Figure 1. Map of Rum River Watershed Aquifer Vulnerability Rating.

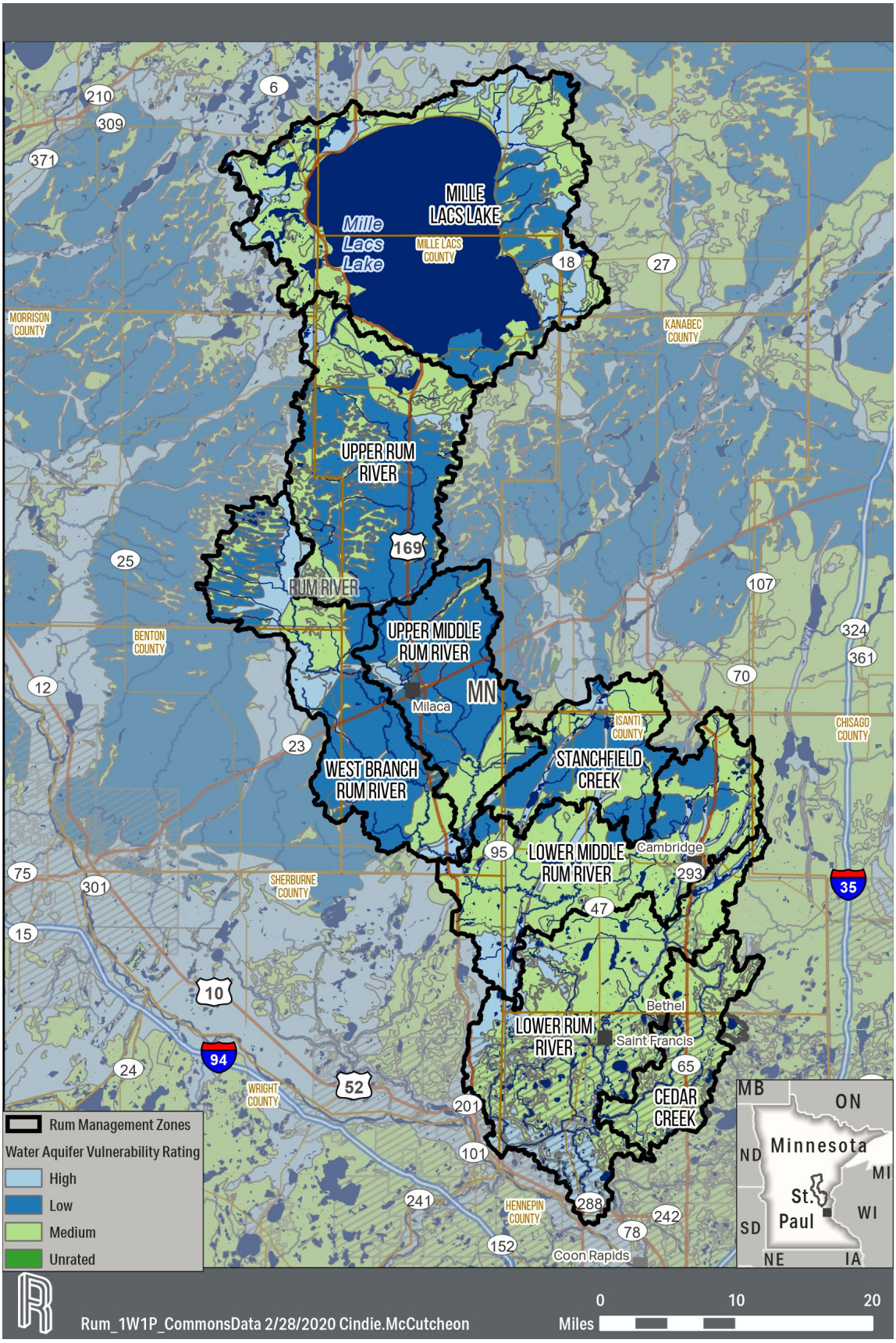

Figure 2. Map of Feedlots According to Number of Animal Units in the Rum River Watershed.

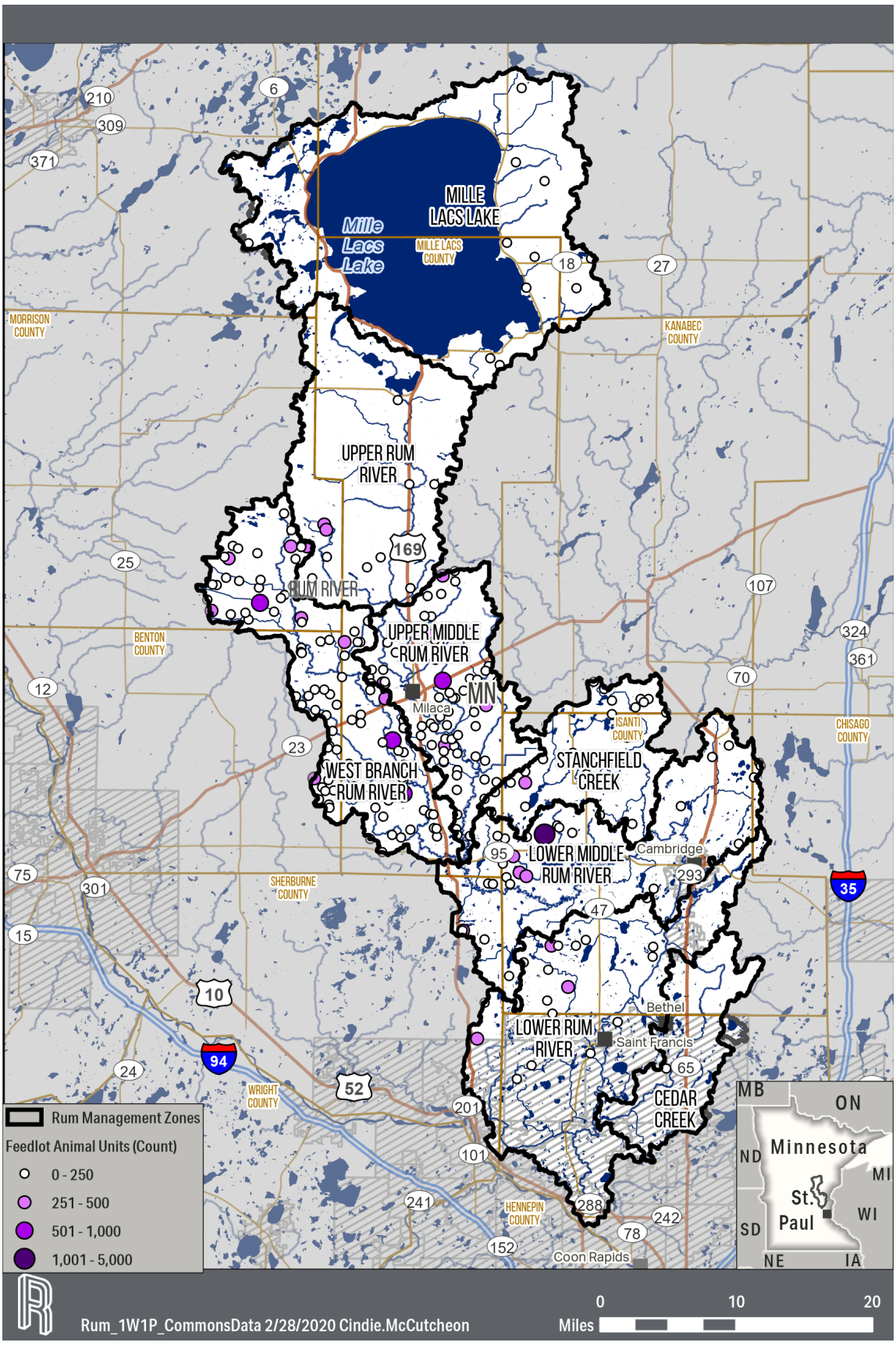

Table 1. Number of Feedlots, Total Number of Feedlots, Average Animal Units (AUs) Per Feedlot, Number of Confined Animal Feedlot Operations (CAFOs), and Number of Feedlots Per Range of Number of Animal Units, in Each Management Zone in the Rum River Watershed.

Management Zone	Feedlots	Total AUs	Average AUs per Feedlot	CAFOs	Feedlots (AU: 0-100)	Feedlots (AU: 101-1,000)	Feedlots (AU: 1,001-10,000)
Upper Middle Rum River	56	5,034.6	89.9	0	37	19	0
West Branch Rum River	99	9,550.4	96.5	2	72	27	0
Stanchfield Creek	19	1,277.0	67.2	0	14	5	0
Mille Lacs Lake	14	800.0	57.1	0	11	3	0
Upper Rum River	9	903.3	100.4	0	6	3	0
Lower Middle Rum River	26	5,473.5	210.5	1	17	8	1
Lower Rum River	19	1,782.6	93.8	0	16	3	0
Cedar Creek	1	16.8	16.8	0	1	0	0

Table 2. Number of Feedlots, Total Number of Feedlots, Average Animal Units (AUs) Per Feedlot, Number of Confined Animal Feedlot Operations (CAFOs), and Number of Feedlots Per Range of Number of Animal Units, in Each County in the Rum River Watershed.

County	Feedlots	Total AUs	Average AUs per Feedlot	CAFOs	Feedlots (AU: 0-100)	Feedlots (AU: 101-1,000)	Feedlots (AU: 1,001-10,000)
Mille Lacs	113	9,453.1	83.7	2	83	30	0
Benton	29	1,696.2	58.5	0	25	4	0
Sherburne	6	781.4	130.2	0	3	3	0
Isanti	37	6,704.7	181.2	1	26	10	1
Aitkin	7	508.6	72.7	0	5	2	0
Kanabec	8	229.8	28.7	0	6	2	0
Morrison	32	5,080.6	158.8	0	15	17	0
Chisago	3	56.8	18.9	0	3	0	0
Anoka	6	326.9	54.5	0	6	0	0
Crow Wing	2	0.0	0.0	0	2	0	0

Figure 3. Map of Average Nitrates In Wells in the Rum River Watershed.

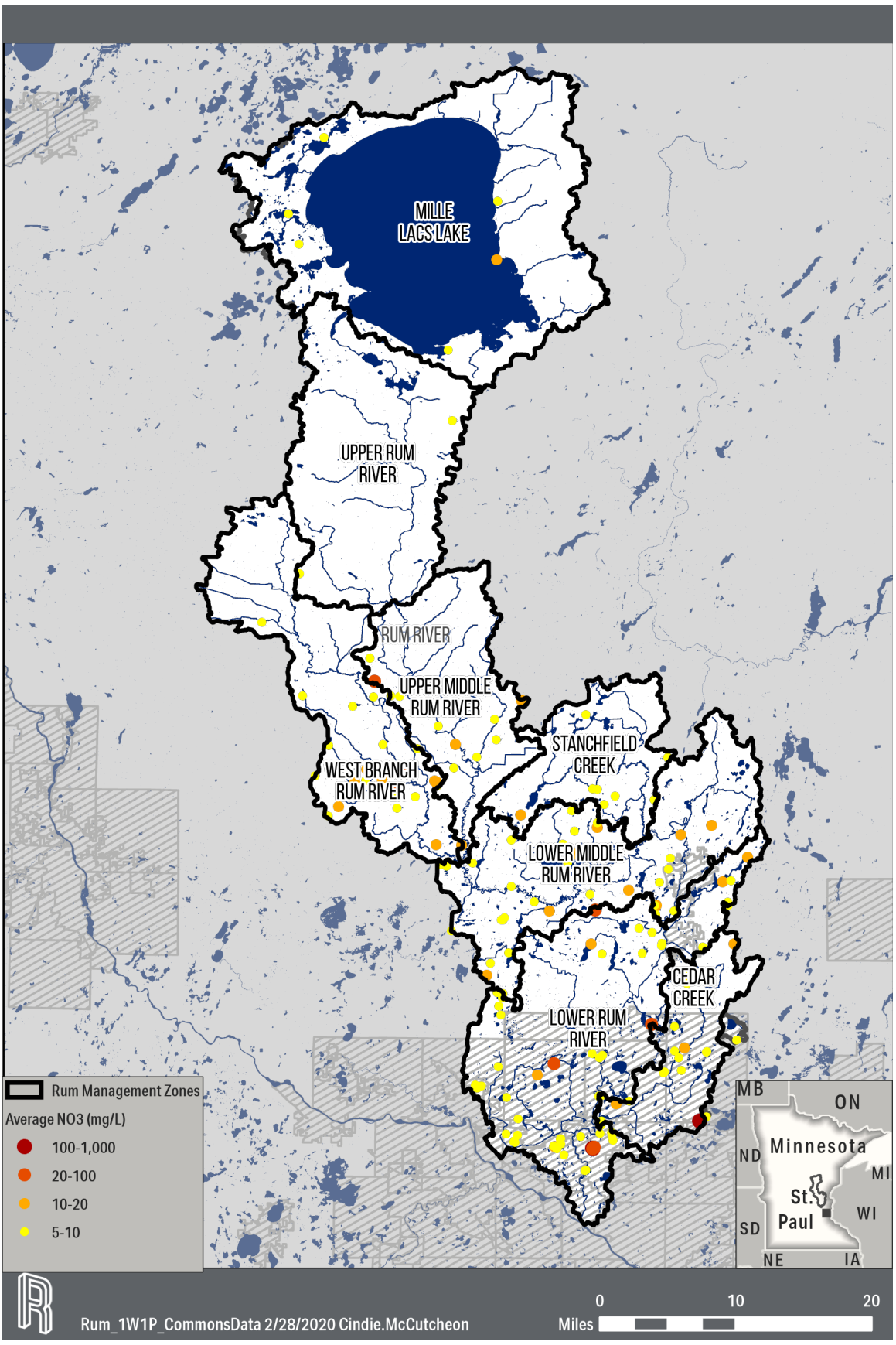

Figure 4. Map of Arsenic Levels in Wells in the Rum River Watershed.

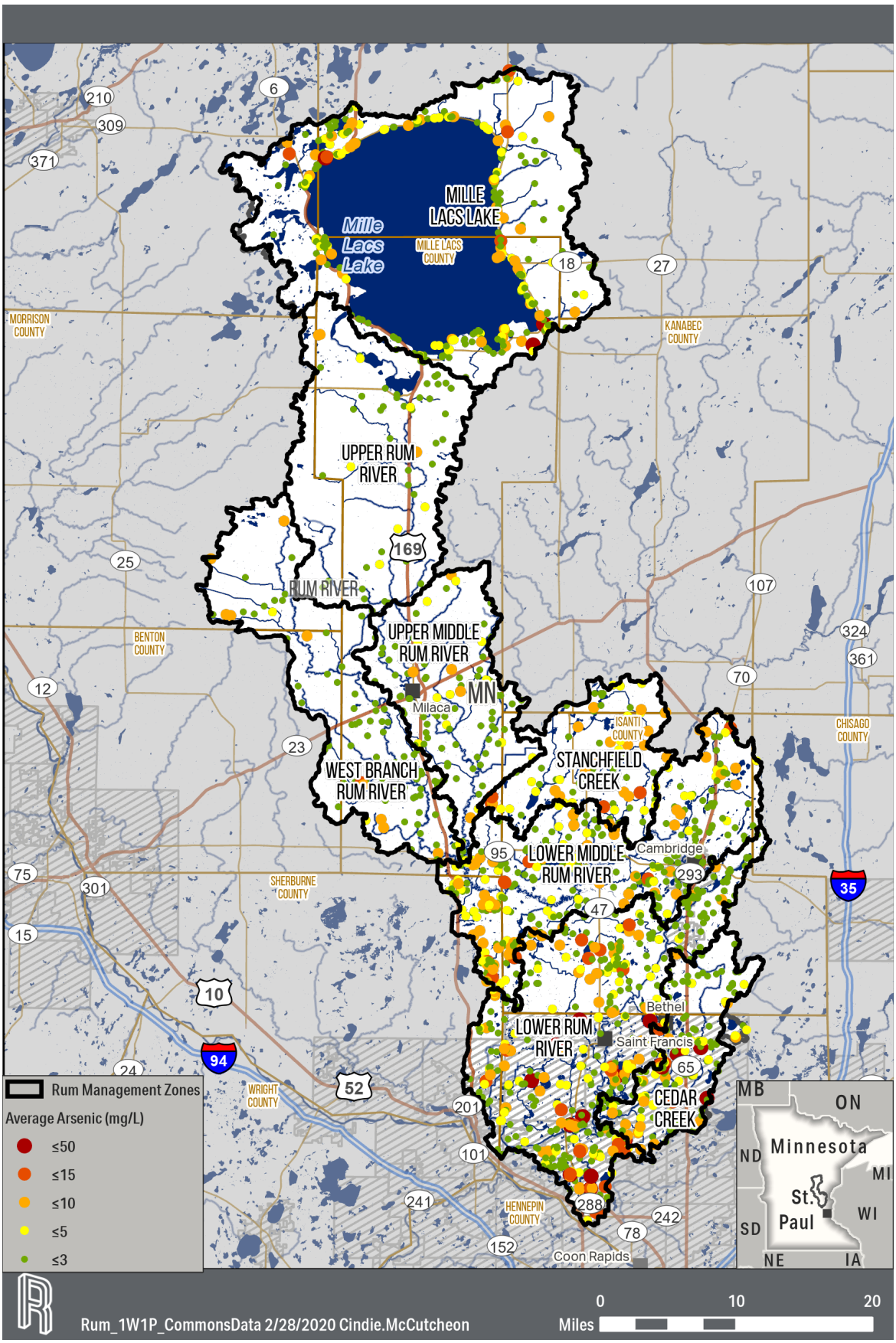

Table 3. Statistics on Average Well Nitrate Concentrations by Management Zone

Management Zone	Count of Wells with NO3 Data	Minimum Mean NO3 (mg/L)	Average Mean NO3 (mg/L)	Maximum Mean NO3 (mg/L)	Number of Wells with Average NO3 < 5 mg/L	Number of Wells with Average NO3 5-10 mg/L	Number of Wells with Average NO3 of 10-100 mg/L	Number of Wells with Average NO3 of >100 mg/L
Cedar Creek	1,948	0	1.4	820.0	1,927	16	4	1
Lower Middle Rum River	2,839	0	1.0	16.9	2,804	26	9	0
Lower Rum River	5,237	0	1.1	141.0	5,175	50	11	1
Mille Lacs Lake	1,187	0	0.8	14.5	1181	5	1	0
Stanchfield Creek	470	0	1.0	12.3	462	7	1	0
Upper Middle Rum River	420	0	1.3	37.6	409	8	3	0
Upper Rum River	163	0	1.0	6.5	161	2	0	0
West Branch Rum River	649	0	1.5	42.2	619	18	12	0

Table 4. Statistics on Average Well Arsenic Concentrations by Management Zone

Management Zone	Count of Wells with Arsenic Data	Minimum Mean Arsenic (mg/L)	Average Mean Arsenic (mg/L)	Maximum Mean Arsenic (mg/L)	Number of Wells with Average Arsenic < 5 mg/L	Number of Wells with Average Arsenic 5-10 mg/L	Number of Wells with Average Arsenic of 10-100 mg/L	Number of Wells with Average Arsenic of >100 mg/L
Cedar Creek	169	0.5	3.4	23.4	145	17	7	0
Lower Middle Rum River	410	1.0	3.4	15.0	339	62	9	0
Lower Rum River	461	0.5	4.0	50.0	362	62	37	0
Mille Lacs Lake	367	0.1	3.2	25.9	311	47	9	0
Stanchfield Creek	77	1.0	4.3	13.0	55	18	4	0
Upper Middle Rum River	92	0.7	2.4	8.5	87	5	0	0
Upper Rum River	54	0.5	2.3	7.3	51	3	0	0
West Branch Rum River	100	0.7	2.5	10.4	90	9	1	0

Figure 5. Map of Drinking Water Supply Management Area Vulnerability in the Rum River Watershed.

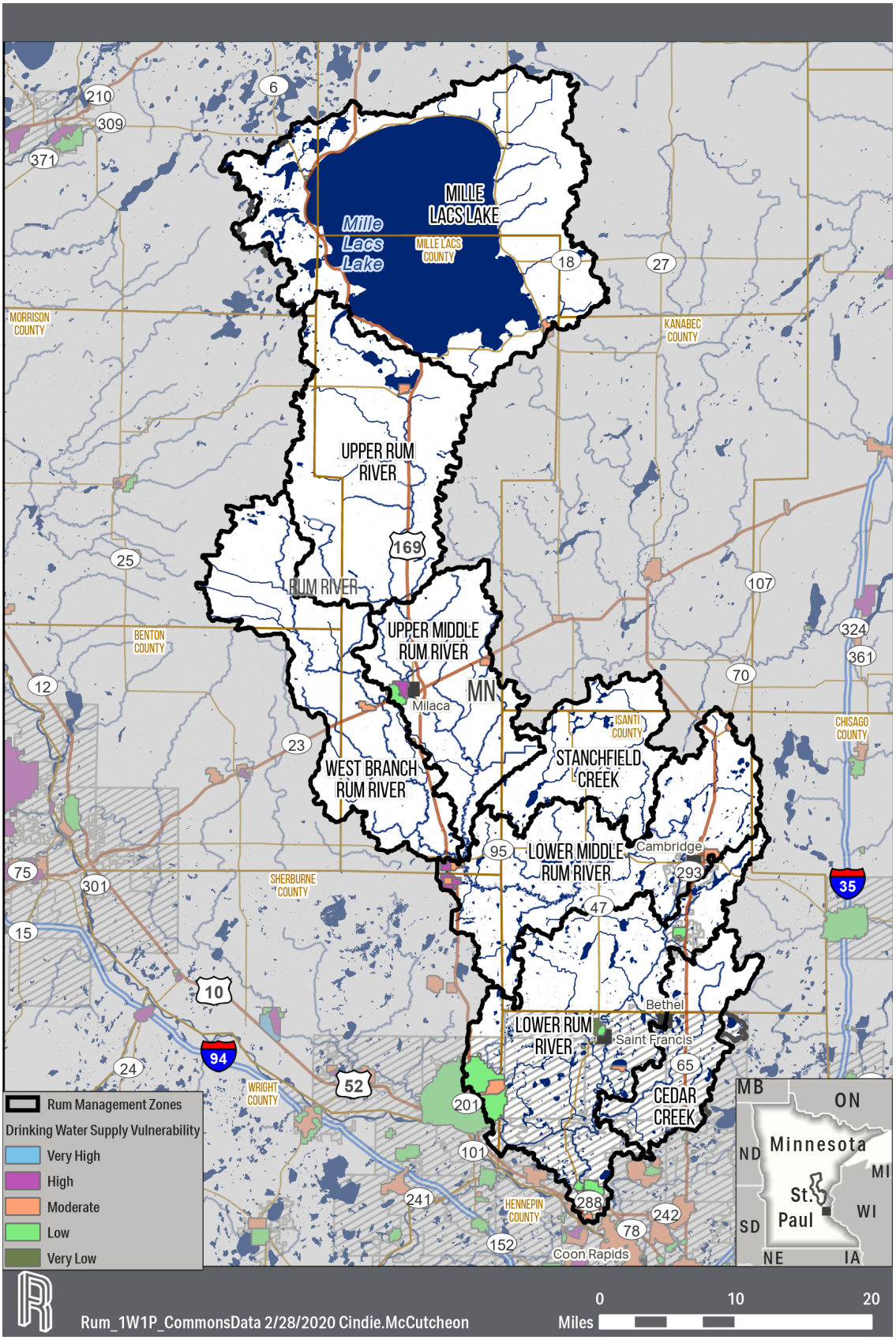

Table 5. Acres in Each Drinking Water Supply Vulnerability Category by Management Zone

Management Zone	Acres in Very Low Category	Acres in Low Category	Acres in Moderate Category	Acres in High Category	Acres in Very High Category
Cedar Creek	0	93	166	0	0
Lower Middle Rum River	0	0	1,287	1,004	113
Lower Rum River	551	17,610	4,842	14	0
Mille Lacs Lake	0	41	526	0	0
Stanchfield Creek	0	0	0	0	0
Upper Middle Rum River	0	942	356	595	0
Upper Rum River	0	0	328	0	0
West Branch Rum River	0	942	770	53	0

Figure 6. Map of Active Well Permits, According to Use Sector, and Permitted Volumes Within the Rum River Watershed.

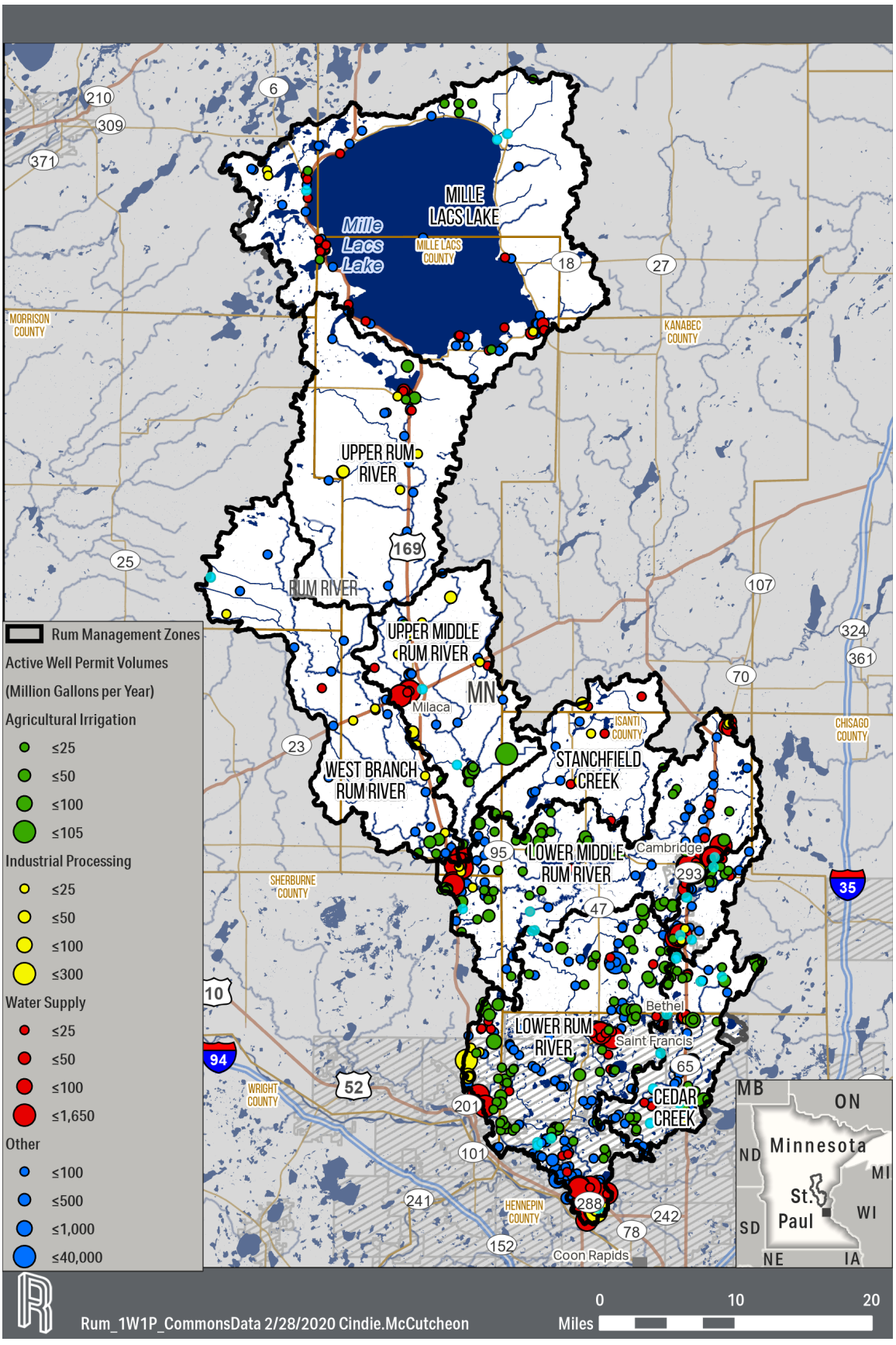

Table 6. Active Well Permitted Volumes by Management Zone and Use

Management Zone	Well Use	# of Active Wells Permitted for <25 Million Gallons per Year	# of Active Wells Permitted for 25-50 Million Gallons per Year	# of Active Wells Permitted for 50-100 Million Gallons per Year	# of Active Wells Permitted for >100 Million Gallons per Year
Cedar Creek	Ag Irrigation	10	4	1	0
	Industrial Processing	1	1	0	0
	Other	11	6	0	7
	Water Supply	3	5	0	0
Lower Middle Rum River	Ag Irrigation	15	8	0	0
	Industrial Processing	1	0	0	1
	Other	16	3		
	Water Supply	5	0	3	15
Lower Rum River	Ag Irrigation	14	14	2	0
	Industrial Processing	5	4	1	7
	Other	32	2	6	10
	Water Supply	5	0	0	21
Mille Lacs Lake	Ag Irrigation	0	0	0	0
	Industrial Processing	0	0	0	0
	Other	8	2	0	0
	Water Supply	4	3	0	0
Stanchfield Creek	Ag Irrigation	1	1	0	0
	Industrial Processing	0	3	0	0
	Other	0	0	0	0
	Water Supply	0	0	0	0
Upper Middle Rum River	Ag Irrigation	1	0	0	0
	Industrial Processing	3	1	1	0
	Other	14	0	0	0
	Water Supply	3	0	0	7
Upper Rum River	Ag Irrigation	0	0	0	0
	Industrial Processing	0	2	0	0
	Other	1		0	0
	Water Supply	0	3	0	0
West Branch Rum River	Ag Irrigation	0	2	0	0
	Industrial Processing	0	0	0	0
	Other	2	0	1	0
	Water Supply	2	0	0	0