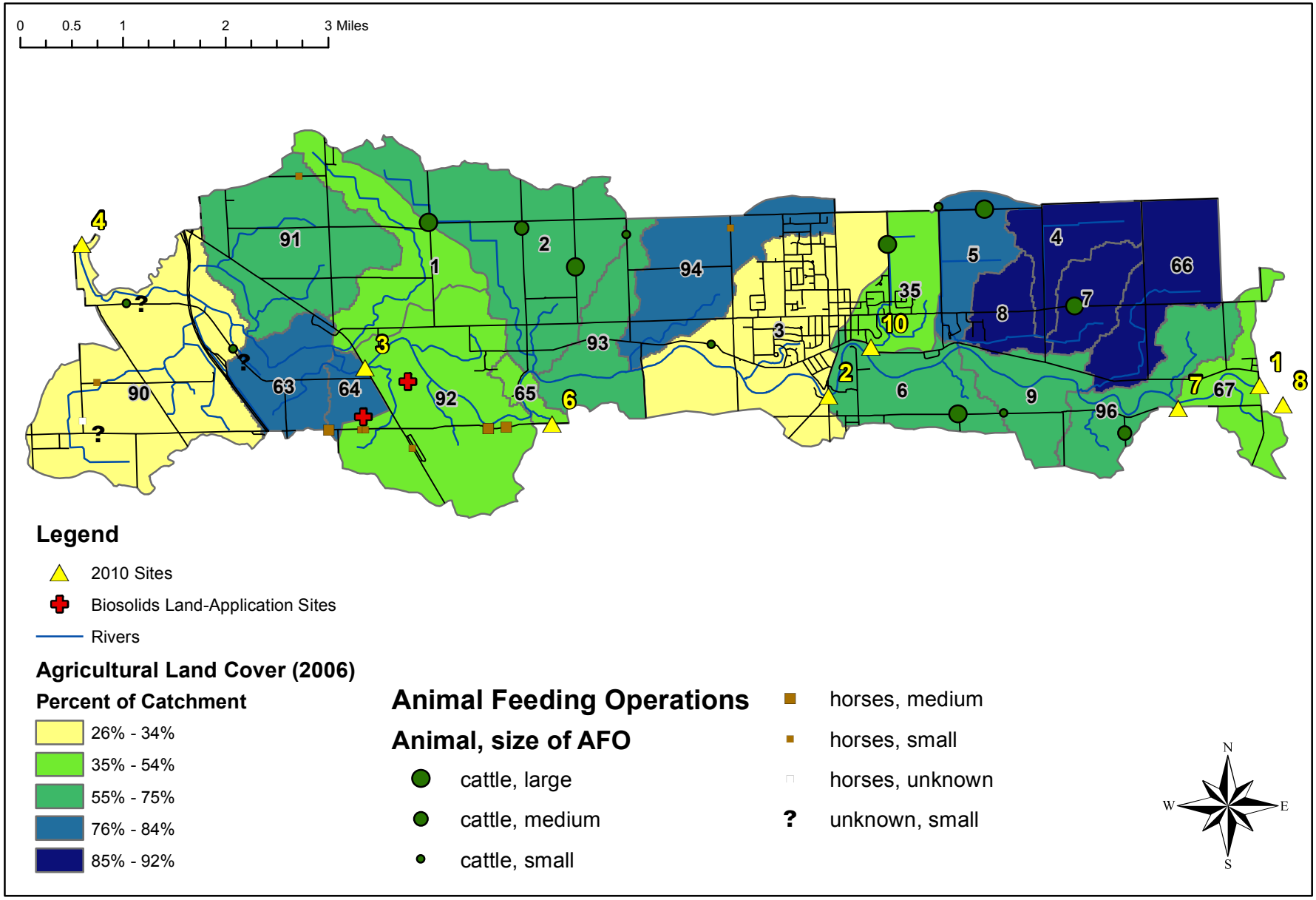


Figure D. Agricultural land cover per catchment area, animal feeding operations (AFOs), and biosolids land-application sites in relation to sampling sites.

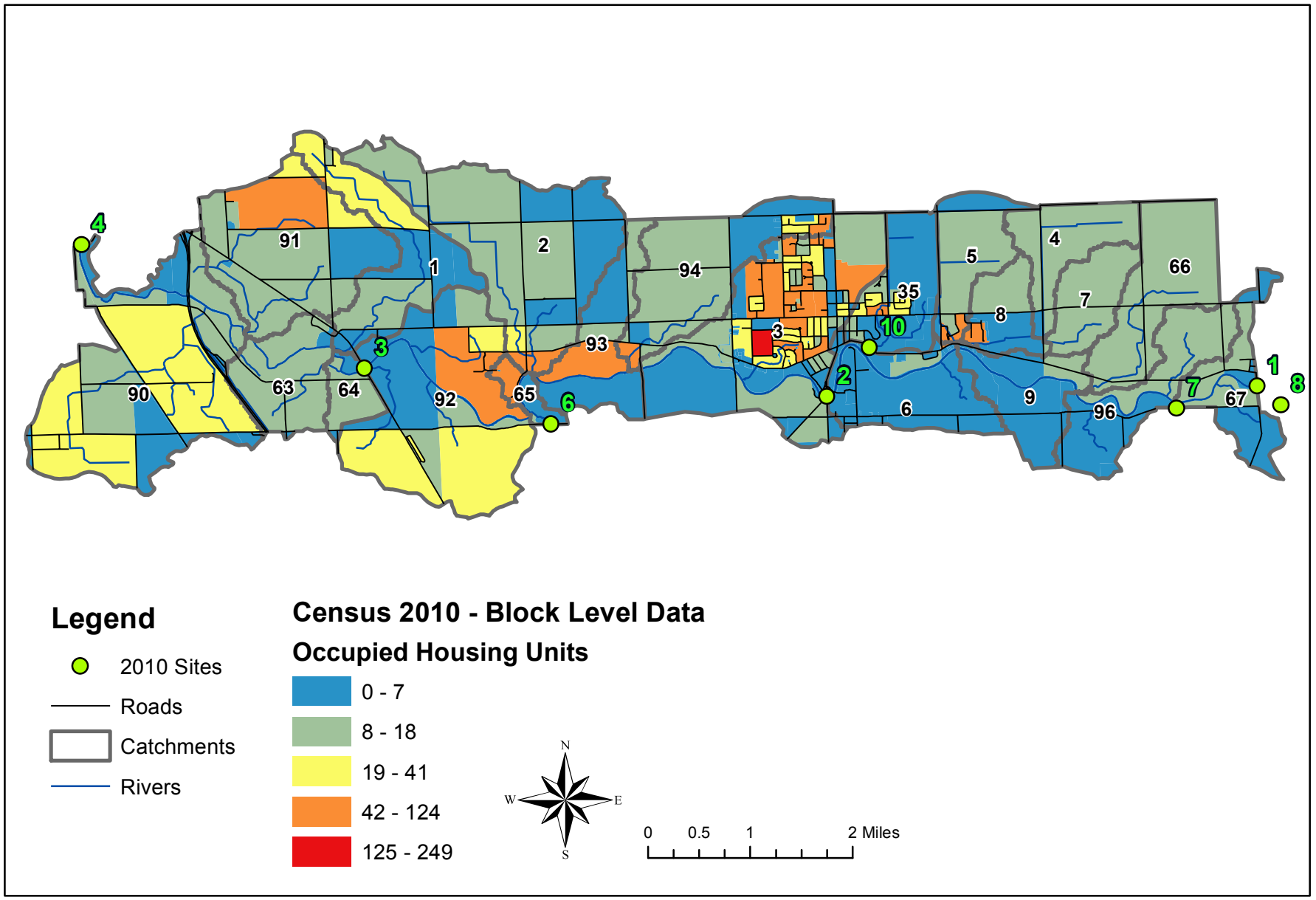


Figure E. Occupied housing units (OHUs) from block level 2010 U.S. Census data, sampling sites, and catchment boundaries.

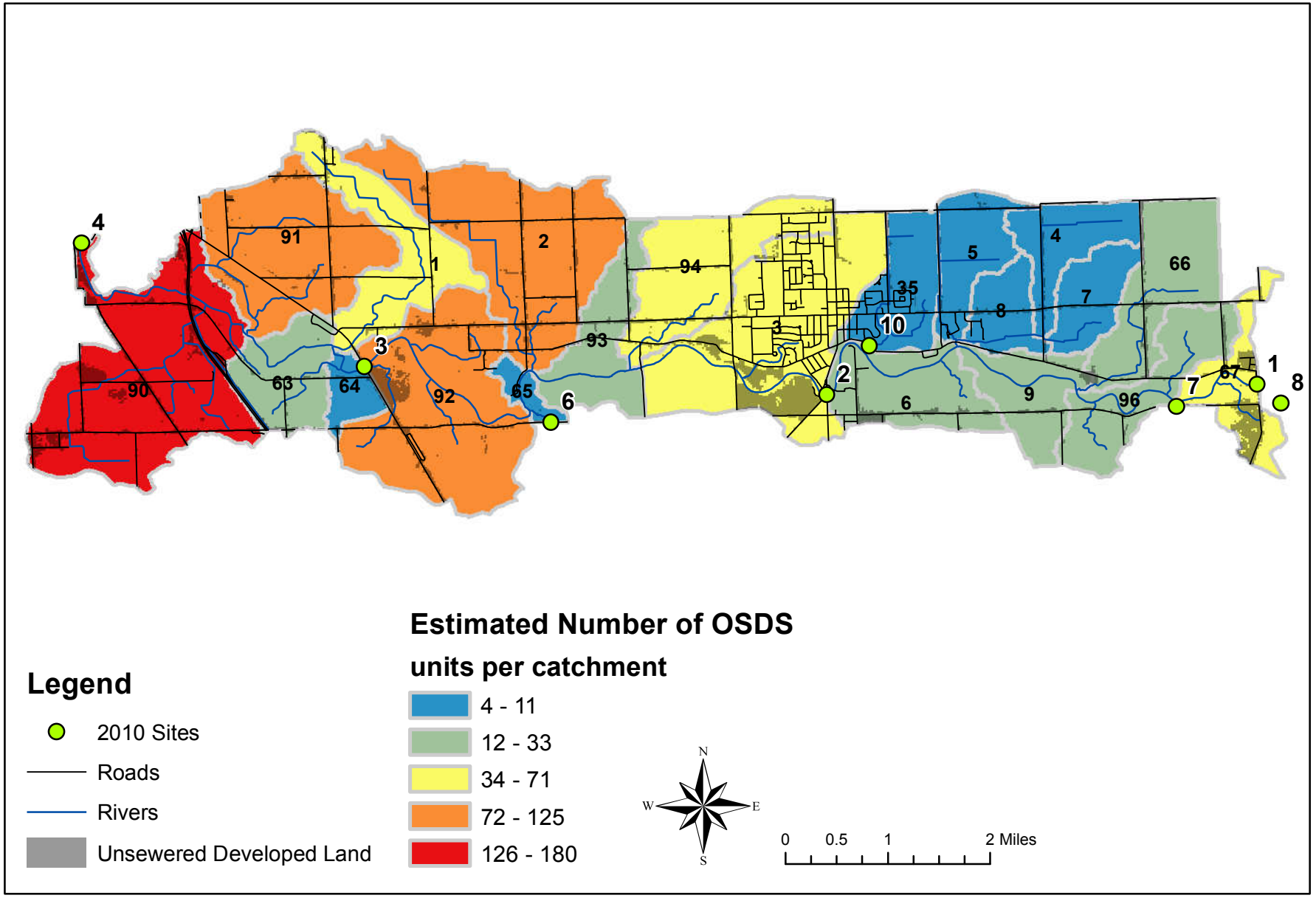


Figure F. Estimated number of OSDS units per catchment and developed land cover that is not served by sanitary sewer sytems.

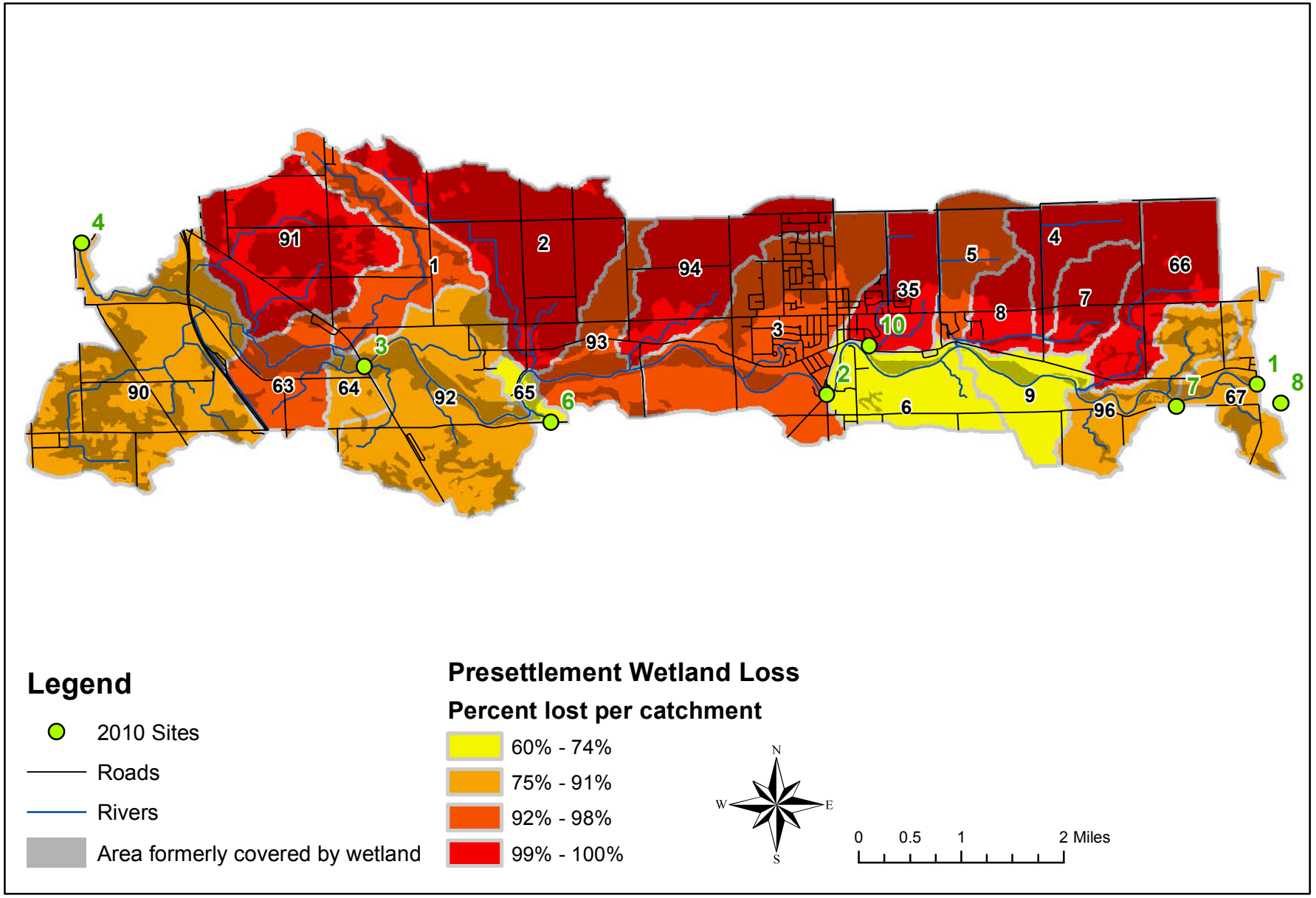
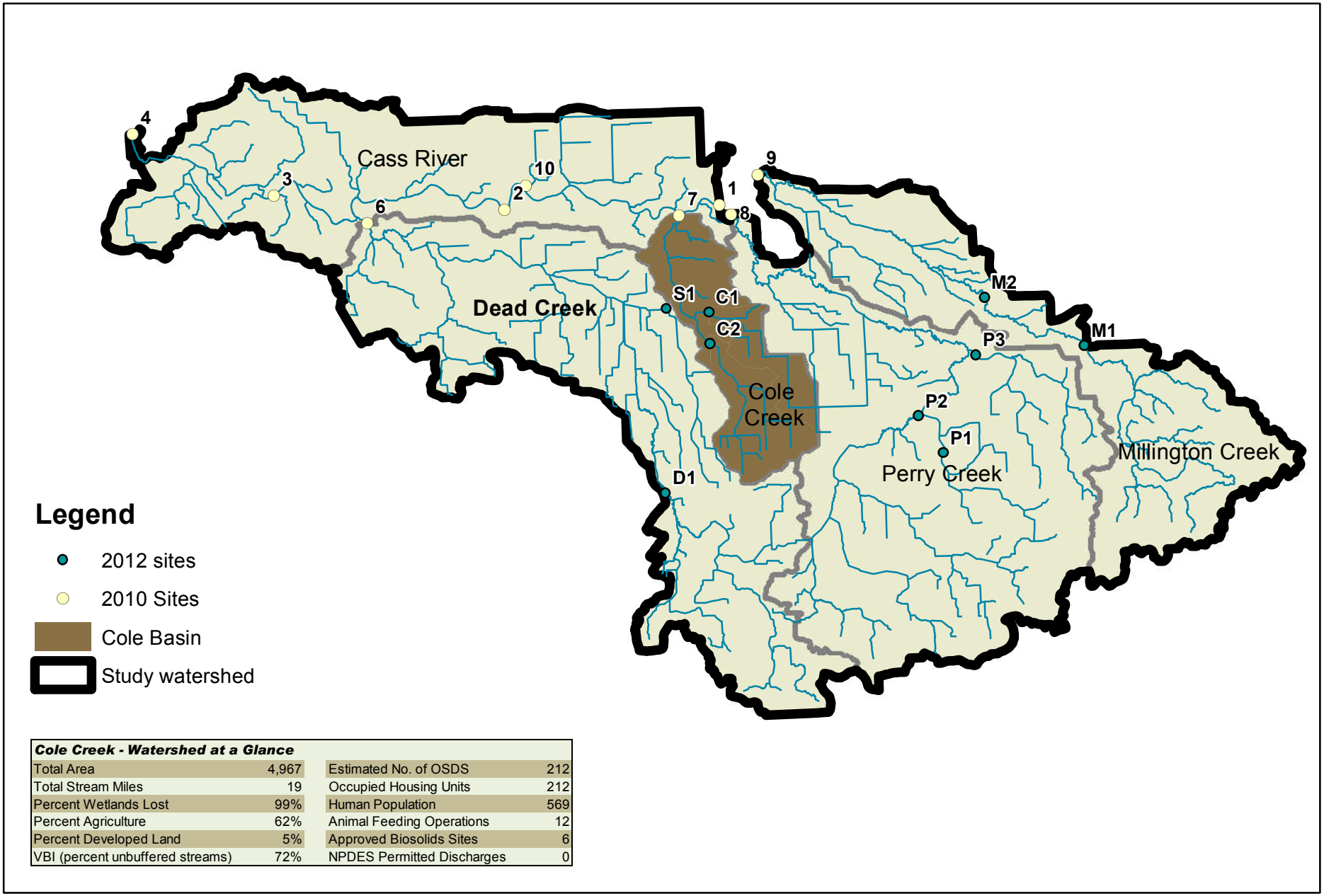


Figure G. Percent of presettlement wetland area lost per catchment and the area formerly covered by these lost wetlands.



Cole Creek - Watershed at a Glance			
Total Area	4,967	Estimated No. of OSDS	212
Total Stream Miles	19	Occupied Housing Units	212
Percent Wetlands Lost	99%	Human Population	569
Percent Agriculture	62%	Animal Feeding Operations	12
Percent Developed Land	5%	Approved Biosolids Sites	6
VBI (percent unbuffered streams)	72%	NPDES Permitted Discharges	0

Figure A. The location of the Cole Creek basin within the study watershed and demographics relevant to source assessment.

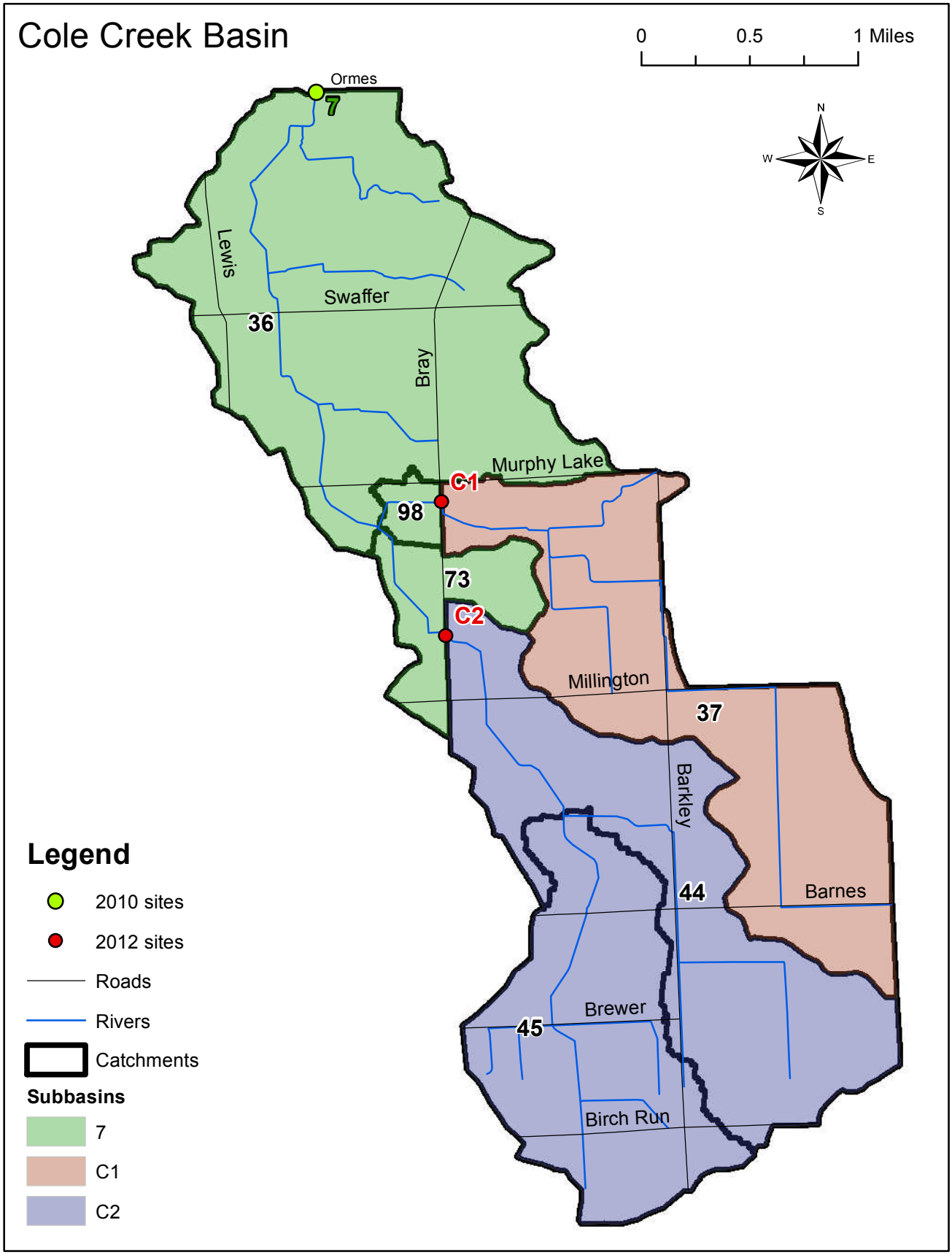


Figure B. Locations of sites, subbasins, and catchments within the basin.

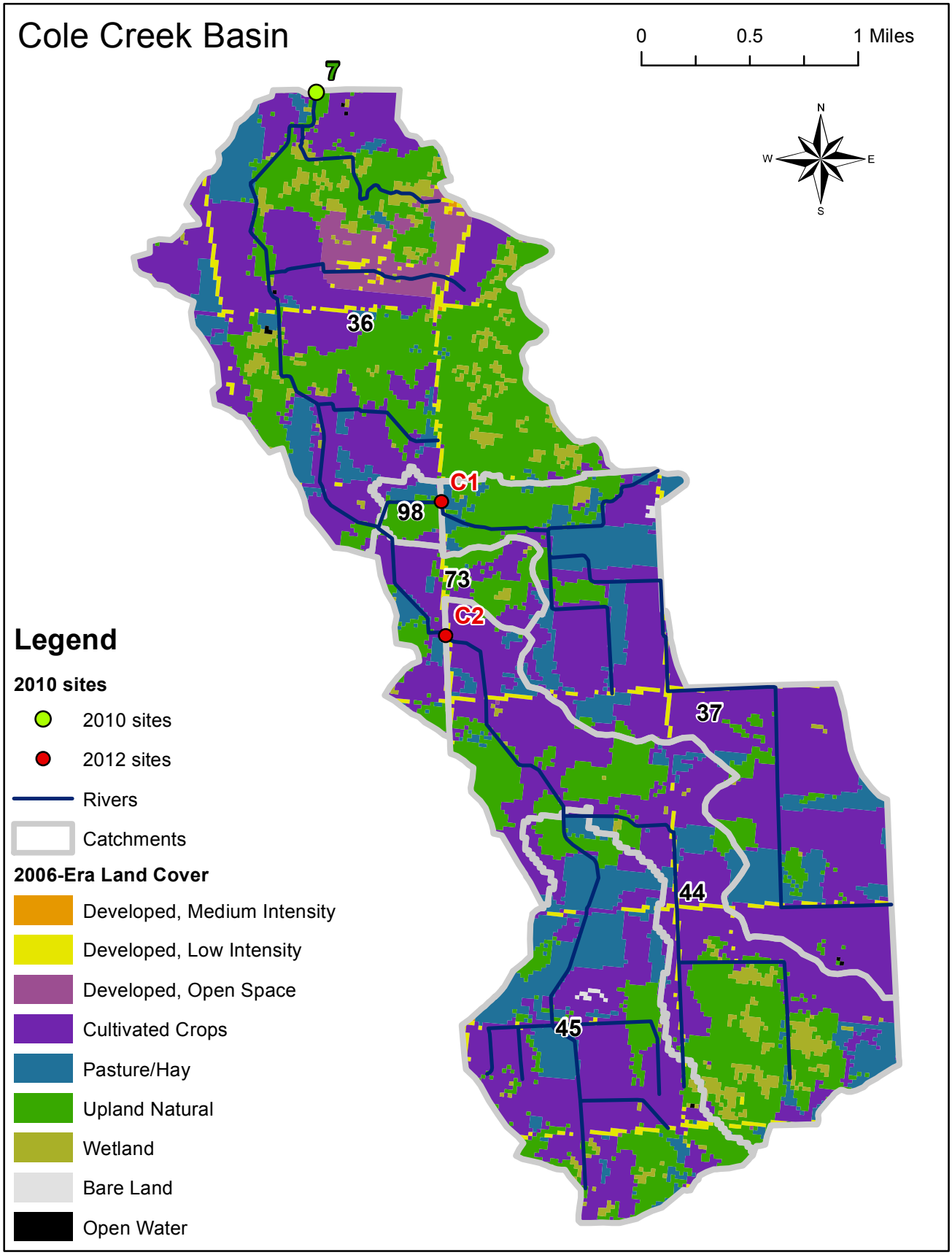


Figure C. 2006-era landcover data (NOAA, 2008), sampling sites, and catchments within the basin.

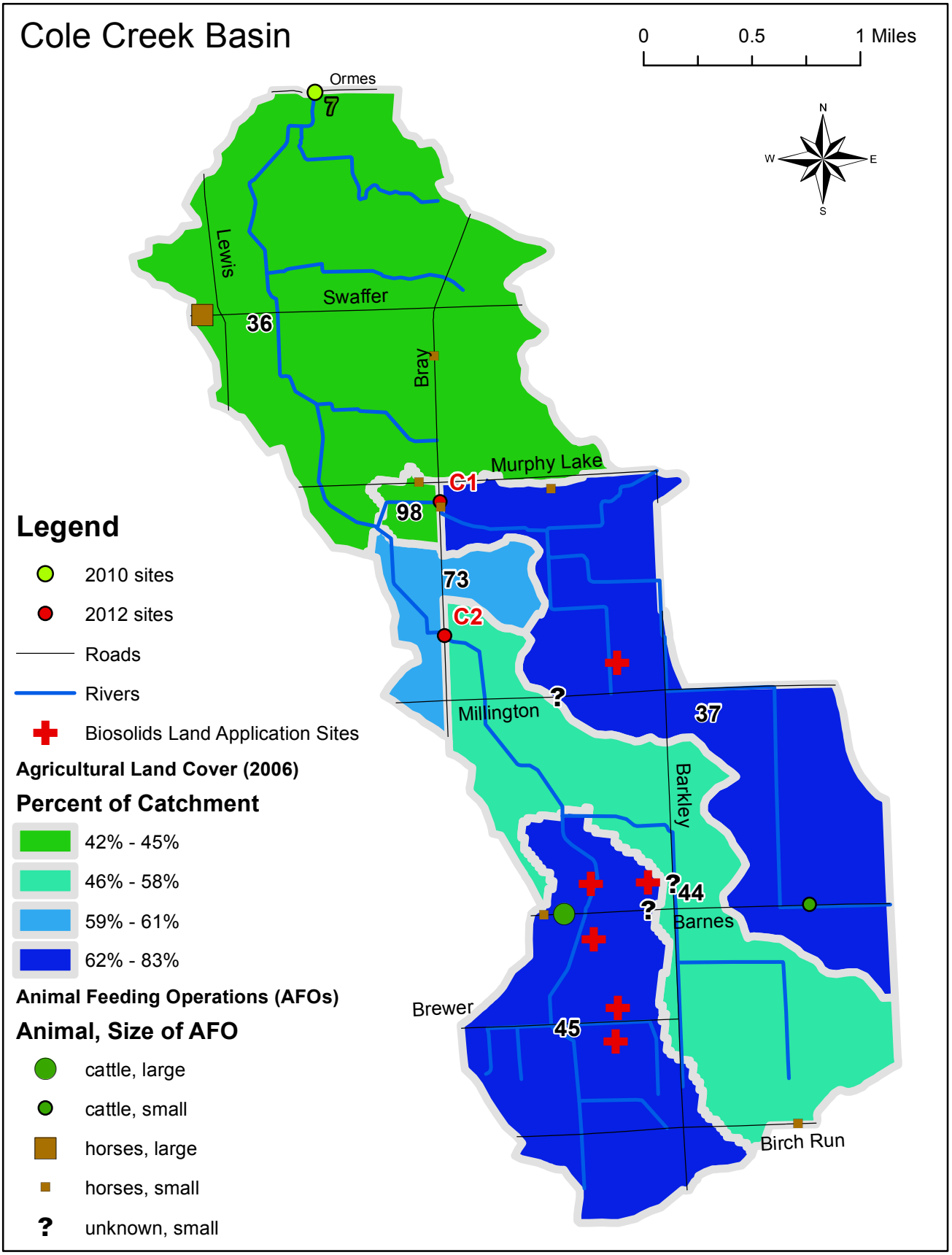


Figure D. Agricultural land cover per catchment area, animal feeding operations (AFOs), and biosolids land-application sites in relation to sampling sites.

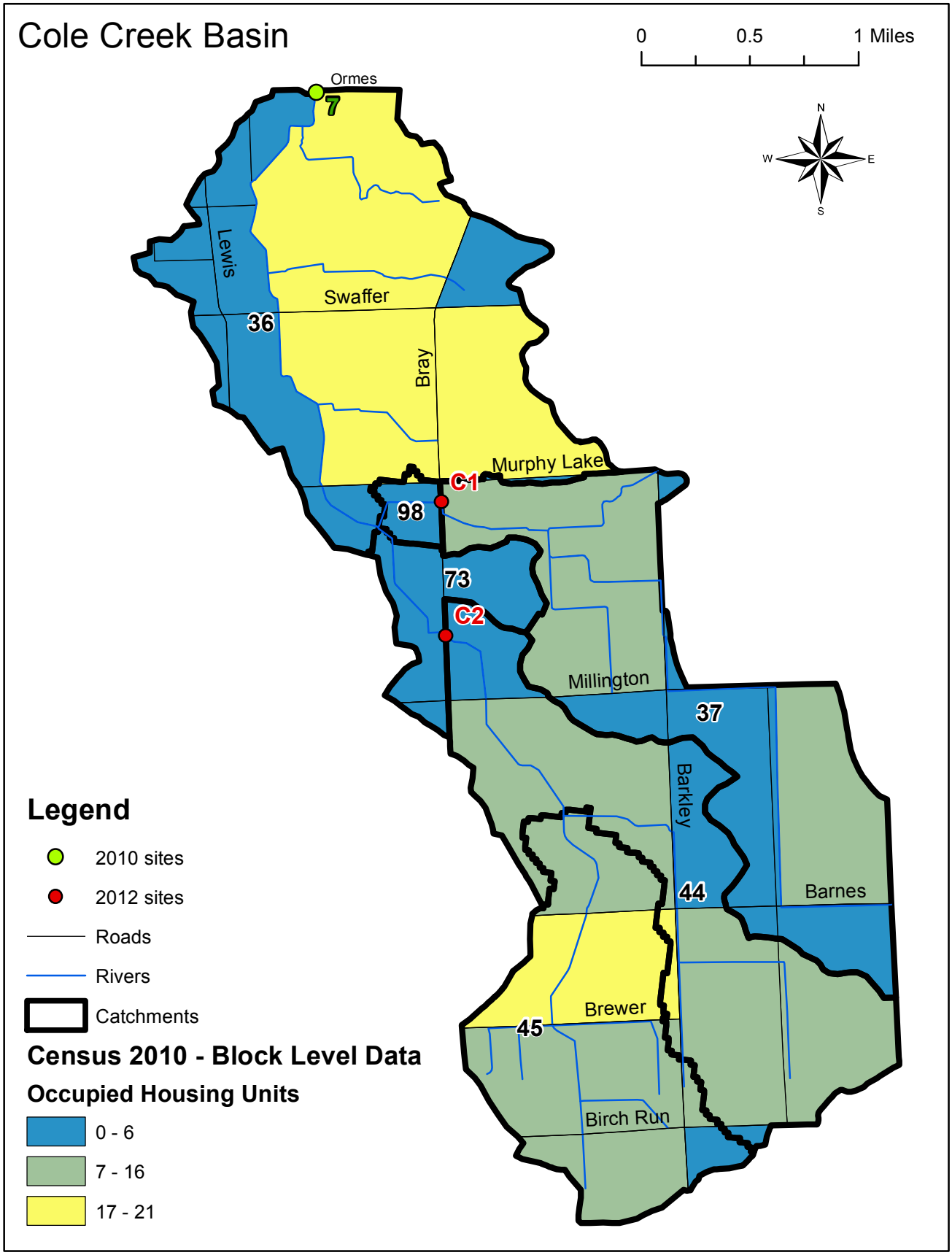


Figure E. Occupied housing units (OHUs) from block level 2010 U.S. Census data, sampling sites, and subbasin boundaries.

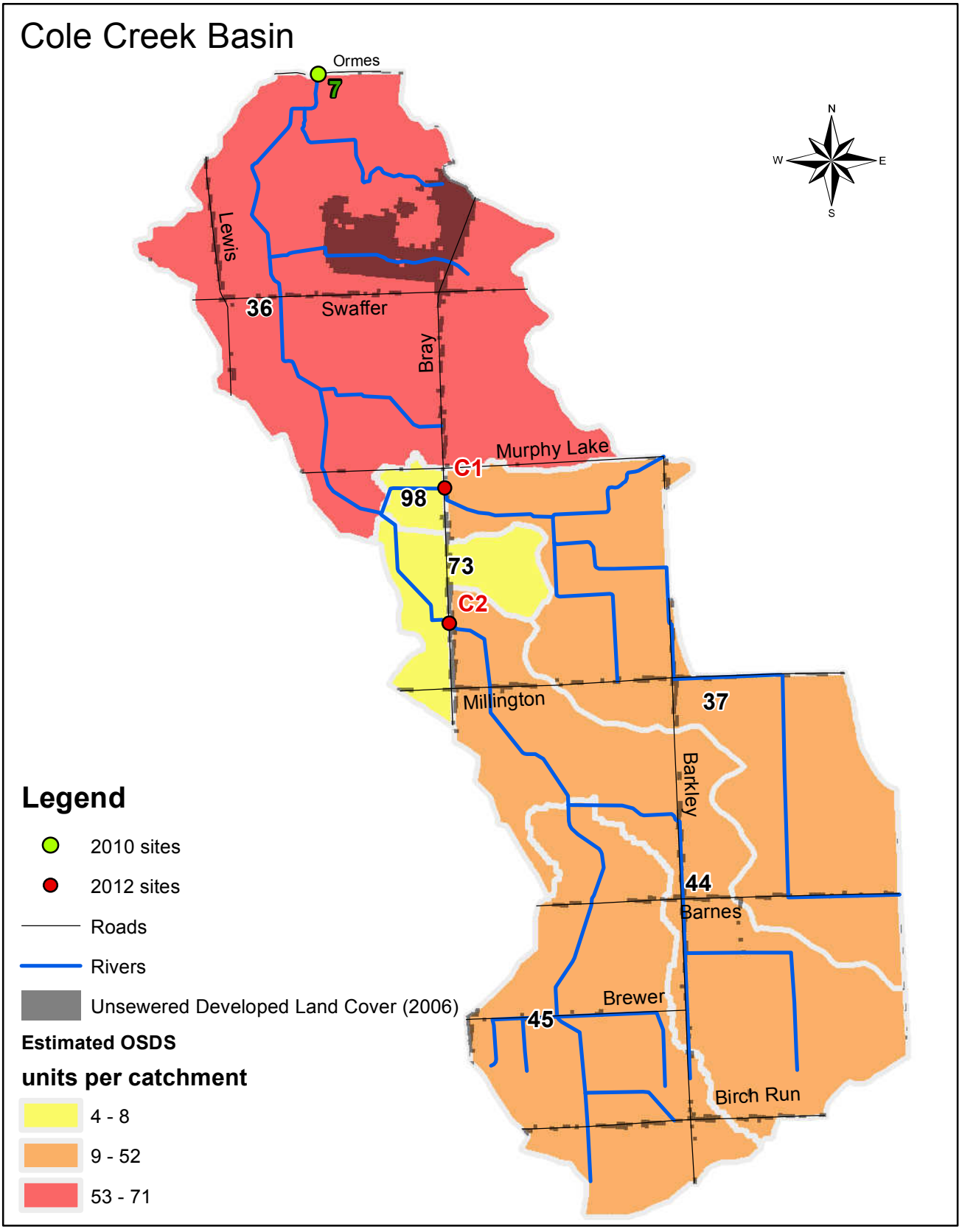


Figure F. Estimated number of OSDS units per catchment and developed land cover that is not served by sanitary sewer sytems.

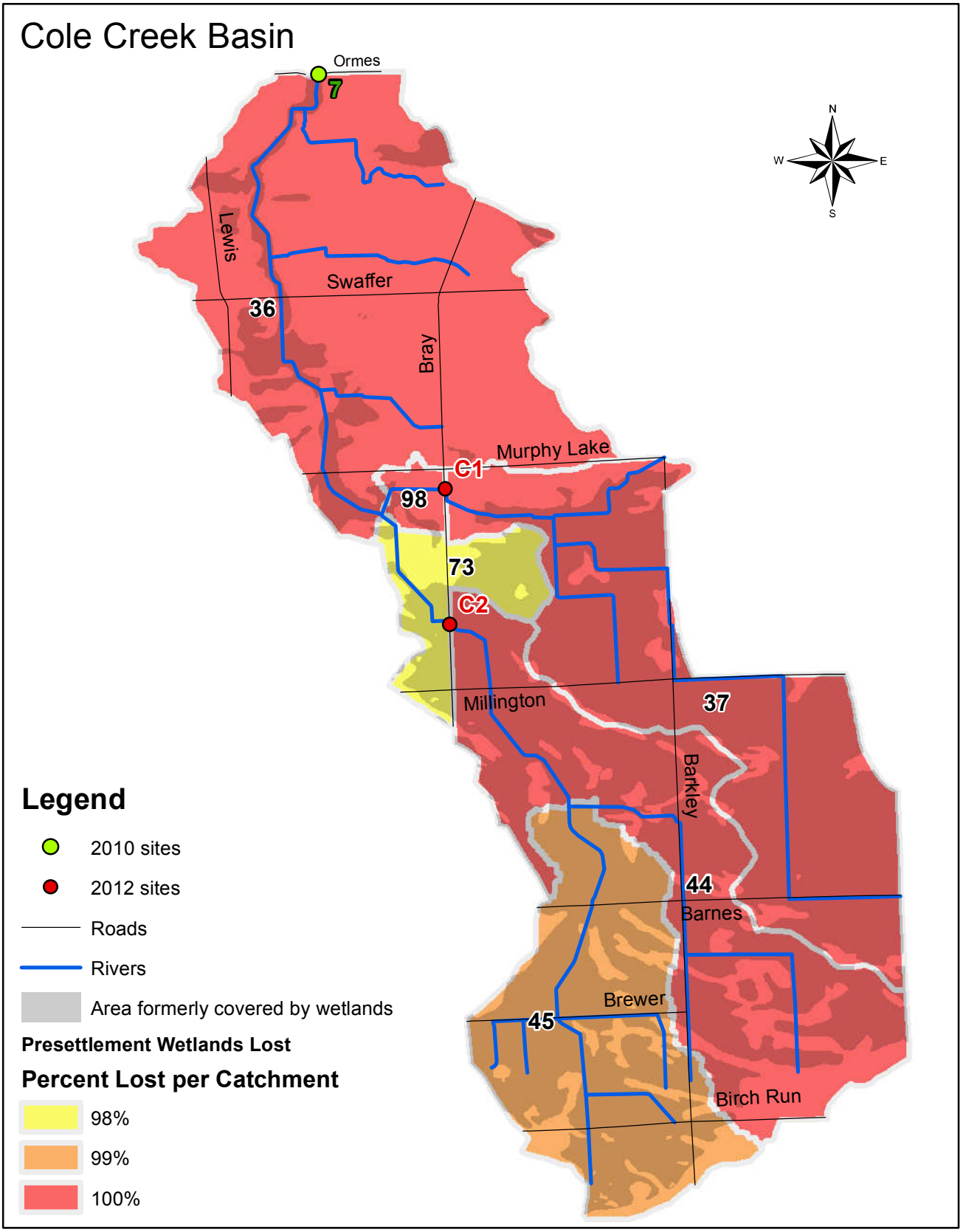
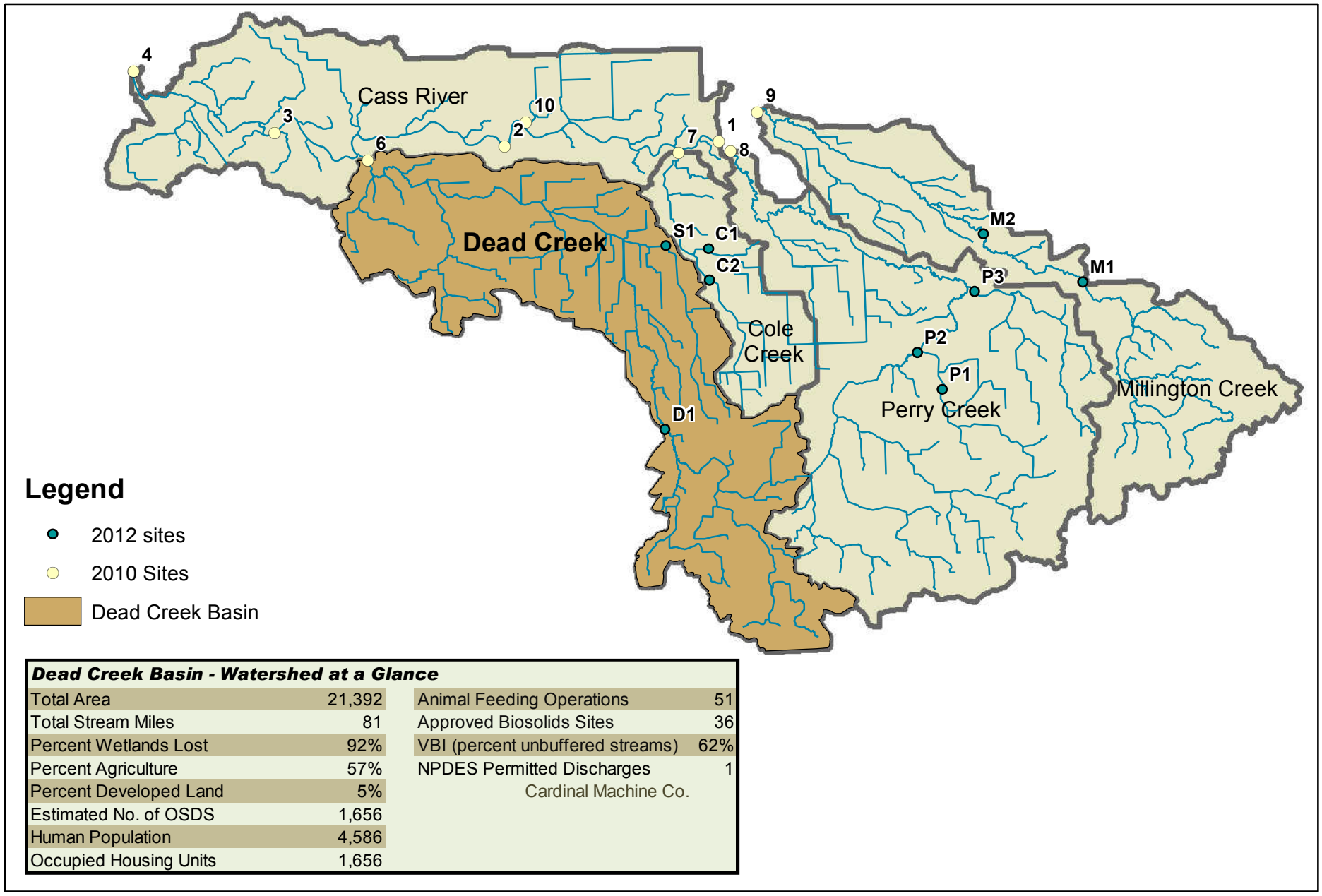


Figure G. Percent of presettlement wetland area lost per catchment and the area formerly covered by these lost wetlands.



Dead Creek Basin - Watershed at a Glance			
Total Area	21,392	Animal Feeding Operations	51
Total Stream Miles	81	Approved Biosolids Sites	36
Percent Wetlands Lost	92%	VBI (percent unbuffered streams)	62%
Percent Agriculture	57%	NPDES Permitted Discharges	1
Percent Developed Land	5%	Cardinal Machine Co.	
Estimated No. of OSDS	1,656		
Human Population	4,586		
Occupied Housing Units	1,656		

Figure A. The location of the Dead Creek basin within the study watershed and demographics relevant to source assessment.

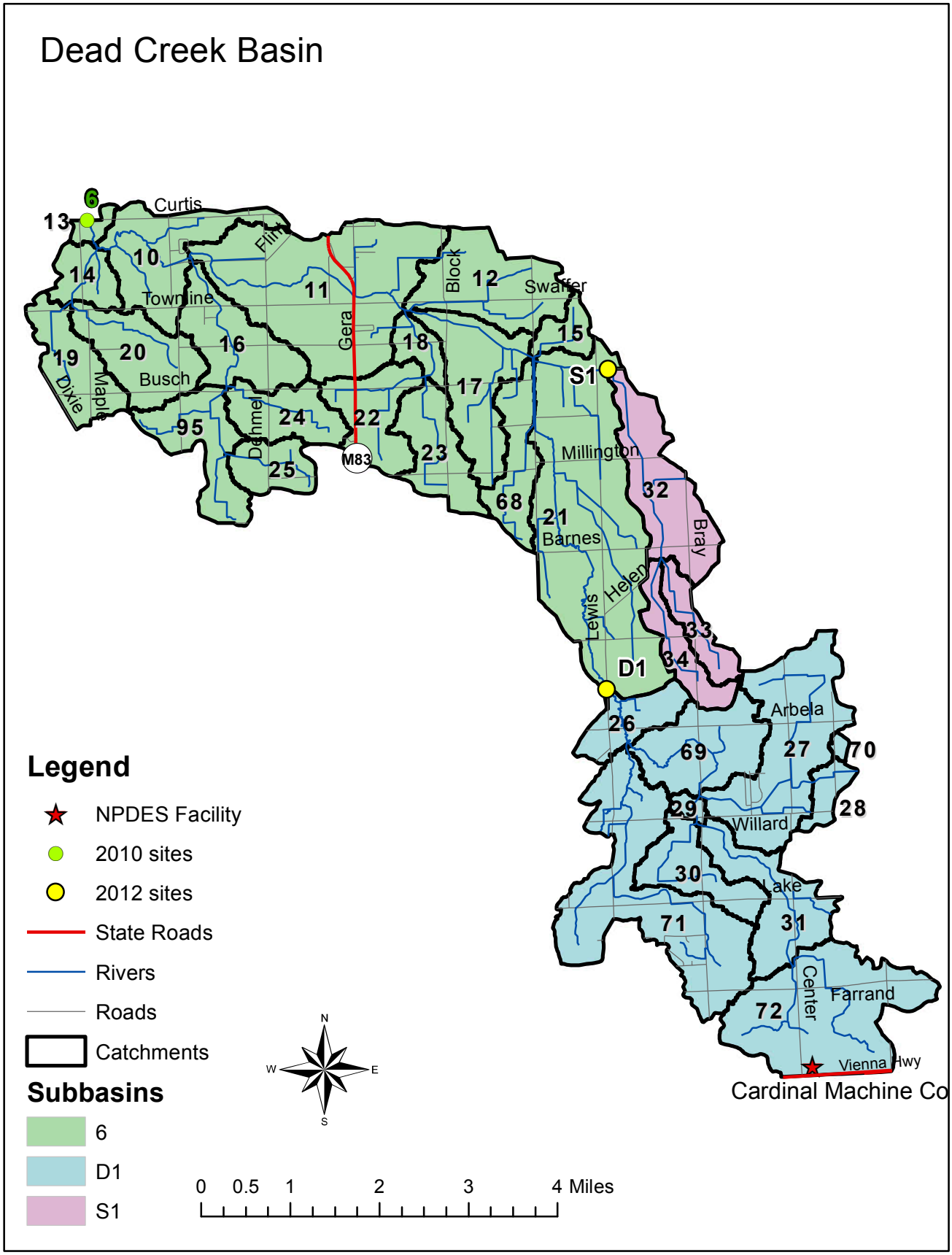


Figure B. Locations of sites, subbasins, catchments, and NPDES facilities within the basin.

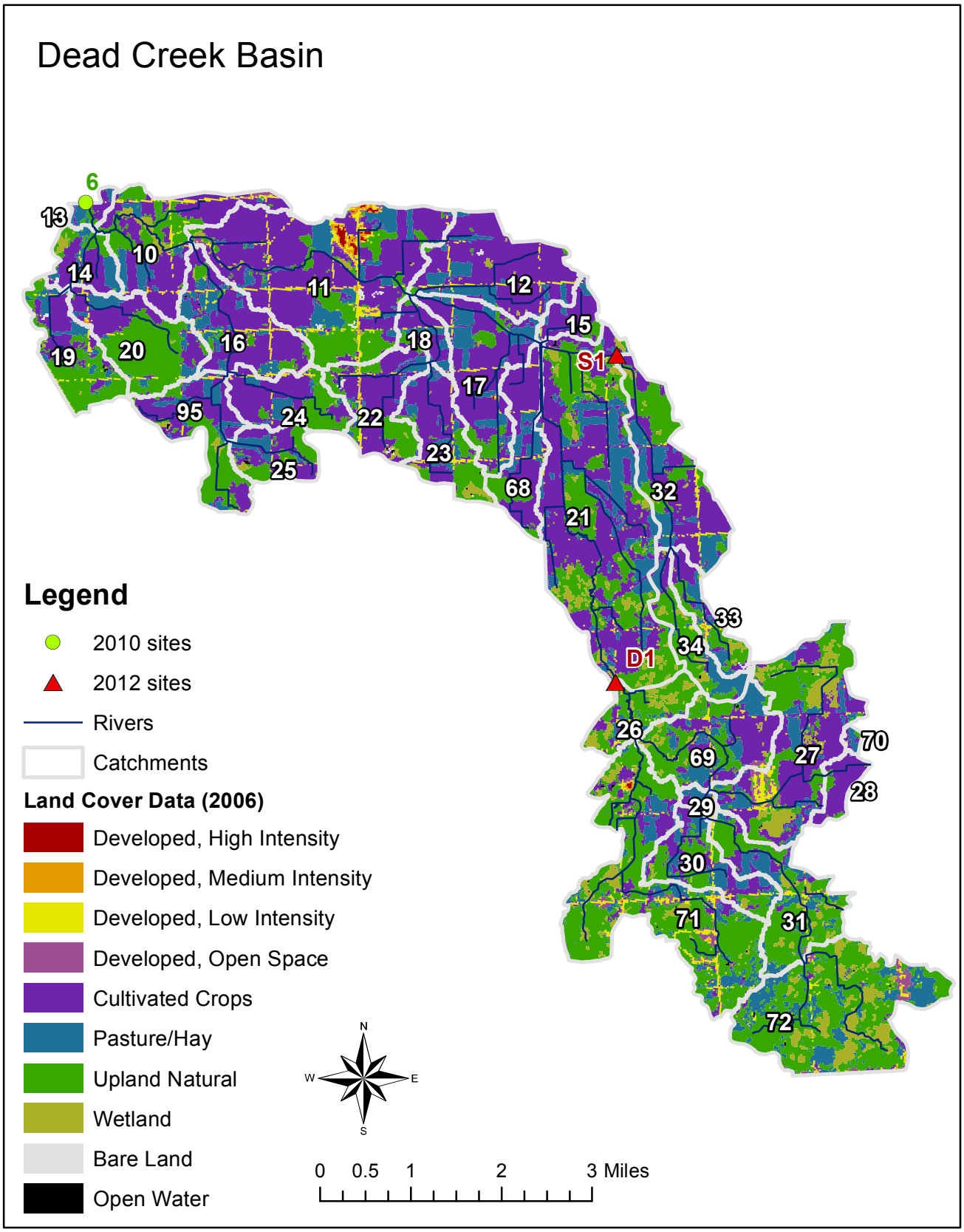


Figure C. 2006-era landcover data (NOAA, 2008), sampling sites, and catchments within the basin.

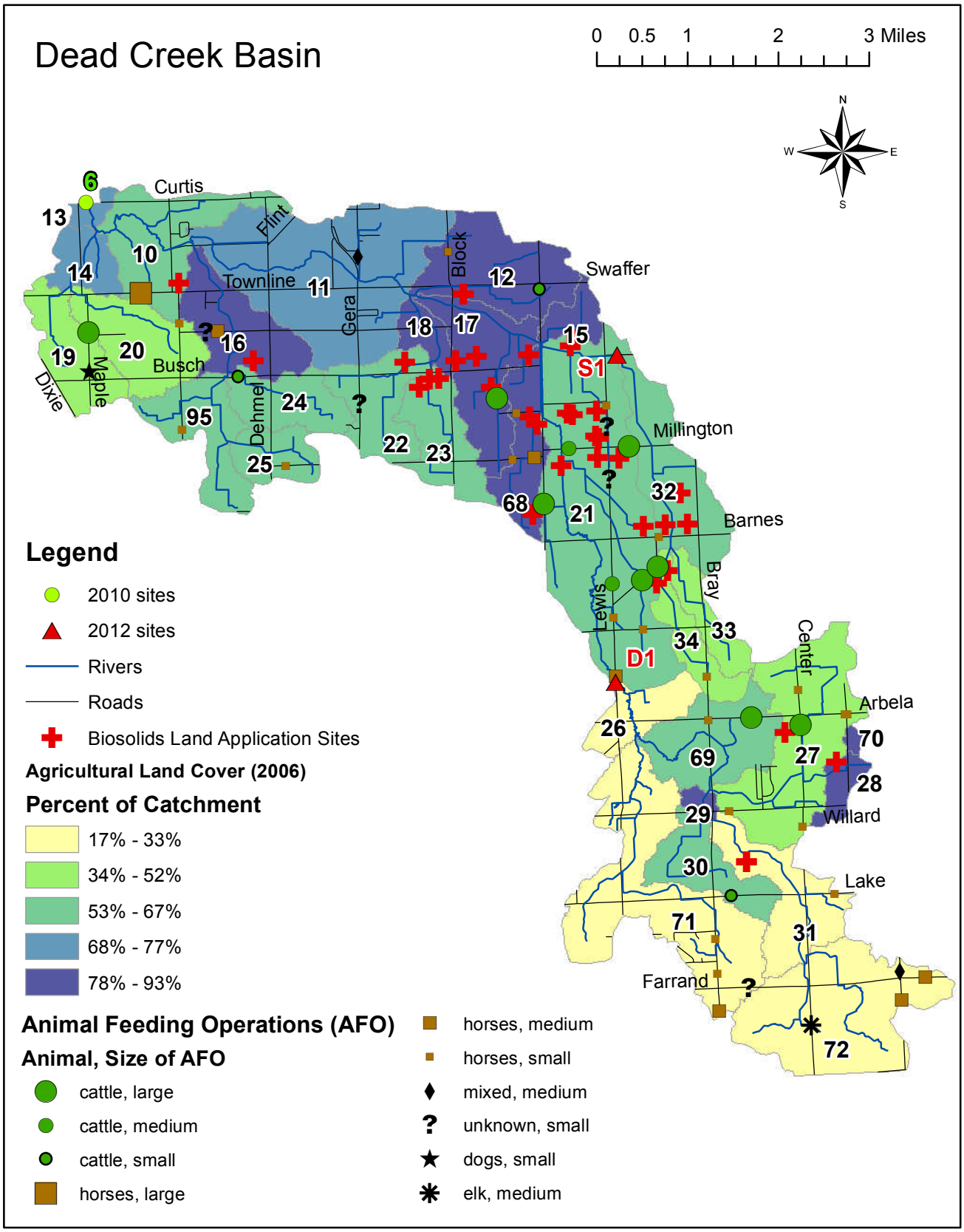


Figure D. Agricultural land cover per catchment area, animal feeding operations (AFOs), and biosolids land-application sites in relation to sampling sites.

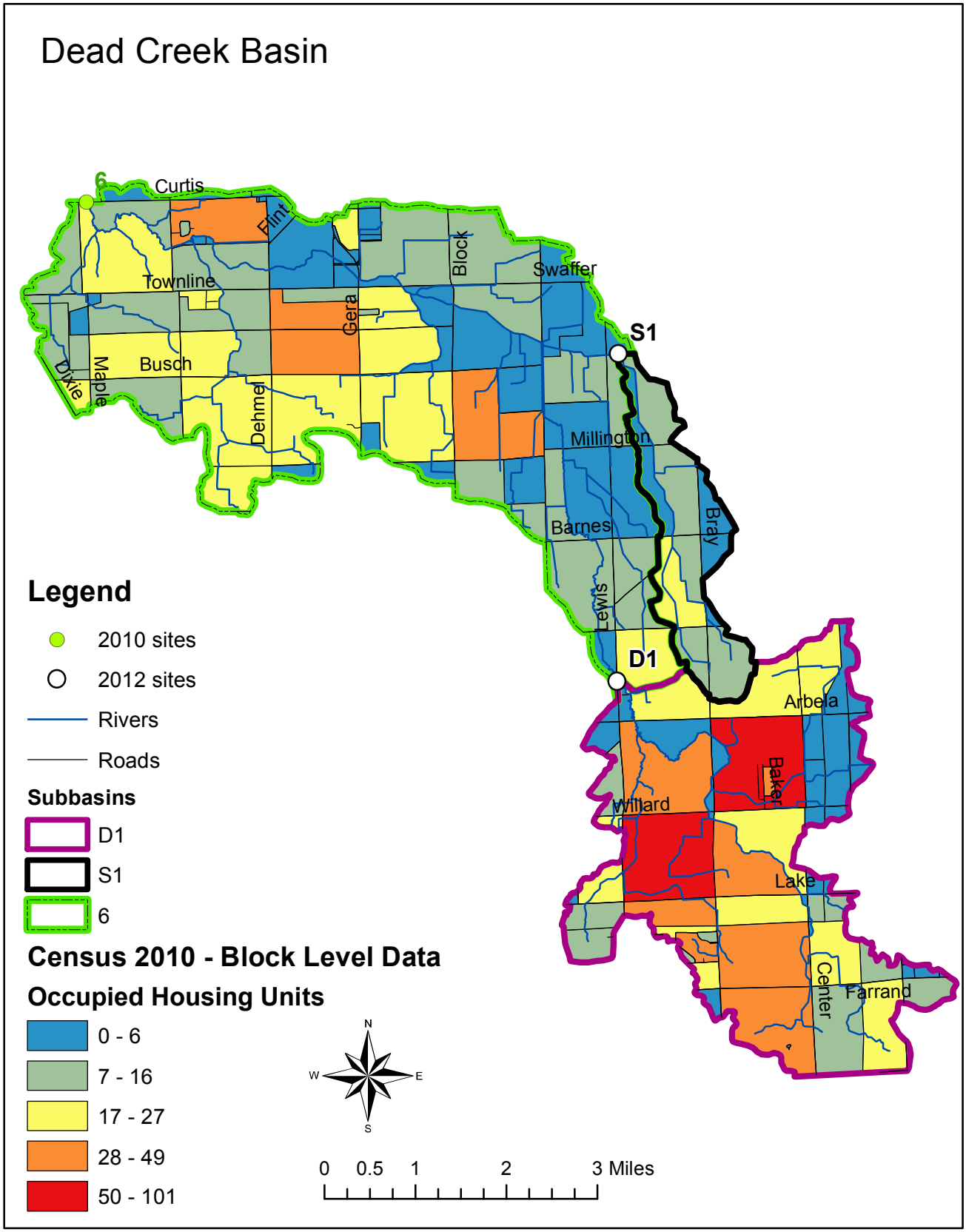


Figure E. Occupied housing units (OHUs) from block level 2010 U.S. Census data, sampling sites, and subbasin boundaries.

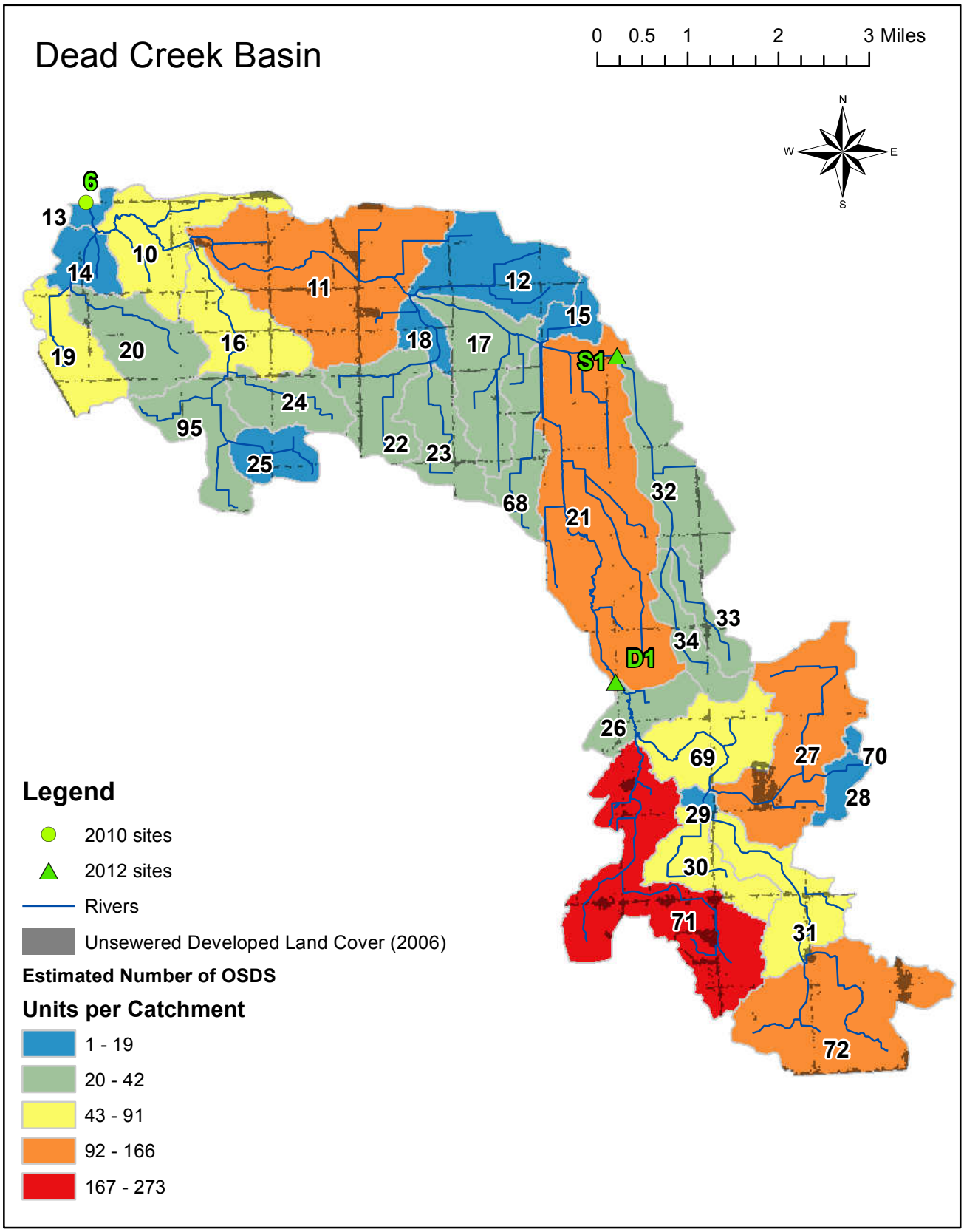


Figure F. Estimated number of OSDS units per catchment and developed land cover that is not served by sanitary sewer sytems.

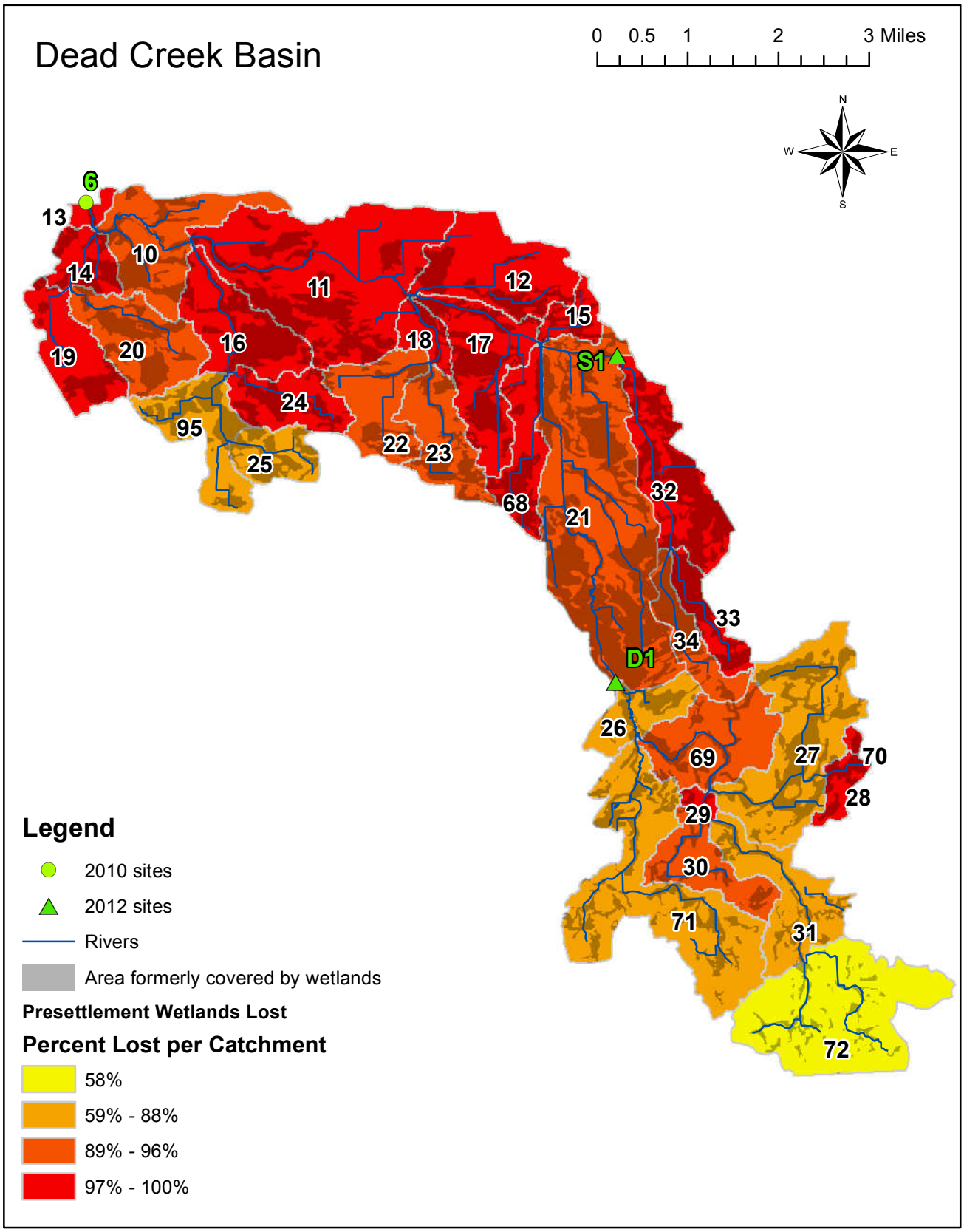
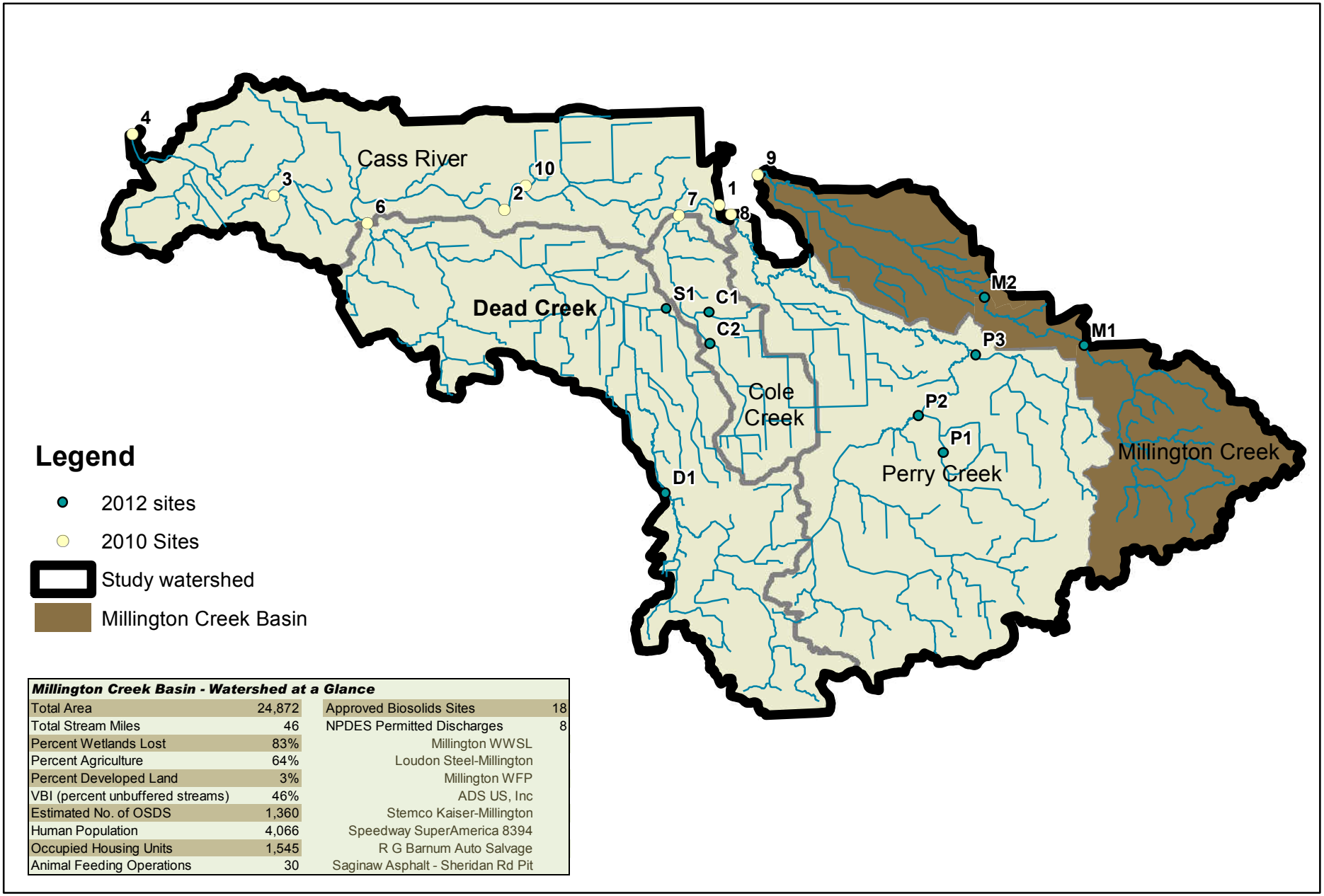


Figure G. Percent of presettlement wetland area lost per catchment and the area formerly covered by these lost wetlands.



Millington Creek Basin - Watershed at a Glance			
Total Area	24,872	Approved Biosolids Sites	18
Total Stream Miles	46	NPDES Permitted Discharges	8
Percent Wetlands Lost	83%	Millington WWSL	
Percent Agriculture	64%	Loudon Steel-Millington	
Percent Developed Land	3%	Millington WFP	
VBI (percent unbuffered streams)	46%	ADS US, Inc	
Estimated No. of OSDS	1,360	Stemco Kaiser-Millington	
Human Population	4,066	Speedway SuperAmerica 8394	
Occupied Housing Units	1,545	R G Barnum Auto Salvage	
Animal Feeding Operations	30	Saginaw Asphalt - Sheridan Rd Pit	

Figure A. The location of the Millington Creek basin within the study watershed and demographics relevant to source assessment.

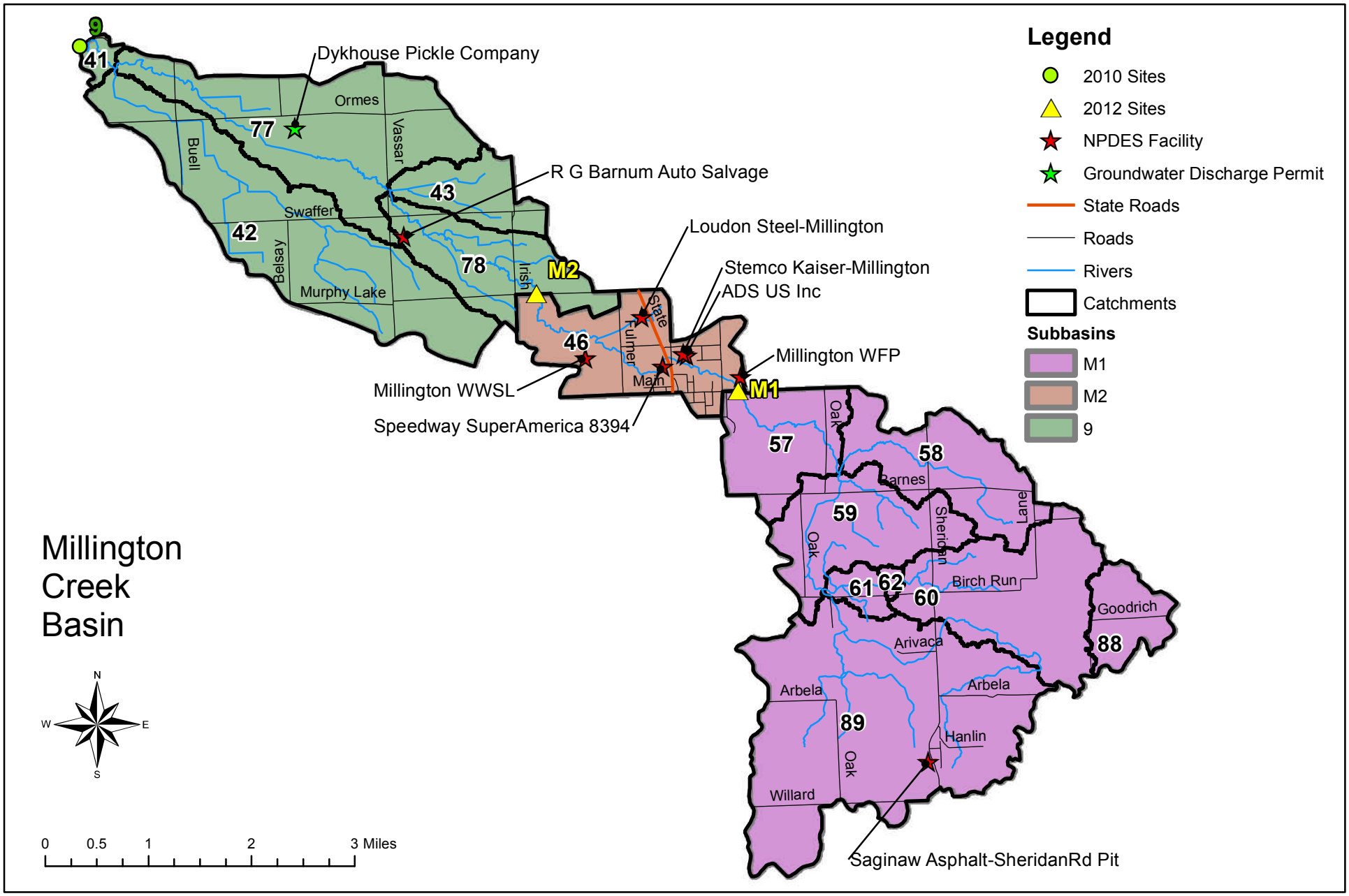


Figure B. Locations of sites, subbasins, catchments, NPDES facilities and groundwater discharge permits within the basin.

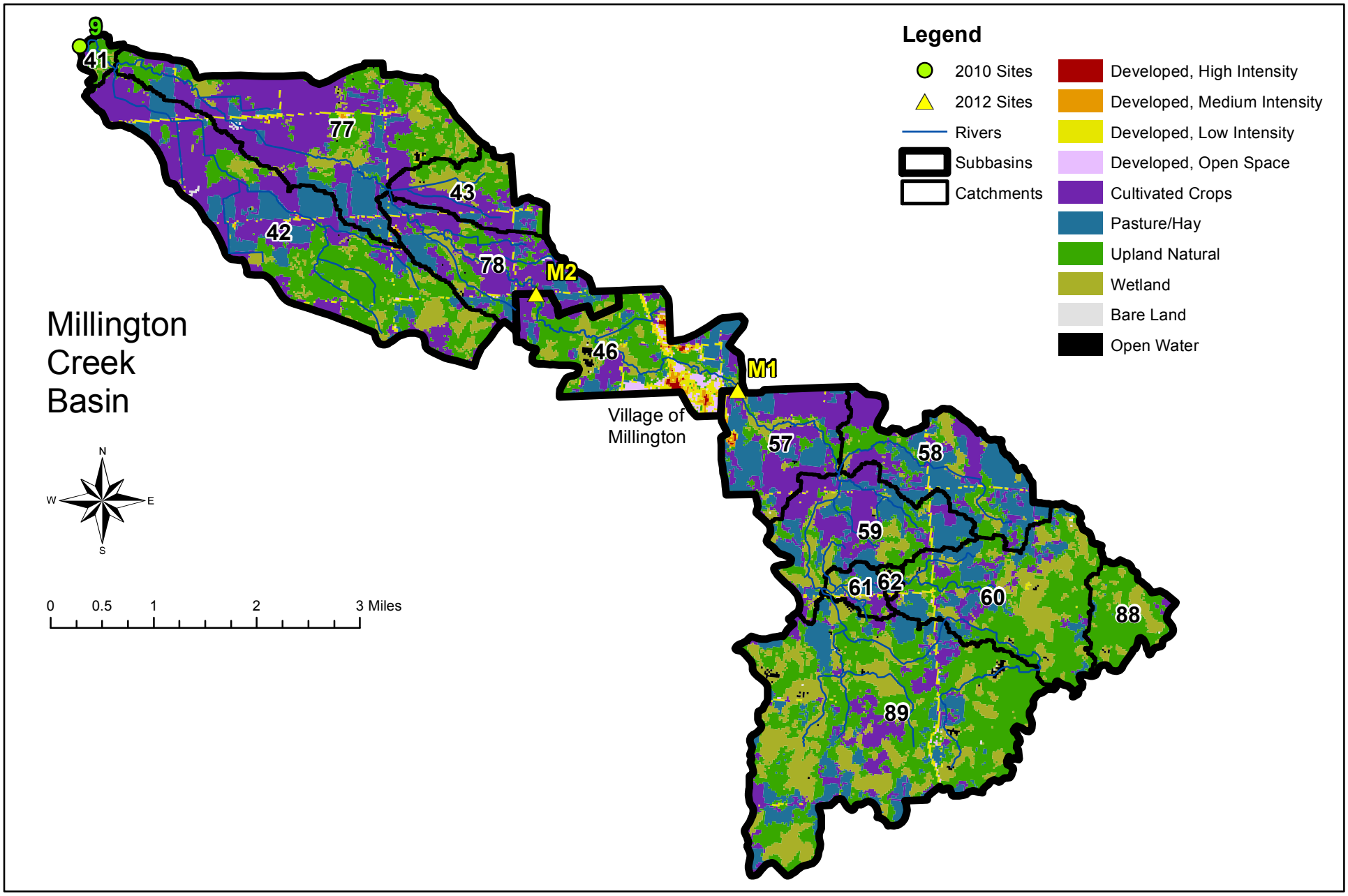


Figure C. 2006-era landcover data (NOAA, 2008), sampling sites, and catchments within the basin.

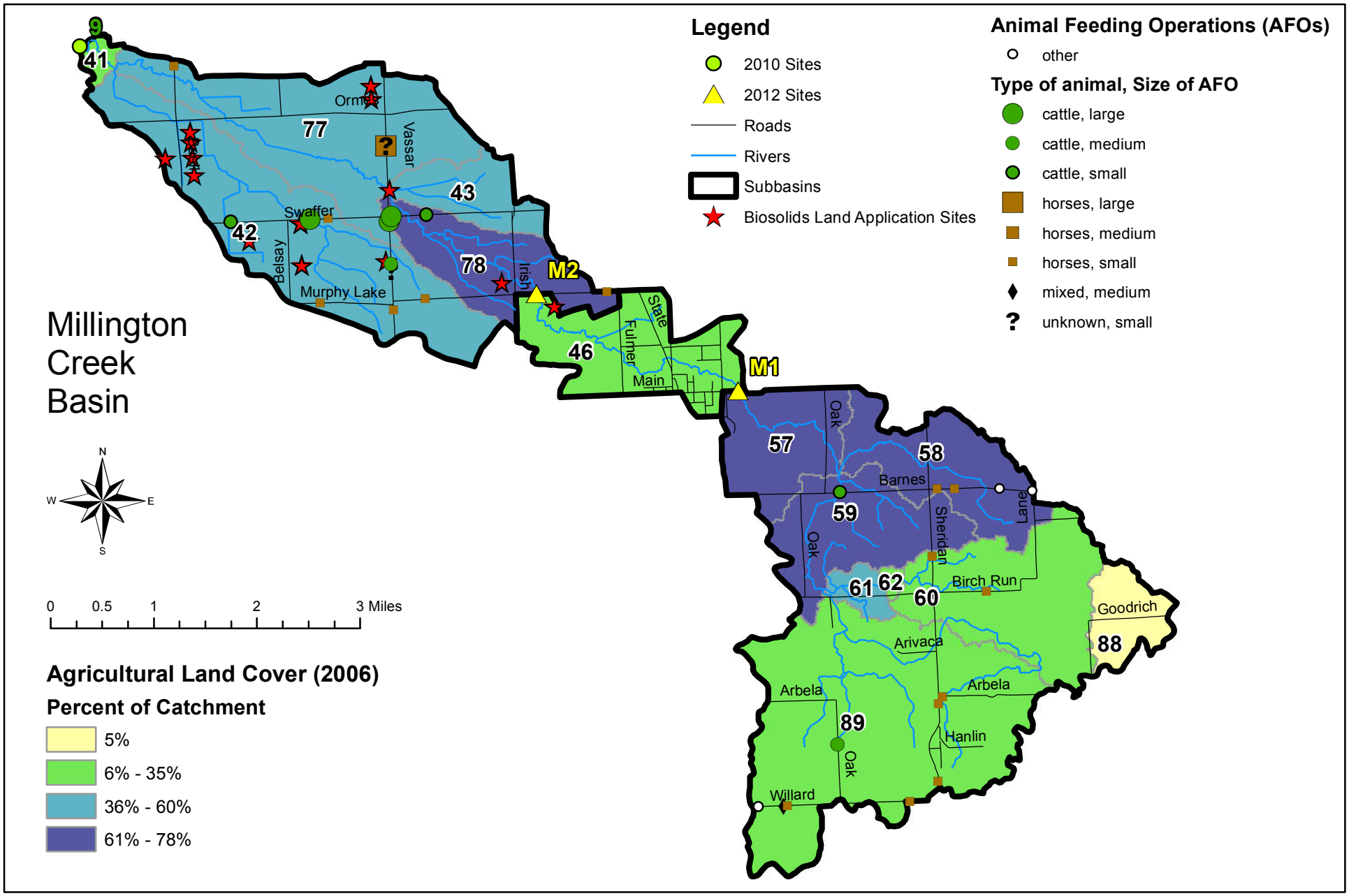


Figure D. Agricultural land cover per catchment area, animal feeding operations (AFOs), and biosolids land-application sites in relation to sampling sites.

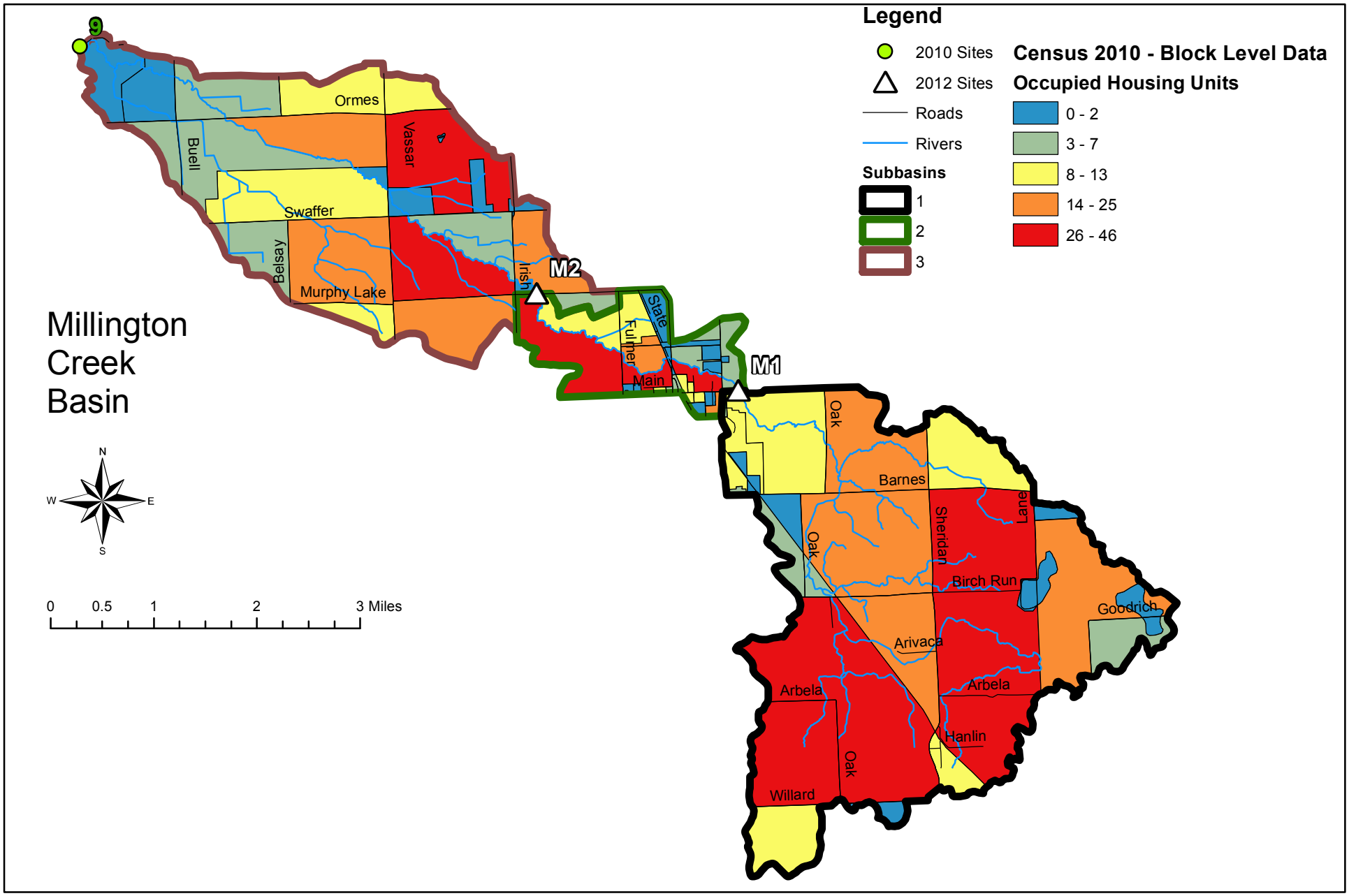


Figure E. Occupied housing units (OHUs) from block level 2010 U.S. Census data, sampling sites, and subbasin boundaries.

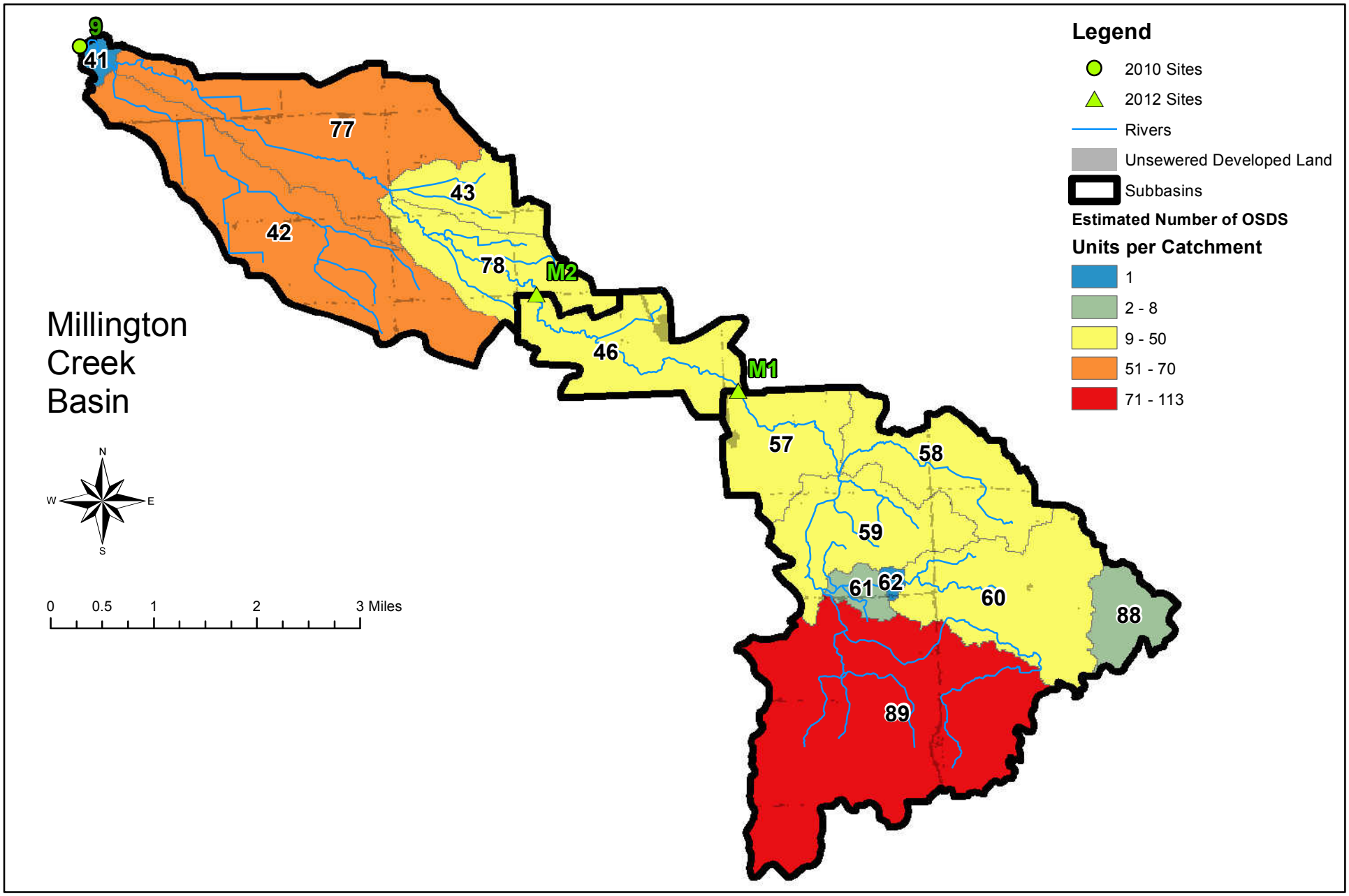


Figure F. Estimated number of OSDS units per catchment and developed land cover that is not served by sanitary sewer sytems.

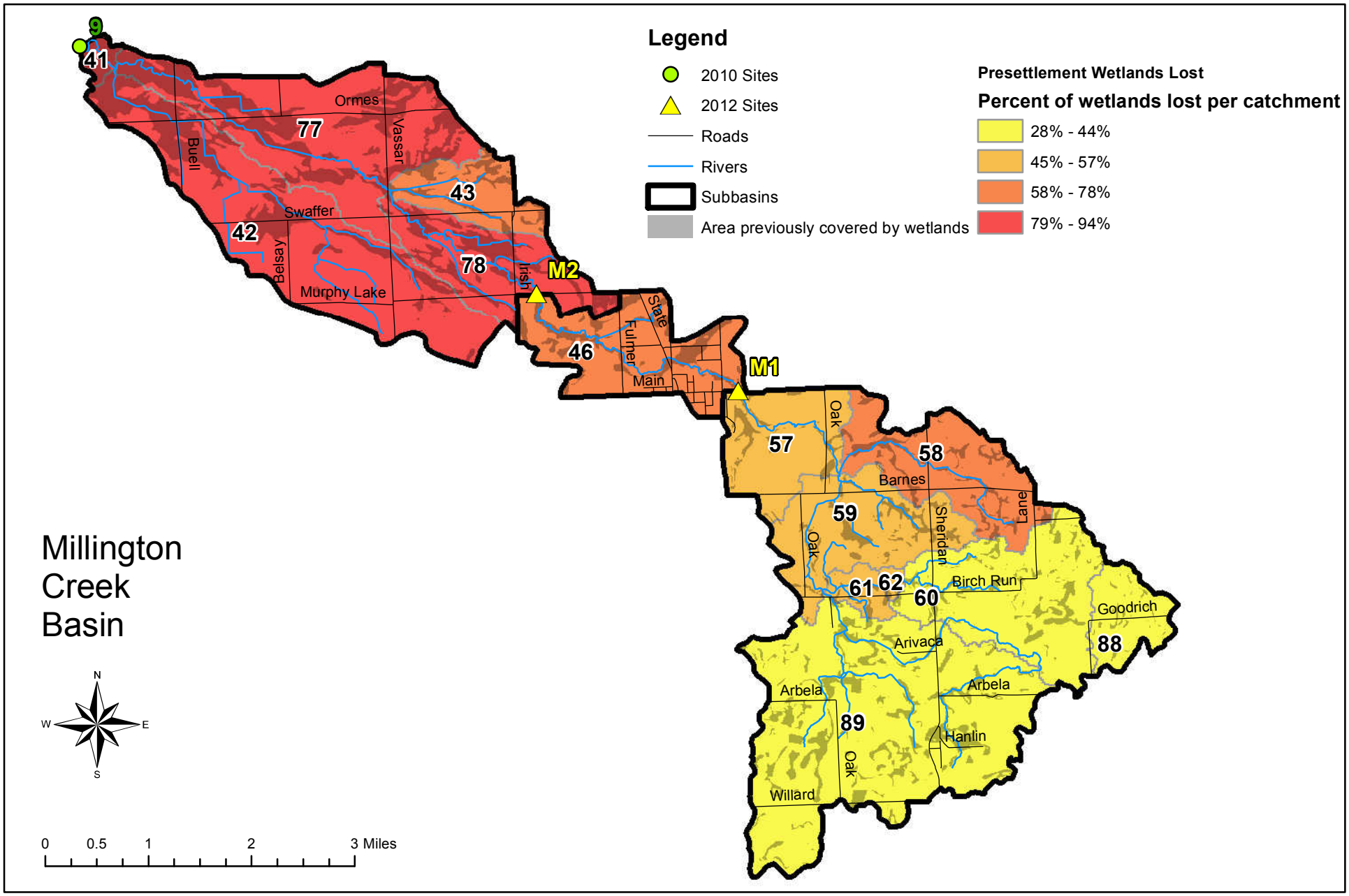


Figure G. Percent of presettlement wetland area lost per catchment and the area formerly covered by these lost wetlands.

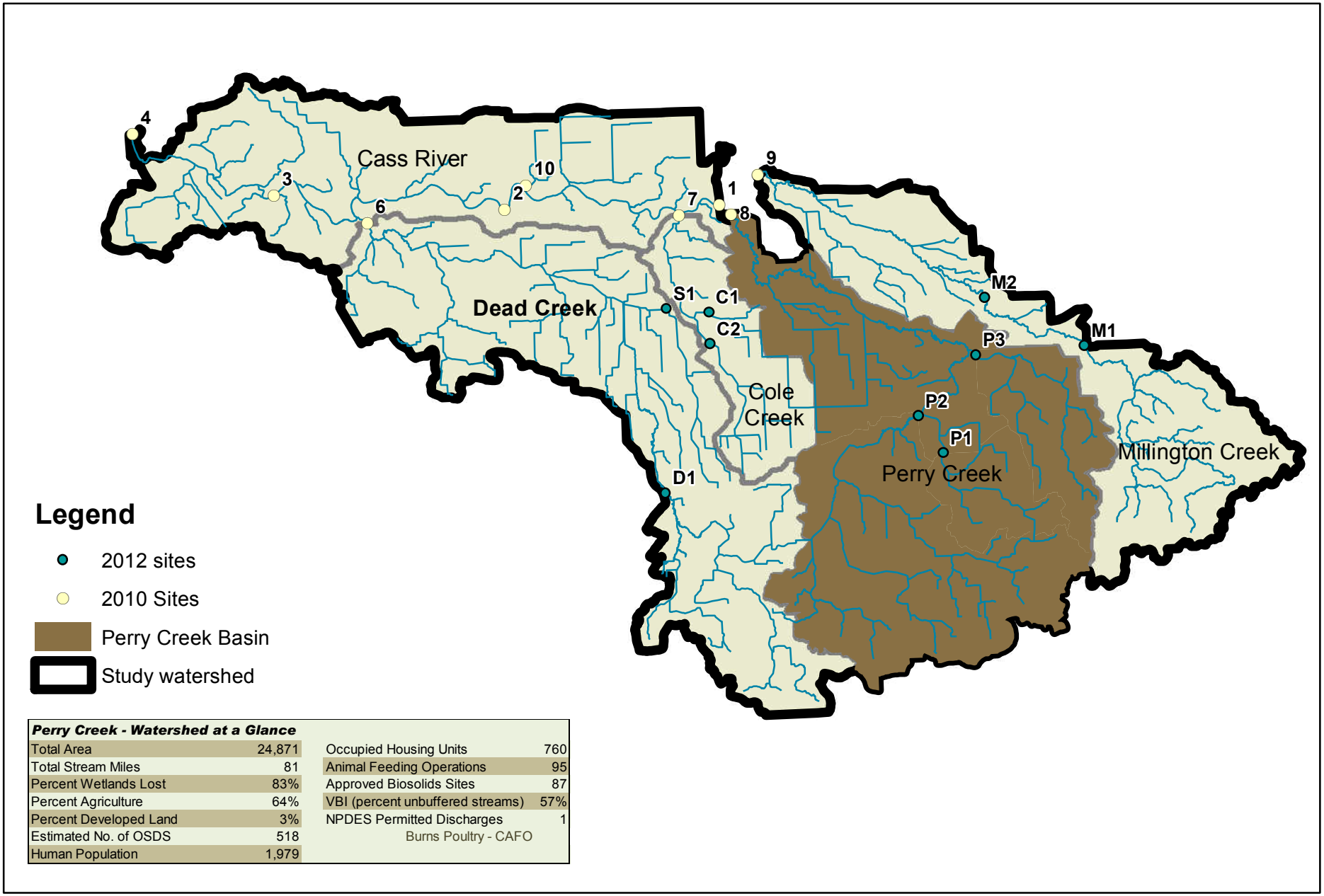


Figure A. The location of the Perry Creek basin within the study watershed and demographics relevant to source assessment.

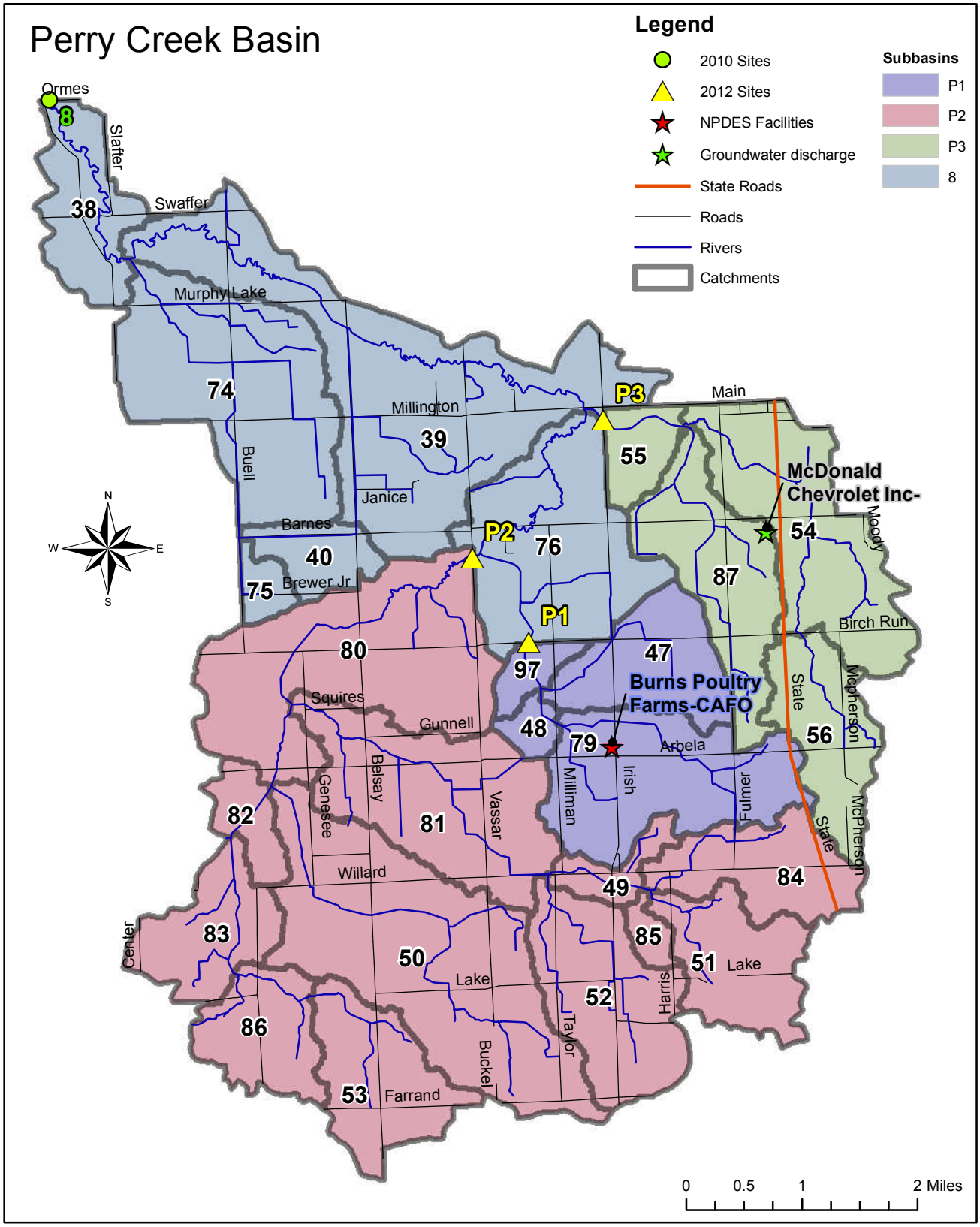


Figure B. Locations of sites, subbasins, catchments, NPDES facilities and groundwater discharge permits within the basin.

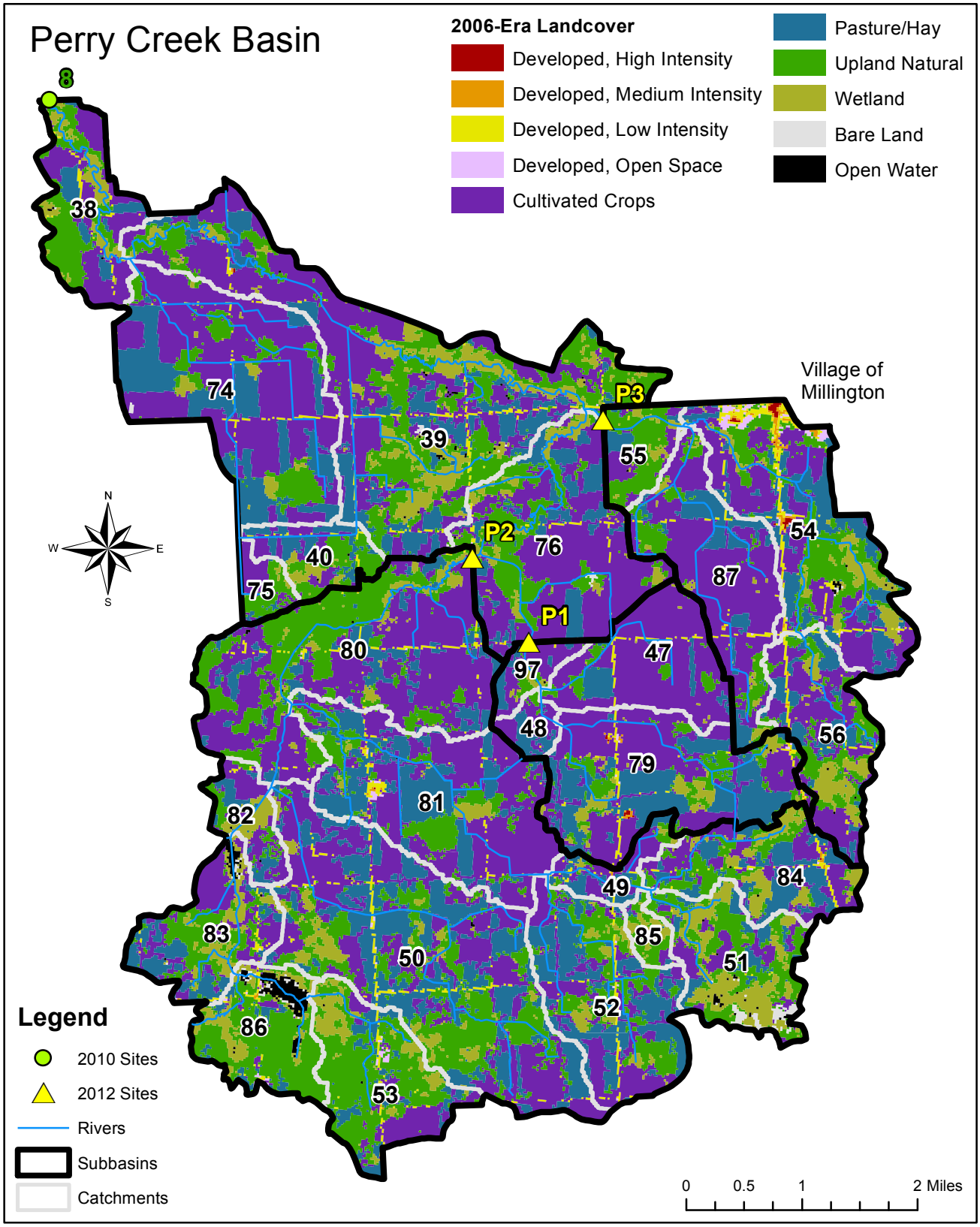


Figure C. 2006-era landcover data (NOAA, 2008), sampling sites, and catchments within the basin.

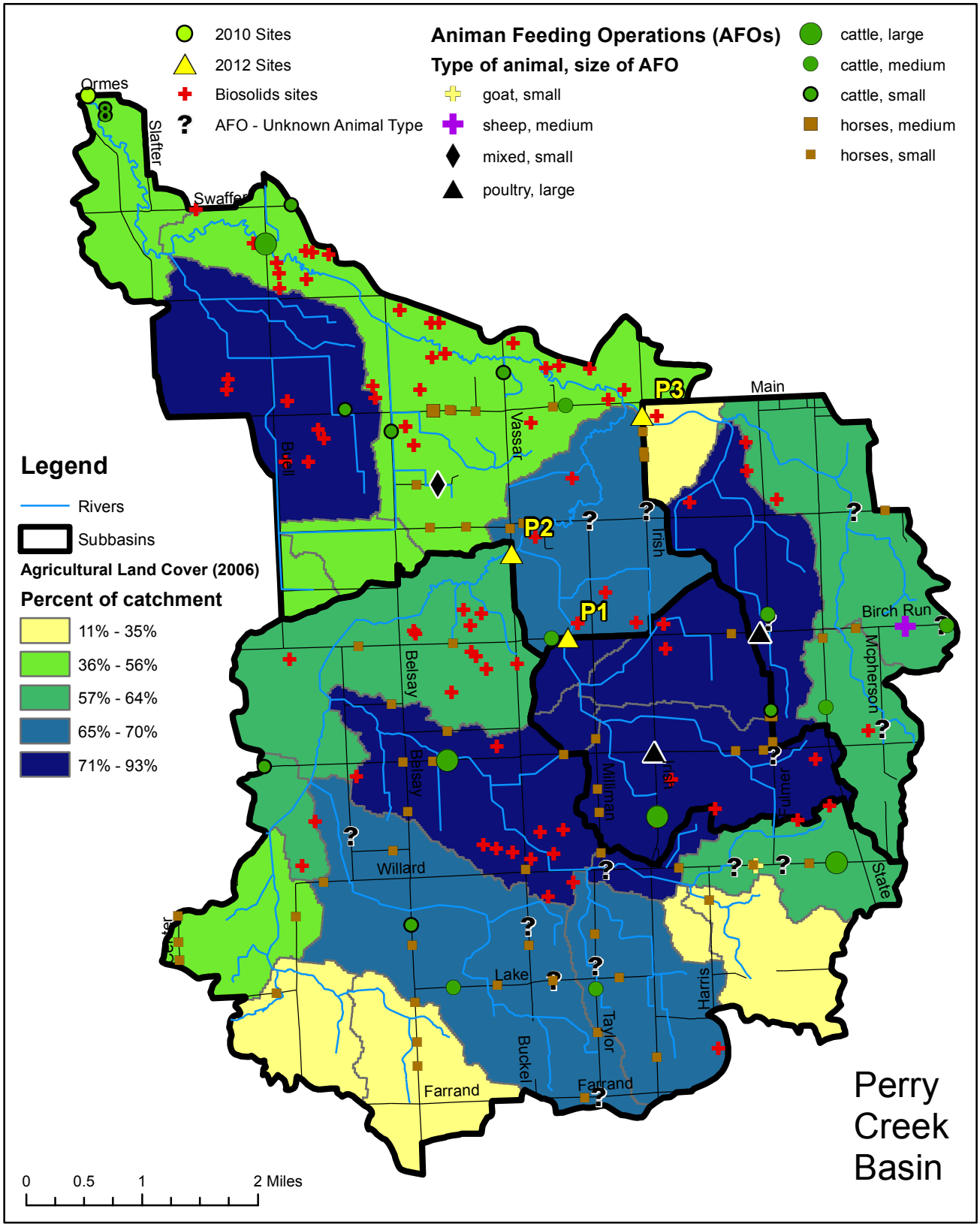


Figure D. Agricultural land cover per catchment area, animal feeding operations (AFOs), and biosolids land-application sites in relation to sampling sites.

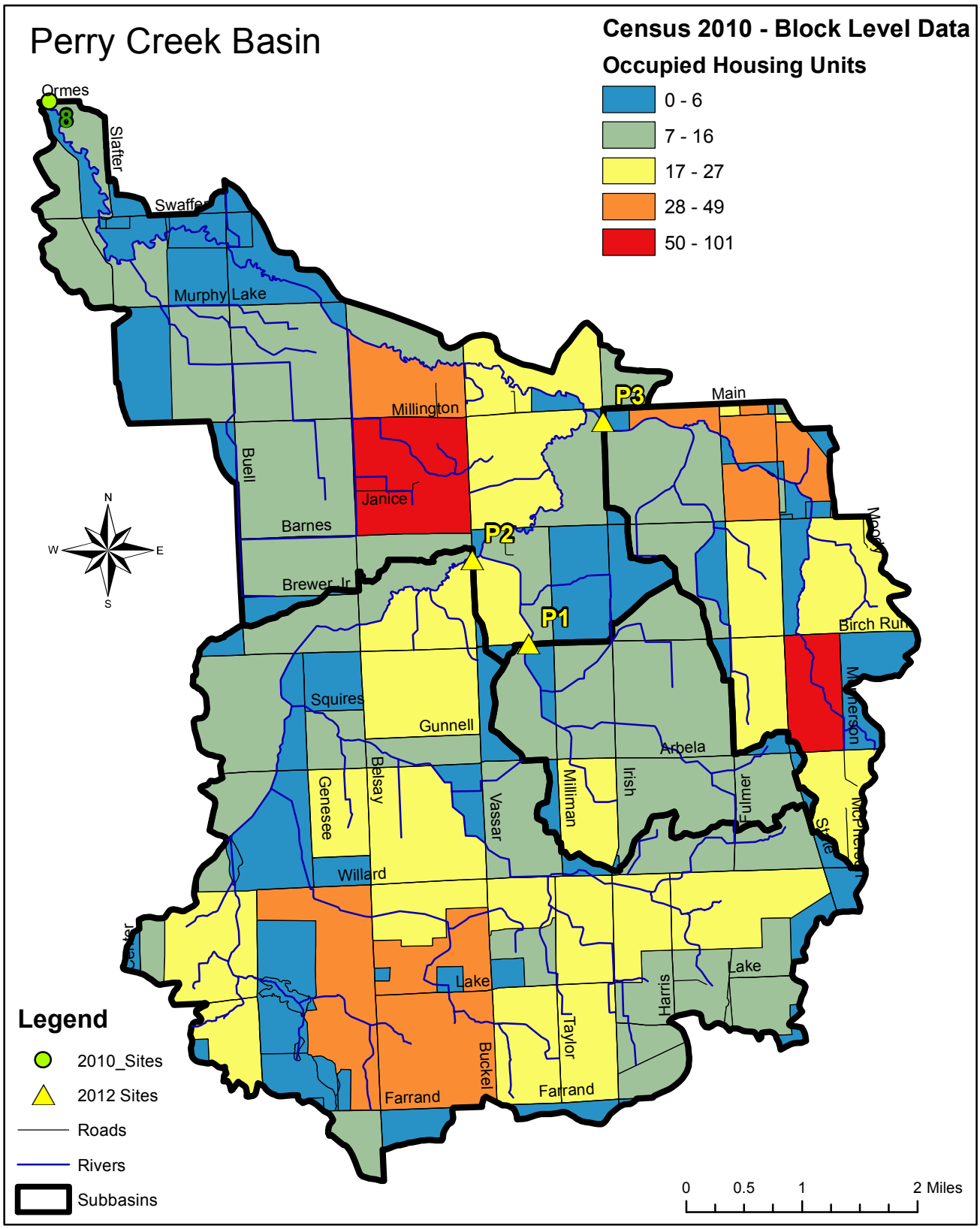


Figure E. Occupied housing units (OHUs) from block level 2010 U.S. Census data, sampling sites, and subbasin boundaries.

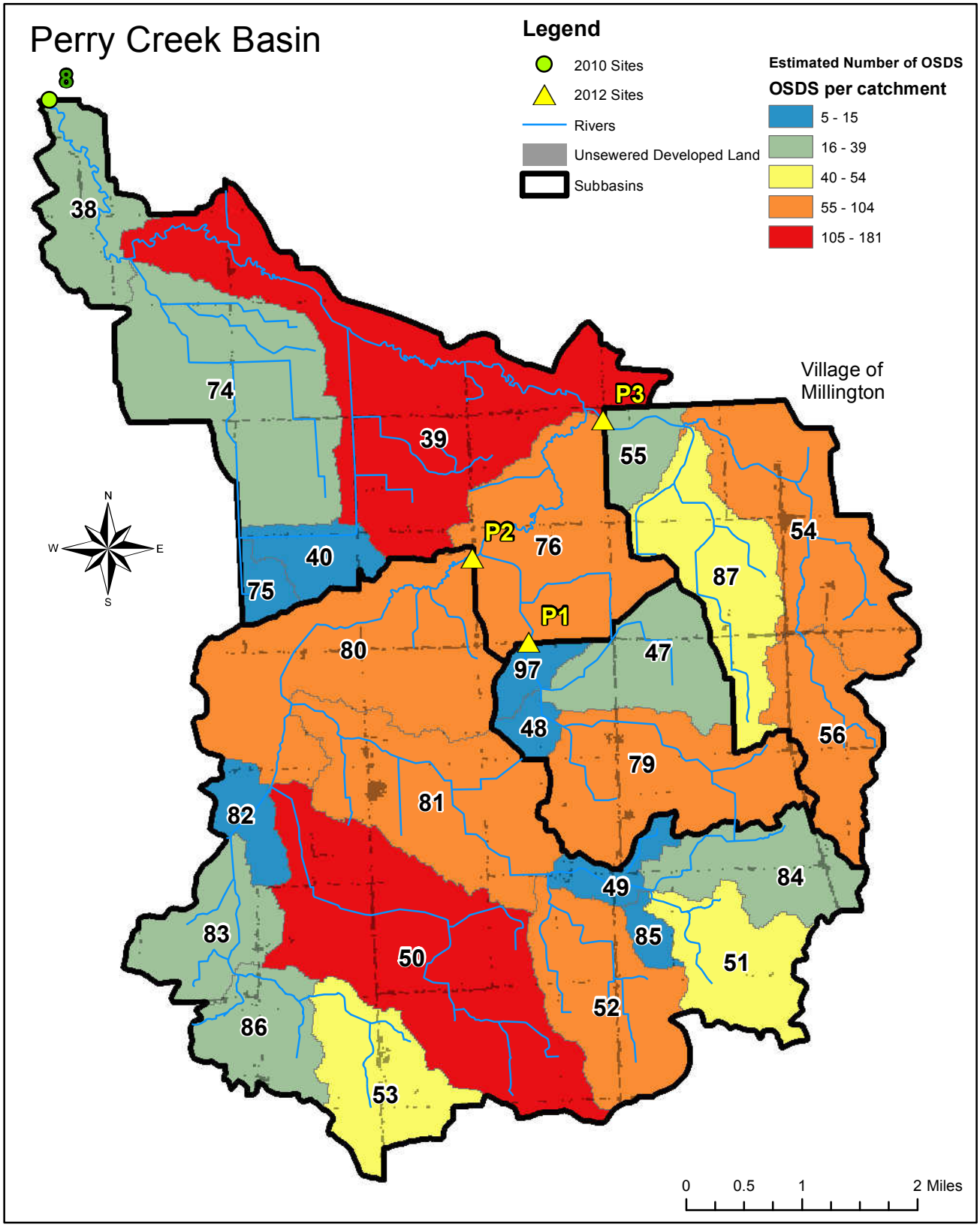


Figure F. Estimated number of OSDS units per catchment and developed land cover that is not served by sanitary sewer sytems.

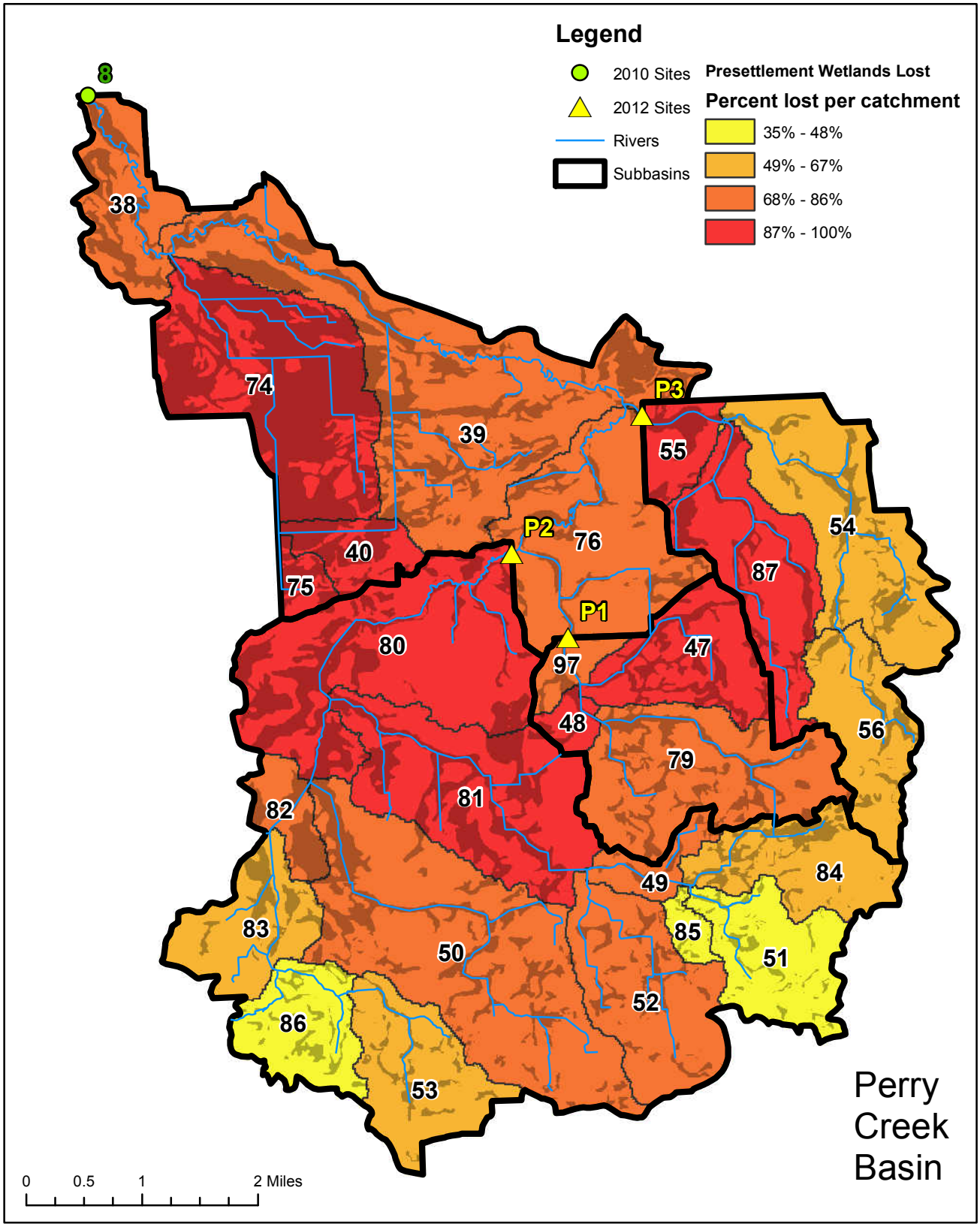


Figure G. Percent of presettlement wetland area lost per catchment and the area formerly covered by these lost wetlands.

Appendix 7. Soil characteristics, population, land cover, animal feeding operations, and biosolids data organized by catchment. Data are ranked from highest to lowest. Stressor scores were calculated from these data, as described in Section 4.5.

catchment	Basin	Subbasin	Area (acres)	River Miles	Human Population	Occupied Housing Units			Dogs (estimated)	Occupied Housing Unit Density			OSDS (estimated)			Human Population Density			Developed Land			Road Density			Percent of Presettlement Wetlands Destroyed			Farmed Land on Soils Requiring Artificial Drainage			Vegetated Buffer Index (VBI)			Soils Poorly Suited to OSDS			Feeding Operations within 1000-feet of Surface Water			Animal Feeding Operations			Agricultural Land Cover			Total Stressor Score	
					Persons	Units	Stressor Score	Rank		OHU/acre	Stressor Score	Rank	Units	Stressor Score	Rank	persons/acre	Stressor Score	Rank	Percent	Stressor Score	Rank	meters of road per acre	Stressor Score	Rank	Percent	Stressor Score	Rank	Percent	Stressor Score	Rank	% of stream with no buffer	Stressor Score	Rank	Percent	Stressor Score	Rank	Number*	Stressor Score	Rank	Number*	Stressor Score	Rank	Percent	Stressor Score	Rank	Score	Rank
1	Cass	4	849	3	185	74	4	24	47	0.09	4	23	71	4	23	0.22	3	29	6%	4	22	7.7	3	28	98%	3	33	13%	1	81	41%	2	71	40%	4	25	0	1	54	0	1	66	42%	1	80	31	46
2	Cass	3	1,701	4	220	86	4	19	54	0.05	2	59	86	4	15	0.13	2	60	5%	4	24	7.3	3	34	99%	3	27	72%	4	10	81%	3	28	7%	1	90	1	3	49	4	3	39	75%	3	30	35	18
3	Cass	3	1,847	3	3,683	1,704	4	1	1,078	0.92	4	1	46	3	35	1.99	4	1	57%	4	1	20.4	4	1	96%	3	36	17%	1	76	68%	3	44	16%	2	73	2	3	43	2	2	59	34%	1	84	34	20
4	Cass	2	507	2	33	11	1	79	7	0.02	1	93	11	1	76	0.07	1	88	4%	3	38	7.9	4	24	100%	4	1	86%	4	2	97%	4	4	71%	4	9	0	1	54	0	1	66	88%	4	7	32	36
5	Cass	2	496	3	146	45	3	40	29	0.09	4	20	8	1	80	0.29	4	11	7%	4	19	11.2	4	9	98%	3	35	78%	4	8	96%	4	5	8%	1	88	2	4	6	2	4	19	83%	4	17	41	1
6	Cass	2	753	3	199	74	4	25	46	0.10	4	17	15	2	72	0.26	4	14	21%	4	5	11.2	4	8	60%	1	84	9%	1	87	86%	4	21	10%	1	83	1	3	37	1	2	54	66%	3	45	33	28
7	Cass	2	396	1	26	9	1	82	6	0.02	1	92	9	1	79	0.07	1	89	3%	2	61	2.5	1	95	100%	4	1	91%	4	1	81%	3	29	73%	4	6	0	1	54	1	3	38	91%	4	4	29	58
8	Cass	2	339	1	107	36	2	50	23	0.11	4	12	7	1	86	0.31	4	8	5%	3	30	7.3	3	35	100%	4	1	55%	4	25	90%	4	14	14%	1	76	0	1	54	0	1	66	92%	4	3	34	20
9	Cass	2	548	2	49	20	2	72	12	0.04	1	79	16	2	71	0.09	1	82	5%	3	29	6.1	2	50	70%	1	80	27%	2	62	28%	1	81	13%	1	80	0	1	54	1	3	46	67%	3	41	21	87
10	Dead	6	825	3	174	64	3	32	41	0.08	3	30	64	3	27	0.21	3	31	7%	4	16	8.8	4	18	90%	2	55	27%	2	60	32%	1	79	29%	3	49	0	1	54	0	1	66	63%	2	51	29	58
11	Dead	6	2,033	6	475	191	4	6	121	0.09	4	19	166	4	4	0.23	4	22	10%	4	10	8.2	4	21	98%	3	31	17%	1	75	72%	3	39	20%	2	66	1	2	52	1	2	65	70%	3	35	36	11
12	Dead	6	870	3	47	19	2	73	12	0.02	1	94	19	2	68	0.05	1	95	4%	3	35	6.4	3	48	100%	4	1	48%	3	32	94%	4	6	34%	3	35	2	3	27	2	3	41	93%	4	2	34	20
13	Dead	6	85	0	9	4	1	94	2	0.04	2	66	4	1	94	0.11	2	68	2%	1	84	7.8	3	26	100%	4	19	22%	2	71	0%	1	95	16%	2	72	0	1	54	0	1	66	77%	3	28	23	82
14	Dead	6	289	1	38	13	1	78	8	0.05	2	62	13	1	75	0.13	2	56	2%	2	73	4.6	1	79	100%	4	1	33%	2	54	67%	3	45	19%	2	70	0	1	54	0	1	66	72%	3	33	24	78
15	Dead	6	194	1	11	4	1	93	2	0.02	1	96	4	1	93	0.06	1	94	1%	1	85	3.2	1	93	100%	4	1	72%	4	12	92%	4	11	1%	1	97	0	1	54	0	1	66	85%	4	13	24	78
16	Dead	6	694	2	266	91	4	18	57	0.13	4	7	91	4	14	0.38	4	6	5%	4	25	7.7	3	29	99%	4	22	53%	3	28	91%	4	13	20%	2	63	0	1	54	2	3	32	84%	4	15	40	2
17	Dead	6	813	4	97	32	2	58	20	0.04	2	70	32	2	54	0.12	2	64	3%	3	44	4.8	1	77	100%	4	10	51%	3	29	87%	4	18	41%	4	23	1	3	40	1	2	57	84%	4	14	34	20
18	Dead	6	195	1	50	17	1	74	10	0.09	4	24	17	2	69	0.26	4	17	3%	2	55	7.5	3	32	100%	4	1	45%	3	37	92%	4	9	49%	4	16	0	1	54	0	1	66	86%	4	10	36	11
19	Dead	6	535	1	129	50	3	37	32	0.09	4	18	50	3	32	0.24	4	19	5%	3	28	9.0	4	16	98%	3	34	33%	2	53	83%	3	27	55%	4	14	0	1	54	2	4	23	44%	1	77	36	11
20	Dead	6	683	2	114	42	3	42	27	0.06	3	36	42	3	38	0.17	3	36	3%	2	56	6.7	3	42	93%	3	46	25%	2	67	56%	2	57	36%	3	30	2	4	12	2	3	31	43%	1	78	32	36
21	Dead	6	2,547	13	318	114	4	15	72	0.04	2	63	114	4	9	0.12	2	62	1%	1	87	6.5	3	44	95%	3	41	27%	2	61	66%	3	47	39%	3	26	9	4	9	11	4	17	61%	2	55	33	28
22	Dead	6	561	2	90	32	2	60	20	0.06	3	44	32	2	56	0.16	3	41	5%	3	27	6.7	3	43	91%	2	51	35%	2	52	92%	4	12	39%	3	27	0	1	54	1	3	47	67%	3	43	32	36
23	Dead	6	540	2	80	29	2	63	18	0.05	3	48	29	2	59	0.15	3	45	4%	3	37	6.4	3	47	90%	2	54	37%	3	49	98%	4	3	42%	4	22	0	1	54	0	1	66	67%	3	44	32	36
24	Dead	6	470	2	70	23	2	68	15	0.05	2	60	23	2	64	0.15	3	46	3%	2	54	4.8	1	78	99%	3	28	41%	3	45	71%	3	40	44%	4	21	1	3	29	1	3	43	67%	3	42	32	36
25	Dead	6	327	1	48	17	1	74	10	0.05	2	55	17	2	69	0.15	3	48	2%	1	75	5.2	2	66	85%	2	63	28%	2	59	86%	4	23	28%	2	50	1	4	11	1	3	30	63%	2	50	29	58
26	Dead	D1	368	2	86	32	2	56	20	0.09	4	22	32	2	52	0.23	4	21	3%	3	47	7.8	4	25	88%	2	58	8%	1	88	25%	1	82	37%	3	28	0	1	54	0	1	66	17%	1	96	27	67
27	Dead	D1	1,310	5	396	146	4	11	92	0.11	4	9	146	4	6	0.30	4	9	6%	4	21	7.3	3	33	82%	2	70	39%	3	46	53%	2	59	29%	3	43	3	3	28	7	4	10	51%	2	71	38	4
28	Dead	D1	162	1	14	5	1	91	3	0.03	1	86	5	1	90	0.08	1	83	0%	1	98	7.0	3	38	96%	3	38	66%	4	15	83%	3	25	13%	1	78	0	1	54	0	1	66	88%	4	9	24	78
29	Dead	D1	66	0	12	5	1	92	3	0.07	3	31	5	1	91	0.18	3	32	8%	4	14	12.3	4	6	100%	4	20	59%	4	23	83%	3	26	23%	2	58	0	1	54	0	1	66	88%	4	6	34	20
30	Dead	D1	497	2	150	56	3	33	35	0.11	4	8	56	3	28	0.30	4	10	3%	3	48	4.6	1	80	95%	3	42	25%	2	66	60%	2	50	29%	3	42	0	1	54	1	3	44	60%	2	56	31	46
31	Dead	D1	712	3	198	71	4	26	45	0.10	4	14	71	4	20	0.28	4	13	4%	3	33	4.6	1	81	81%	2	72	10%	1	86	42%	2	70	29%	3	46	1	3	36	1	2	53	33%	1	85	30	52
32	Dead	S1	855	3	94	37	3	47	23	0.04	2	65	37	3	43	0.11	2	70	3%	3	43	5.0	2	73	99%	3	29	44%	3	40	58%	2	54	51%	4	15	1	3	41	1	2	58	65%	3	47	32	36
33	Dead	S1	284	2	64	24	2	66	15	0.08	3	28	24	2	62	0.23	4	25	7%	4	18	6.5	3	45	99%	4	23	44%	3	41	60%	2	51	74%	4	5	0	1	54	0	1	66	52%	2	68	33	28
34	Dead	S1	355	2	82	30	2	61	19	0.08	3	26	30	2	57	0.23	4	23	1%	1	88	4.1	1	86	96%	3	40	29%	2	58	35%	1	76	47%	4	18	2	4	4	2	4	9	39%	1	81	30	52
35	Cass	7	564	2	715	284	4	2	180	0.50	4	2	4	1	92	1.27	4	2	47%	4	2	15.6	4	3	100%	4	16	45%	3	36	93%	4	8	15%	1	74	0	1	54	0	1	66	51%	2	70	33	28

* Stressor scores were determined by density (number per area) to account for wide variability in subbasin size.

Appendix 7 (continued)

catchment	Basin	Subbasin	Area (acres)	River Miles	Human Population	Occupied Housing Units			Dogs (estimated)	Occupied Housing Unit Density			OSDS (estimated)			Human Population Density			Developed Land			Road Density			Percent of Presettlement Wetlands Destroyed			Farmed Land on Soils Requiring Artificial Drainage			Vegetated Buffer Index (VBI)			Soils Poorly Suited to OSDS			Feeding Operations within 1000-feet of Surface Water			Animal Feeding Operations			Agricultural Land Cover			Total Stressor Score	
					Persons	Units	Stressor Score	Rank		OHU/acre	Stressor Score	Rank	Units	Stressor Score	Rank	persons/acre	Stressor Score	Rank	Percent	Stressor Score	Rank	meters of road per acre	Stressor Score	Rank	Percent	Stressor Score	Rank	Percent	Stressor Score	Rank	% of stream with no buffer	Stressor Score	Rank	Percent	Stressor Score	Rank	Number*	Stressor Score	Rank	Number*	Stressor Score	Rank	Percent	Stressor Score	Rank	Score	Rank
36	Cole	7	1,622	5	179	71	4	26	45	0.04	2	64	71	4	20	0.11	2	69	10%	4	11	5.0	2	71	100%	4	17	17%	1	78	51%	2	63	46%	4	19	0	1	54	2	2	56	45%	1	76	29	58
37	Cole	C1	1,137	5	110	41	3	43	26	0.04	1	78	41	3	39	0.10	1	80	2%	2	67	4.9	1	74	100%	4	12	77%	4	9	90%	4	15	65%	4	10	3	4	20	4	4	25	83%	4	19	36	11
38	Perry	8	694	3	90	35	2	51	22	0.05	2	58	35	3	46	0.13	2	57	3%	3	39	10.1	4	12	82%	2	71	45%	3	38	10%	1	91	35%	3	33	0	1	54	0	1	66	52%	2	69	27	67
39	Perry	8	2,836	12	506	181	4	8	114	0.06	3	34	181	4	2	0.18	3	33	2%	2	69	5.9	2	57	82%	2	69	36%	2	50	42%	2	69	45%	4	20	7	4	23	14	4	14	56%	2	62	34	20
40	Perry	8	345	1	38	15	1	76	9	0.04	2	67	15	2	73	0.11	2	71	2%	2	63	8.9	4	17	92%	3	49	37%	3	48	94%	4	7	48%	4	17	0	1	54	0	1	66	53%	2	67	30	52
41	Millington	9	80	1	2	1	1	98	1	0.01	1	98	1	1	98	0.02	1	98	0%	1	94	6.4	3	49	90%	2	53	20%	2	73	17%	1	87	96%	4	1	0	1	54	0	1	66	21%	1	94	19	94
42	Millington	9	2,105	8	177	69	3	31	44	0.03	1	84	69	3	26	0.08	1	84	2%	1	77	5.0	2	72	94%	3	43	43%	3	43	58%	2	53	14%	1	75	6	4	14	8	4	22	55%	2	64	27	67
43	Millington	9	464	2	70	26	2	65	16	0.06	3	46	26	2	61	0.15	3	44	2%	2	72	6.1	2	52	78%	1	76	4%	1	93	63%	2	49	7%	1	89	0	1	54	0	1	66	49%	1	74	20	92
44	Cole	C2	1,074	4	107	38	3	46	24	0.04	1	80	38	3	42	0.10	1	77	3%	2	50	4.2	1	85	100%	4	18	45%	3	35	69%	3	42	75%	4	3	1	3	46	2	3	45	58%	2	60	30	52
45	Cole	C2	861	4	140	52	3	36	33	0.06	3	40	52	3	31	0.16	3	38	2%	2	65	5.7	2	60	99%	4	25	65%	4	17	83%	4	24	84%	4	2	2	3	26	3	3	27	75%	3	31	38	4
46	Millington	M2	1,078	4	688	277	4	4	175	0.26	4	3	35	3	47	0.64	4	3	21%	4	4	11.5	4	7	76%	1	77	17%	1	79	17%	1	86	27%	2	53	0	1	54	0	1	66	29%	1	87	27	67
47	Perry	P2	771	2	57	23	2	67	15	0.03	1	87	23	2	63	0.07	1	86	2%	2	70	3.9	1	88	99%	4	21	85%	4	3	80%	3	31	0%	1	98	2	4	21	3	4	21	91%	4	5	31	46
48	Perry	P2	135	0	14	5	1	90	3	0.04	1	75	5	1	89	0.10	1	76	0%	1	96	5.4	2	63	100%	4	13	78%	4	7	100%	4	1	10%	1	82	2	4	2	1	4	4	93%	4	1	31	46
49	Perry	P2	234	2	38	14	1	77	9	0.06	3	37	14	1	74	0.16	3	40	5%	3	32	9.9	4	13	86%	2	61	65%	4	18	78%	3	34	6%	1	92	2	4	3	2	4	3	80%	4	23	36	11
50	Perry	P2	2,496	6	419	159	4	10	100	0.06	3	35	159	4	5	0.17	3	35	2%	1	74	5.5	2	62	86%	2	60	36%	2	51	76%	3	35	22%	2	61	7	4	16	15	4	7	70%	3	37	33	28
51	Perry	P2	770	2	108	43	3	41	27	0.06	3	47	43	3	37	0.14	3	50	0%	1	95	2.4	1	96	35%	1	97	2%	1	95	25%	1	83	26%	2	55	1	3	39	1	2	55	29%	1	88	22	86
52	Perry	P2	1,109	4	187	71	4	26	45	0.06	3	33	71	4	20	0.17	3	34	2%	2	62	7.6	3	30	79%	1	74	21%	2	72	68%	3	43	13%	1	77	3	4	17	5	4	16	69%	3	39	33	28
53	Perry	P2	786	2	121	48	3	39	30	0.06	3	38	48	3	34	0.15	3	43	3%	3	49	5.3	2	64	59%	1	85	12%	1	84	35%	1	74	19%	2	68	2	4	22	2	3	37	32%	1	86	27	67
54	Perry	P3	1,427	5	741	282	4	3	178	0.20	4	4	97	4	13	0.52	4	4	12%	4	8	8.2	4	20	63%	1	83	32%	2	55	33%	1	77	10%	1	81	1	3	47	5	3	26	59%	2	59	33	28
55	Perry	P3	304	1	73	30	2	62	19	0.10	4	16	30	2	58	0.24	4	20	2%	1	78	5.0	2	70	96%	3	39	24%	2	68	3%	1	94	32%	3	39	0	1	54	0	1	66	35%	1	82	25	76
56	Perry	P3	758	2	199	81	4	21	51	0.11	4	11	81	4	17	0.26	4	15	4%	3	36	8.2	4	22	58%	1	87	38%	3	47	71%	3	41	18%	2	71	3	4	7	4	4	12	61%	2	54	38	4
57	Millington	M1	758	2	99	39	3	45	25	0.05	2	54	39	3	41	0.13	2	58	4%	3	34	5.6	2	61	57%	1	88	66%	4	16	11%	1	90	9%	1	84	0	1	54	0	1	66	78%	3	26	24	78
58	Millington	M1	946	3	94	36	3	49	23	0.04	2	73	36	3	45	0.10	1	78	2%	1	83	4.5	1	83	70%	1	81	31%	2	56	35%	1	75	9%	1	85	2	3	30	4	4	18	69%	3	38	23	82
59	Millington	M1	962	4	100	32	2	59	20	0.03	1	83	32	2	55	0.10	2	72	1%	1	86	4.8	1	75	55%	1	89	17%	1	77	48%	2	65	6%	1	94	1	3	44	1	2	60	66%	3	46	20	92
60	Millington	M1	1,336	4	85	33	2	54	21	0.02	1	90	33	2	50	0.06	1	91	1%	1	90	4.0	1	87	44%	1	94	5%	1	92	50%	2	64	23%	2	59	2	3	34	2	2	51	28%	1	89	18	96
61	Millington	M1	150	2	17	6	1	88	4	0.04	2	72	6	1	87	0.12	2	67	6%	4	20	6.0	2	54	50%	1	92	8%	1	89	32%	1	78	29%	3	47	0	1	54	0	1	66	59%	2	58	21	87
62	Millington	M1	34	0	3	1	1	96	1	0.03	1	85	1	1	96	0.10	1	79	5%	3	31	5.2	2	67	52%	1	91	12%	1	83	15%	1	88	13%	1	79	0	1	54	0	1	66	35%	1	83	15	97
63	Cass	4	572	3	46	21	2	69	13	0.04	1	76	20	2	67	0.08	1	85	8%	4	15	10.6	4	11	93%	3	45	50%	3	30	87%	4	19	34%	3	34	1	3	31	1	3	48	78%	3	27	34	20
64	Cass	4	200	1	12	6	1	89	4	0.03	1	88	6	1	88	0.06	1	93	7%	4	17	5.3	2	65	86%	2	62	64%	4	20	86%	4	22	58%	4	12	0	1	54	1	4	13	84%	4	16	32	36
65	Cass	3	131	1	18	8	1	85	5	0.06	3	42	8	1	83	0.14	2	51	2%	2	64	8.6	4	19	74%	1	78	13%	1	82	19%	1	85	35%	3	32	0	1	54	0	1	66	47%	1	75	21	87
66	Cass	2	834	2	52	21	2	71	13	0.02	1	91	21	2	66	0.06	1	92	5%	3	26	7.7	3	27	100%	4	14	84%	4	4	92%	4	10	64%	4	11	0	1	54	0	1	66	88%	4	8	32	36
67	Cass	2	489	2	124	52	3	35	33	0.11	4	13	52	3	30	0.25	4	18	25%	4	3	9.7	4	15	91%	2	50	26%	2	63	89%	4	17	6%	1	93	0	1	54	0	1	66	54%	2	66	32	36
68	Dead	6	488	3	58	21	2	70	13	0.04	2	68	21	2	65	0.12	2	63	3%	2	52	6.4	3	46	99%	3	26	44%	3	39	89%	4	16	58%	4	13	2	4	5	3	4	6	82%	4	20	37	9
69	Dead	D1	754	2	211	82	4	20	52	0.11	4	10	82	4	16	0.28	4	12	3%	3	40	5.1	2	68	93%	3	48	42%	3	44	38%	1	73	21%	2	62	2	4	19	3	4	20	56%	2	63	36	11
70	Dead	D1	32	0	2	1	1	96	1	0.03	1	82	1	1	96	0.07	1	87	1%	1	89	13.0	4	5	100%	4	1	65%	4	19	na	4	na	5%	1	95	0	1	54	0	1	66	86%	4	11	27	67

* Stressor scores were determined by density (number per area) to account for wide variability in subbasin size.

Appendix 7 (continued)

catchment	Basin	Subbasin	Area (acres)	River Miles	Human Population	Occupied Housing Units			Dogs (estimated)	Occupied Housing Unit Density			OSDS (estimated)			Human Population Density			Developed Land			Road Density			Percent of Presettlement Wetlands Destroyed			Farmed Land on Soils Requiring Artificial Drainage			Vegetated Buffer Index (VBI)			Soils Poorly Suited to OSDS			Feeding Operations within 1000-feet of Surface Water			Animal Feeding Operations			Agricultural Land Cover			Total Stressor Score	
					Persons	Units	Stressor Score	Rank		OHU/acre	Stressor Score	Rank	Units	Stressor Score	Rank	persons/acre	Stressor Score	Rank	Percent	Stressor Score	Rank	meters of road per acre	Stressor Score	Rank	Percent	Stressor Score	Rank	Percent	Stressor Score	Rank	% of stream with no buffer	Stressor Score	Rank	Percent	Stressor Score	Rank	Number*	Stressor Score	Rank	Number*	Stressor Score	Rank	Percent	Stressor Score	Rank	Score	Rank
71	Dead	D1	1,740	7	772	273	4	5	173	0.16	4	5	273	4	1	0.44	4	5	8%	4	13	7.3	3	36	84%	2	66	5%	1	91	43%	2	68	31%	3	41	1	2	50	4	3	40	23%	1	92	33	28
72	Dead	D1	1,510	4	332	124	4	13	78	0.08	3	29	124	4	8	0.22	3	28	6%	4	23	4.8	1	76	58%	1	86	2%	1	96	11%	1	89	19%	2	67	1	3	48	4	3	35	21%	1	93	27	67
73	Cole	7	220	1	22	8	1	86	5	0.03	1	81	8	1	83	0.10	2	74	3%	3	46	8.0	4	23	98%	3	32	55%	3	26	78%	3	33	72%	4	7	0	1	54	0	1	66	61%	2	53	28	64
74	Perry	7	1,847	8	83	33	2	53	21	0.02	1	97	33	3	49	0.04	1	97	2%	1	80	4.3	1	84	98%	3	30	80%	4	5	87%	4	20	71%	4	8	1	2	51	1	2	64	85%	4	12	30	52
75	Perry	7	154	1	25	9	1	81	6	0.06	3	41	9	1	78	0.16	3	39	3%	2	60	13.9	4	4	100%	4	15	26%	2	65	80%	3	30	33%	3	36	0	1	54	0	1	66	50%	2	72	29	58
76	Perry	7	1,500	6	201	78	4	23	49	0.05	2	50	78	4	19	0.13	2	54	2%	1	76	6.1	2	51	81%	2	73	49%	3	31	28%	1	80	29%	3	48	5	4	10	8	4	11	70%	3	36	31	46
77	Millington	9	1,770	5	182	70	3	29	44	0.04	2	69	70	4	24	0.10	2	73	3%	2	57	4.5	1	82	88%	2	57	46%	3	33	55%	2	58	28%	2	51	2	3	42	4	3	42	60%	2	57	28	64
78	Millington	9	822	6	127	50	3	38	31	0.06	3	39	50	3	33	0.15	3	42	3%	2	59	6.8	3	39	83%	2	68	23%	2	69	46%	2	66	35%	3	31	2	4	24	3	4	24	68%	3	40	34	20
79	Perry	P2	1,366	4	185	69	3	30	44	0.05	2	56	69	4	25	0.14	2	53	3%	3	42	7.0	3	37	85%	2	64	67%	4	14	73%	3	37	9%	1	86	5	4	8	9	4	5	79%	4	25	36	11
80	Perry	P2	2,057	5	281	104	4	17	66	0.05	2	57	104	4	12	0.14	2	52	2%	1	79	5.9	2	56	94%	3	44	43%	3	42	44%	2	67	25%	2	56	1	2	53	2	2	62	64%	3	48	28	64
81	Perry	P2	1,533	5	223	81	4	22	51	0.05	3	49	81	4	18	0.15	3	49	2%	2	66	6.7	3	41	93%	3	47	60%	4	22	76%	3	36	19%	2	69	2	3	38	7	4	15	81%	4	21	38	4
82	Perry	P2	289	1	19	8	1	84	5	0.03	1	89	8	1	82	0.07	1	90	1%	1	92	1.8	1	98	74%	1	79	29%	2	57	22%	1	84	33%	3	37	0	1	54	1	3	28	64%	3	49	19	94
83	Perry	P2	687	3	102	39	3	44	25	0.06	3	45	39	3	40	0.15	3	47	2%	2	68	3.6	1	91	53%	1	90	26%	2	64	52%	2	62	29%	3	45	0	1	54	4	4	8	55%	2	65	27	67
84	Perry	P2	752	2	98	37	3	48	23	0.05	2	61	37	3	44	0.13	2	59	3%	3	45	6.8	3	40	67%	1	82	19%	1	74	52%	2	60	27%	2	54	2	4	18	7	4	2	62%	2	52	29	58
85	Perry	P2	116	0	27	10	1	80	6	0.08	3	27	10	1	77	0.23	4	24	1%	1	93	2.2	1	97	48%	1	93	6%	1	90	na	4	na	20%	2	65	0	1	54	0	1	66	19%	1	95	21	87
86	Perry	P2	629	2	75	32	2	57	20	0.05	2	53	32	2	53	0.12	2	65	3%	2	53	3.5	1	92	37%	1	96	1%	1	97	67%	3	46	29%	3	44	1	3	33	1	2	50	11%	1	97	23	82
87	Perry	P3	1,045	5	137	54	3	34	34	0.05	2	52	54	3	29	0.13	2	55	2%	1	82	5.9	2	58	90%	2	52	70%	4	13	79%	3	32	20%	2	64	3	4	13	3	3	33	83%	4	18	32	36
88	Millington	M1	394	8	20	8	1	83	5	0.02	1	95	8	1	81	0.05	1	96	0%	1	97	3.8	1	90	28%	1	98	0%	1	98	na	4	na	7%	1	91	0	1	54	0	1	66	5%	1	98	15	97
89	Millington	M1	3,129	9	317	113	4	16	71	0.04	1	77	113	4	10	0.10	1	75	1%	1	91	3.9	1	89	44%	1	95	3%	1	94	57%	2	55	27%	2	52	3	3	45	8	3	36	26%	1	90	21	87
90	Cass	4	2,137	3	455	182	4	7	115	0.09	4	25	180	4	3	0.21	3	30	13%	4	6	11.0	4	10	87%	2	59	11%	1	85	52%	2	61	33%	3	38	5	4	25	6	3	34	26%	1	91	35	18
91	Cass	4	1,344	5	302	119	4	14	75	0.09	4	21	108	4	11	0.22	4	26	12%	4	7	7.5	3	31	99%	4	24	54%	3	27	73%	3	38	37%	3	29	0	1	54	1	2	63	74%	3	32	38	4
92	Cass	3	1,767	1	465	177	4	9	112	0.10	4	15	125	4	7	0.26	4	16	9%	4	12	6.1	2	53	85%	2	65	22%	2	70	57%	2	56	40%	4	24	5	4	15	6	3	29	50%	2	73	37	9
93	Cass	3	631	1	82	33	2	55	21	0.05	2	51	33	2	51	0.13	2	61	3%	3	41	5.9	2	55	96%	3	37	58%	4	24	9%	1	93	25%	2	57	0	1	54	0	1	66	71%	3	34	26	75
94	Cass	3	967	3	361	135	4	12	86	0.14	4	6	45	3	36	0.37	4	7	11%	4	9	9.8	4	14	100%	4	11	72%	4	11	100%	4	2	8%	1	87	0	1	54	1	2	61	80%	4	22	39	3
95	Dead	6	599	0	98	34	2	52	22	0.06	3	43	34	3	48	0.16	3	37	2%	1	81	3.1	1	94	84%	2	67	46%	3	34	65%	2	48	74%	4	4	1	3	32	1	3	49	58%	2	61	30	52
96	Cass	2	712	3	65	27	2	64	17	0.04	1	74	27	2	60	0.09	1	81	3%	2	51	5.8	2	59	89%	2	56	63%	4	21	59%	2	52	4%	1	96	1	3	35	1	2	52	75%	3	29	25	76
97	Perry	P2	178	0	21	7	1	87	4	0.04	2	71	7	1	85	0.12	2	66	2%	2	71	5.0	2	69	79%	1	75	79%	4	6	39%	1	72	22%	2	60	0	1	54	0	1	66	80%	4	24	23	82
98	Cole	7	53	0	12	4	1	95	2	0.07	3	32	4	1	95	0.22	3	27	3%	2	58	18.6	4	2	100%	4	1	14%	1	80	9%	1	92	31%	3	40	1	4	1	1	4	1	42%	1	79	31	46
Study Watershed			82,987	282	18,542	7,321			4,630	0.09			4643			0.22			7%			6.7			88%			36%			60%			30%			124			216			59%				

* Stressor scores were determined by density (number per area) to account for wide variability in subbasin size.

Appendix 8. Soil characteristics, population, land cover, animal feeding operations, and biosolids data organized by subbasin. Data are ranked from highest to lowest. Stressor scores were calculated from these data, as described in Section 4.5.

Basin	Subbasin	Area (acres)	Human Population	Occupied Housing Units	Occupied Housing Unit Density			OSDS (estimated)			Human Population Density			Developed Land			Road Density			Percent of Presettlement Wetlands Destroyed			Farmed Land on Soils Requiring Artificial Drainage			Vegetated Buffer Index (VBI)			Soils Poorly Suited to OSDS			Feeding Operations within 1000-feet of			Animal Feeding Operations			Biosolids Land Application Sites			Agricultural Land Cover			Total Stressor Score	
			Persons	Units	OHU/acre	Stressor Score	Rank	Units	Stressor Score	Rank	persons/acre	Stressor Score	Rank	Percent	Stressor Score	Rank	meters of road per acre	Stressor Score	Rank	Percent	Stressor Score	Rank	Percent	Stressor Score	Rank	% of stream with no buffer	Stressor Score	Rank	Percent	Stressor Score	Rank	Number*	Stressor Score	Rank	Number*	Stressor Score	Rank	Number	Stressor Score	Rank	Percent	Stressor Score	Rank	Score	Rank
Millington	M1	7708	734	268	0.03	1	17	268	3	7	0.10	1	17	2%	1	17	4.31	1	17	48%	1	17	14%	1	17	46%	1	15	14%	1	17	8	1	13	15	2	11	0	1	14	41%	1	15	16	17
Millington	M2	1078	688	277	0.26	4	3	35	1	16	0.64	4	3	21%	4	2	11.50	4	2	76%	1	14	17%	1	16	16%	1	17	17%	1	16	0	1	16	0	1	16	1	1	10	29%	1	17	25	15
Millington	9	5241	558	215	0.04	1	15	215	2	9	0.11	1	15	2%	1	14	5.24	1	13	88%	2	12	37%	2	10	54%	2	11	37%	2	10	10	4	5	15	3	6	17	4	4	58%	2	9	27	14
Perry	P3	3535	1151	446	0.13	4	4	261	3	8	0.33	4	4	6%	3	7	7.24	3	6	74%	1	16	44%	3	7	55%	2	10	44%	3	7	7	4	4	12	4	4	7	4	5	64%	3	7	41	1
Perry	P1	2451	276	105	0.04	1	14	105	2	11	0.11	1	13	3%	2	12	5.82	2	10	90%	2	10	74%	4	2	74%	4	5	74%	4	2	10	4	1	13	4	1	7	4	5	84%	4	1	38	2
Perry	P2	11511	1696	644	0.06	2	10	644	4	3	0.15	2	10	2%	1	16	5.51	2	12	76%	1	15	31%	2	12	61%	3	7	31%	2	12	20	3	7	47	4	2	27	4	2	59%	3	8	33	10
Perry	8	7375	943	351	0.05	2	11	351	4	5	0.13	2	11	2%	1	15	6.23	3	8	90%	2	11	50%	4	5	51%	1	14	50%	4	5	13	3	6	23	4	5	46	4	1	65%	3	6	37	4
Cole	C1	1137	110	41	0.04	1	16	41	1	15	0.10	1	16	2%	1	13	4.90	1	15	100%	4	1	77%	4	1	90%	4	2	77%	4	1	3	4	2	4	4	3	1	1	10	83%	4	2	34	9
Cole	C2	1935	246	90	0.05	2	12	90	1	13	0.13	2	12	3%	2	11	4.84	1	16	99%	4	3	54%	4	4	76%	4	4	54%	4	4	3	2	9	5	3	8	5	3	7	66%	4	5	36	6
Cole	7	1896	213	82	0.04	1	13	82	1	14	0.11	1	14	9%	3	6	5.78	2	11	99%	4	4	21%	1	14	51%	1	13	21%	1	14	1	1	15	3	1	14	0	1	14	47%	1	14	19	16
Cass	2	5074	799	295	0.06	2	9	166	2	10	0.16	2	9	9%	4	5	7.79	4	5	96%	3	7	56%	4	3	78%	4	3	56%	4	3	4	1	14	6	1	15	0	1	14	77%	4	3	36	6
Dead	D1	7152	2173	794	0.11	4	5	794	4	1	0.30	4	5	5%	3	8	6.18	2	9	82%	1	13	19%	1	15	41%	1	16	19%	1	15	8	2	12	20	3	7	4	2	9	37%	1	16	29	13
Dead	S1	1493	240	91	0.06	3	8	91	2	12	0.16	3	8	3%	2	10	5.07	1	14	98%	4	5	40%	2	9	52%	2	12	40%	2	9	3	4	3	3	2	10	5	3	7	57%	2	11	32	11
Dead	6	12747	2173	796	0.06	3	7	771	4	2	0.17	3	7	4%	2	9	6.66	3	7	95%	3	8	34%	2	11	74%	3	6	34%	2	11	20	3	8	28	2	9	27	4	2	68%	4	4	38	2
Cass	10	563	715	284	0.50	4	1	4	1	17	1.27	4	1	47%	4	1	15.58	4	1	100%	4	2	45%	3	6	93%	4	1	45%	3	6	0	1	16	0	1	16	1	1	10	51%	2	12	36	6
Cass	3	7043	4828	2,143	0.30	4	2	341	3	6	0.69	4	2	20%	4	3	10.55	4	3	96%	3	6	43%	3	8	59%	2	9	43%	3	8	8	2	11	13	2	12	0	1	14	58%	2	10	37	4
Cass	4	5102	1001	402	0.08	3	6	385	4	4	0.20	3	6	11%	4	4	8.20	4	4	93%	2	9	29%	1	13	61%	3	8	29%	1	13	6	2	10	9	1	13	1	1	10	49%	1	13	30	12
Study Watershed		82,987	18,542	7,323	0.09			4,643			0.22			7%			6.7			88%			36%			60%			30%			124			216			149			59%				

* Stressor scores were determined by density (number per area) to account for wide variability in subbasin size.