

Supplemental Material (Online Only)

Supplemental Appendix 1. Particle size data

Site	Depth (cm)	Latitude	Longitude	Distance (m)	Mode (µm)	Coarse silt/Medium silt	% Sand
Transect A1	95			1465.3	28.95	0.93	5.6
Transect A1	105			1465.3	28.92	0.92	5.3
Transect A1	115			1465.3	28.93	0.91	4.7
Transect A1	125			1465.3	29.24	0.92	4.6
Transect A1	135			1465.3	28.11	0.88	4.1
Transect A1	145			1465.3	27.93	0.88	4.5
A 1 Average		43°21.97'N	89°24.96'W	1465.3	28.65	0.91	
Transect A2	45			2900.9	26.88	0.86	4.4
Transect A2	55			2900.9	27.38	0.87	4.4
Transect A2	65			2900.9	28.03	0.88	4.6
Transect A2	75			2900.9	27.20	0.85	4.1
Transect A2	85			2900.9	26.72	0.83	4.0
Transect A2	95			2900.9	26.18	0.81	3.7
Transect A2	105			2900.9	26.09	0.80	3.5
Transect A2	115			2900.9	27.24	0.84	4.0
A2 Average		43°21.16'N	89°24.41'W	2900.9	26.94	0.84	
Transect A3	35			6330.6	26.20	0.82	4.0
Transect A3	45			6330.6	26.95	0.84	3.3
Transect A3	55			6330.6	27.43	0.86	8.0
Transect A3	65			6330.6	26.61	0.84	9.5
Transect A3	75			6330.6	27.01	0.85	7.4
A3 Average		43°20.80'N	89°21.72'W	6330.6	27.00	0.85	
Transect A4	55			9490.0	26.68	0.84	4.2
Transect A4	65			9490.0	27.39	0.86	4.4
Transect A4	75			9490.0	27.92	0.87	3.5
Transect A4	85			9490.0	26.96	0.83	3.7
Transect A4	95			9490.0	28.68	0.90	4.3
Transect A4	105			9490.0	27.62	0.86	4.0
Transect A4	115			9490.0	26.92	0.83	3.8
Transect A4	125			9490.0	26.32	0.80	3.5
A4 Average		43°19.43'N	89°20.15'W	9490.0	27.33	0.85	
Transect A5	35			16622.2	26.43	0.83	3.5
Transect A5	45			16622.2	26.98	0.84	3.7
Transect A5	55			16622.2	26.97	0.84	3.6
Transect A5	65			16622.2	25.68	0.79	3.5
Transect A5	75			16622.2	26.13	0.81	3.8
Transect A5	85			16622.2	28.02	0.87	4.0
Transect A5	95			16622.2	26.16	0.80	3.4
Transect A5	105			16622.2	26.83	0.83	3.7
Transect A5	115			16622.2	29.03	0.92	4.8
A5 Average		43°17.86'N	89°15.26'W	16622.2	26.97	0.84	
Transect A6	35			30729.4	26.12	0.81	3.5
Transect A6	45			30729.4	25.98	0.80	3.6
Transect A6	55			30729.4	26.33	0.81	5.7
Transect A6	65			30729.4	26.77	0.82	3.7
Transect A6	75			30729.4	26.03	0.79	5.8
Transect A6	85			30729.4	26.02	0.82	13.2
A6 Average		43°13.62'N	89°06.61'W	30729.4	26.26	0.81	
Transect B1	35			2128.5	28.05	0.90	6.5
Transect B1	45			2128.5	29.22	0.93	5.5
Transect B1	55			2128.5	29.32	0.93	5.4
Transect B1	65			2128.5	30.11	0.96	5.6
Transect B1	75			2128.5	27.48	0.87	4.2
Transect B1	85			2128.5	29.02	0.92	5.2
Transect B1	95			2128.5	29.69	0.95	5.3

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Site	Depth (cm)	Latitude	Longitude	Distance (m)	Mode (μm)	Coarse silt/Medium silt	% Sand
Transect B1	105			2128.5	29.02	0.92	5.0
Transect B1	115			2128.5	27.35	0.85	4.1
B1 Average		43°22.32'N	89°18.44'W	2128.5	28.86	0.91	
Transect B2	35			4317.8	27.56	0.88	5.2
Transect B2	45			4317.8	28.26	0.90	5.0
Transect B2	55			4317.8	28.76	0.91	4.9
Transect B2	65			4317.8	28.54	0.90	5.0
Transect B2	75			4317.8	28.06	0.88	4.6
Transect B2	85			4317.8	28.85	0.92	11.1
Transect B2	95			4317.8	29.84	0.96	10.7
Transect B2	105			4317.8	29.75	0.95	11.1
Transect B2	115			4317.8	27.98	0.90	20.7
Transect B2	125			4317.8	33.32	1.11	31.0
Transect B2	135			4317.8	30.84	1.02	26.8
B2 Average		43°21.76'N	89°17.01'W	4317.8	29.23	0.94	
Transect B3	45			8012.6	28.30	0.90	5.0
Transect B3	55			8012.6	28.81	0.91	5.1
Transect B3	65			8012.6	29.20	0.93	5.2
Transect B3	75			8012.6	27.72	0.87	4.6
Transect B3	85			8012.6	27.84	0.88	6.1
Transect B3	95			8012.6	27.99	0.88	4.8
Transect B3	105			8012.6	30.32	0.97	13.2
Transect B3	115			8012.6	30.22	0.97	15.1
B3 Average		43°20.73'N	89°14.66'W	8012.6	28.64	0.91	
Transect B4	35			10933.6	26.44	0.83	4.2
Transect B4	45			10933.6	27.23	0.86	9.1
B4 Average		43°19.68'N	89°13.02'W	10933.6	27.41	0.87	
Transect B5	15			17328.8	27.00	0.87	5.5
Transect B5	25			17328.8	26.71	0.85	4.5
Transect B5	35			17328.8	27.58	0.87	4.6
Transect B5	45			17328.8	27.75	0.88	5.0
Transect B5	55			17328.8	27.47	0.86	4.6
B5 Average		43°18.47'N	89°08.47'W	17328.8	27.38	0.86	
Transect B6	45			28793.4	26.34	0.83	3.7
Transect B6	55			28793.4	26.09	0.81	3.8
Transect B6	65			28793.4	26.27	0.81	3.5
Transect B6	75			28793.4	26.70	0.83	3.8
Transect B6	85			28793.4	26.29	0.82	4.0
Transect B6	95			28793.4	26.66	0.82	3.9
Transect B6	105			28793.4	26.49	0.81	3.5
B6 Average		43°14.94'N	89°01.51'W	28793.4	26.41	0.82	
Transect C1	85			1328.1	27.19	0.85	6.6
Transect C1	95			1328.1	29.51	0.94	8.8
C1 Average		43°21.75'N	89°08.87'W	1328.1	28.35	0.89	
Transect C2	5			4694.3	28.09	0.92	11.8
Transect C2	15			4694.3	28.30	0.92	6.4
Transect C2	25			4694.3	28.11	0.90	5.5
Transect C2	35			4694.3	27.76	0.88	5.0
Transect C2	45			4694.3	27.32	0.86	4.7
C2 Average		43°20.91'N	89°06.65'W	4694.3	27.48	0.88	
Transect C3	35			7046.6	26.69	0.86	5.1
Transect C3	45			7046.6	27.03	0.87	5.1
Transect C3	55			7046.6	26.49	0.85	4.5
Transect C3	65			7046.6	27.33	0.86	4.3
Transect C3	75			7046.6	26.07	0.82	3.6

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Site	Depth (cm)	Latitude	Longitude	Distance (m)	Mode (µm)	Coarse silt/Medium silt	% Sand
Transect C3	85			7046.6	27.73	0.87	4.1
Transect C3	95			7046.6	27.94	0.87	4.2
Transect C3	105			7046.6	28.24	0.89	4.4
Transect C3	115			7046.6	26.68	0.83	4.0
Transect C3	125			7046.6	26.73	0.83	3.8
C3 Average		43°20.09'N	89°05.30'W	7046.6	27.14	0.85	
Transect C3-B	25			7149.6	27.30	0.88	4.5
Transect C3-B	35			7149.6	27.97	0.89	4.8
Transect C3-B	45			7149.6	27.54	0.87	3.8
Transect C3-B	55			7149.6	26.79	0.84	4.0
Transect C3-B	65			7149.6	27.15	0.85	3.8
Transect C3-B	75			7149.6	26.84	0.83	3.6
Transect C3-B	85			7149.6	27.51	0.85	3.3
Transect C3-B	95			7149.6	27.84	0.86	3.4
Transect C3-B	105			7149.6	26.92	0.82	3.4
C3-B Average		43°20.09'N	89°05.21'W	7149.6	27.32	0.86	
Transect C4	35			10013.7	26.81	0.85	4.3
Transect C4	45			10013.7	27.31	0.85	4.0
Transect C4	55			10013.7	26.90	0.84	4.2
Transect C4	65			10013.7	27.02	0.85	4.2
Transect C4	75			10013.7	27.31	0.85	4.4
Transect C4	85			10013.7	26.92	0.85	11.1
C4 Average		43°17.86'N	89°04.66'W	10013.7	27.06	0.85	
Transect C5	5			18318.2	27.19	0.93	15.9
Transect C5	15			18318.2	26.04	0.84	5.3
Transect C5	25			18318.2	26.73	0.86	4.7
Transect C5	35			18318.2	27.11	0.85	4.1
Transect C5	45			18318.2	27.86	0.87	4.1
Transect C5	55			18318.2	27.54	0.86	4.2
Transect C5	65			18318.2	27.88	0.87	4.3
Transect C5	75			18318.2	26.64	0.82	3.8
Transect C5	85			18318.2	26.11	0.81	3.8
C5 Average		43°16.77'N	88°58.32'W	18318.2	27.05	0.86	
Transect C6	60			32908.9	24.37	0.79	4.3
Transect C6	88			32908.9	27.44	0.88	11.2
Transect C6	125			32908.9	25.89	0.80	3.7
C6 Average		43°13.66'N	88°48.25'W	32908.9	25.97	0.82	
Driftless Area Samples							
LC 1	130	43°44.60'N	91°08.67'W	3788	31.77	1.04	6.0
LC 1	160	43°44.60'N	91°08.67'W	3788	33.26	1.11	6.1
IA 1	250	43°09.11'N	90°17.94'W	68922	27.58	0.84	3.6
IA 1	220	43°09.11'N	90°17.94'W	68922	27.70	0.85	3.1
VR 1	130	42°25.57'N	91°10.30'W	2551	33.33	1.08	6.7
VR 1	220	42°25.57'N	91°10.30'W	2551	33.34	1.11	6.9
Beers 1	103	43°10.87'N	90°53.80'W	19361	29.66	0.94	4.7
Beers 1	227	43°10.87'N	90°53.80'W	19361	29.22	0.92	4.8

Supplemental Material (Online Only)

Supplemental Appendix 2. Mineralogy data										
Site	Latitude	Longitude	Horizon		% quartz	%K-feldspar	% plagioclase	% dolomite	P/Q	K/Q
			or Depth (cm)	Lithology						
1	43°13.66'N	88°48.25'W	Bt1	loess	68.4	14.7	16.9	0.0	7.1	5.4
2	42°57.11'N	88°53.06'W	Bt2	loess	76.4	9.2	14.3	0.0	5.4	3.0
3	43°13.66'N	88°48.17'W	BC	loess	47.3	9.0	16.4	27.3	9.9	4.8
3	43°13.66'N	88°48.17'W	C	loess	36.3	8.7	13.8	41.2	10.9	6.0
4	42°40.50'N	88°49.12'W	Bt4	loess	68.7	9.7	21.5	0.0	9.0	3.5
5	42°40.23'N	88°49.16'W	Bt3	loess	72.3	11.0	16.7	0.0	6.6	3.8
6	43°47.81'N	88°54.43'W	BC 120	loess	64.0	12.5	23.5	0.0	10.5	4.9
6	43°47.81'N	88°54.43'W	C 175	loess	42.8	7.7	13.1	36.3	8.8	4.5
7	43°49.30'N	88°47.46'W	Bt2	loess	68.3	12.5	19.1	0.0	8.0	4.6
8	43°24.43'N	89°06.59'W	Bt3	loess	70.2	12.2	17.6	0.0	7.1	4.4
B1	43°22.32'N	89°18.44'W	105	loess	74.6	9.2	16.1	0.0	6.2	3.1
B2	43°21.76'N	89°17.01'W	115	loess	68.9	11.9	19.2	0.0	8.0	4.3
B3	43°20.73'N	89°14.66'W	95	loess	68.7	12.4	18.9	0.0	7.9	4.5
B4	43°19.68'N	89°13.02'W	35	loess	68.0	11.0	20.9	0.0	8.8	4.1
B4	43°19.68'N	89°13.02'W	45	loess	72.5	10.7	16.8	0.0	6.6	3.7
B5	43°18.46'N	89°08.47'W	45	loess	68.9	10.6	20.5	0.0	8.5	3.9
B5	43°18.46'N	89°08.47'W	55	loess	72.4	11.1	16.6	0.0	6.6	3.8
B6	43°14.94'N	89°01.51'W	95	loess	70.7	10.9	18.4	0.0	7.4	3.9
9	43°05.71'N	89°01.62'W	Bt2	loess	77.8	9.0	13.2	0.0	7.4	3.9
10	43°05.69'N	89°01.59'W	Bt2	loess	74.1	7.2	18.7	0.0	4.8	2.9
11	42°36.47'N	88°47.68'W	Bt3	loess	74.4	8.7	16.9	0.0	7.2	2.4
12	42°36.03'N	88°46.52'W	Bt3	loess	76.4	7.2	16.5	0.0	6.5	2.9
13	43°21.81'N	89°11.42'W		loess	69.7	7.8	22.5	0.0	6.2	2.4
14	43°12.69'N	88°15.02'W	Bt4	loess	72.2	9.1	18.6	0.0	9.2	2.8
15	43°05.65'N	88°48.38'W	till	till	15.3	3.7	6.1	74.9	11.4	6.1
16	43°13.61'N	88°50.10'W	till	till	16.2	2.7	5.6	75.4	9.9	4.2
17	42°57.63'N	88°47.34'W	C	till	22.0	4.4	5.7	67.9	7.4	5.0
18	43°41.48'N	88°56.11'W	2C	till	23.4	5.9	9.6	61.2	11.7	6.3
8	43°24.43'N	89°06.59'W	2C	till	24.2	6.1	6.5	63.2	7.7	6.3
19	43°37.29'N	89°24.90'W	till	till	30.7	7.8	8.9	52.6	8.3	6.3
20	42°51.23'N	88°50.69'W	C1	till	24.4	3.1	4.1	68.4	4.8	3.2
21	42°51.23'N	88°50.70'W	C3	till	15.4	2.1	3.4	79.0	6.4	3.4
21	42°51.23'N	88°50.70'W	C3 (2)	till						
22	43°13.66'N	88°48.25'W	2C	till	14.0	5.3	3.9	76.7	8.0	9.5
23	42°51.39'N	88°44.59'W	till	till	18.8	3.8	5.5	71.9	8.4	5.1
24	42°50.91'N	88°44.39'W	C	till	21.5	3.4	4.7	70.3	6.2	4.0
25	42°53.84'N	88°47.01'W		till	18.7	3.7	6.8	70.8	10.4	4.9
14	43°12.69'N	88°15.02'W	2C	till	20.1	5.1	4.5	70.3	6.5	6.3
26	43°04.93'N	88°49.87'W	3C2	till	18.6	3.8	5.5	72.1	8.5	5.2
15	43°05.65'N	88°48.38'W	sand	ow	13.4	4.3	4.8	77.5	10.3	7.9
2	42°57.11'N	88°53.06'W	2C	ow	11.0	2.7	3.1	83.2	8.1	6.1
27	42°57.02'N	88°53.17'W	2C	ow	65.9	12.4	21.7	0.0	9.4	4.7

Supplemental Appendix 2. Mineralogy data										
Site	Latitude	Longitude	Horizon	Lithology	% quartz	%K-feldspar	% plagioclase	% dolomite	P/Q	K/Q
			or Depth (cm)							
28	42°51.21'N	88°50.75'W	C2	ow	10.5	1.9	4.3	83.4	11.7	4.4
29	42°53.79'N	88°49.86'W		ow	18.3	3.6	6.6	71.6	10.3	5.0
30	42°56.39'N	88°43.97'W		ow	19.8	3.5	4.8	71.9	6.9	4.5
31	42°56.54'N	88°43.98'W	2C	ow						
32	44°02.72'N	89°51.04'W		GLW	39.4	8.1	12.4	40.1	9.0	5.1
32	44°02.72'N	89°51.04'W		GLW	46.6	11.6	14.2	27.5	8.7	6.2
32	44°02.72'N	89°51.04'W		GLW						
33	44°02.62'N	89°50.95'W	2C	GLW	68.1	15.3	16.6	0.1	7.0	5.6
34	43°50.91'N	90°05.63'W	54	GLW	69.0	8.9	22.1	0.1	9.1	3.2
34	43°50.91'N	90°05.63'W	94	GLW	69.6	11.3	19.0	0.1	7.8	4.1
34	43°50.91'N	90°05.63'W	120	GLW	49.4	6.7	15.2	28.7	8.8	3.4
34	43°50.91'N	90°05.63'W	140	GLW	49.5	7.5	14.5	28.4	8.3	3.8
34	43°50.91'N	90°05.63'W	165	GLW	51.4	6.7	14.4	27.6	8.0	3.2
35	43°55.39'N	90°10.56'W		GLW	71.2	9.2	17.3	2.2	7.0	3.2
35	43°55.39'N	90°10.56'W	60	GLW	67.1	9.9	20.6	2.4	8.8	3.7
35	43°55.39'N	90°10.56'W	78	GLW	64.9	12.2	21.2	1.7	9.3	4.7
36	44°00.66'N	90°16.13'W	97	GLW	66.4	13.3	19.4	0.9	8.3	5.0
36	44°00.66'N	90°16.13'W	109	GLW	68.7	11.1	20.2	0.1	8.4	4.0
36	44°00.66'N	90°16.13'W	130	GLW	52.9	6.5	12.3	28.3	6.6	3.1
36	44°00.66'N	90°16.13'W	143	GLW	60.0	6.9	20.6	12.5	9.8	2.9
37	42°42.09'N	90°25.06'W	C1 250	DLA	63.0	18.2	18.8	0.0	7.4	3.2
38	42°33.86'N	90°36.65'W	C 185	DLA						
38	42°33.86'N	90°36.65'W	C 340	DLA						
39	43°45.21'N	90°34.60'W	C 130	DLA	62.9	13.4	23.7	0.0	10.8	5.3
LC1	43°44.60'N	91°08.67'W	130	DLA	71.0	9.0	20.0	0.0	8.0	3.2
LC2	43°48.14'N	91°08.96'W	100	DLA	68.2	9.1	22.7	0.0	9.5	3.3
CR1	43°19.57'N	90°55.59'W	150	DLA	71.7	7.5	20.9	0.0	8.3	2.6
CR3	43°01.06'N	91°04.35'W	150	DLA	63.8	15.0	21.3	0.0	9.5	5.9
GT6	42°40.96'N	90°50.23'W	128	DLA	66.2	9.7	24.1	0.0	10.4	3.7
Boice1	42°42.19'N	90°47.14'W	160	DLA	68.5	11.5	20.0	0.0	8.3	4.2
Harms3	42°41.91'N	90°28.03'W	100	DLA	73.4	7.5	19.1	0.0	7.4	2.6
40	42°44.14'N	90°26.96'W		DLA	67.6	12.4	20.1	0.0	8.5	4.6
RS-5	43°54.23'N	89°05.70'W	978	GLO	46.2	7.4	10.9	35.5	6.7	4.0
RS-5	43°54.23'N	89°05.70'W	2399	GLO	46.6	5.5	17.0	30.9	10.4	3.0
RS-5	43°54.23'N	89°05.70'W	3179	GLO	44.4	6.0	20.9	28.7	13.4	3.4
RS-9	43°34.63'N	89°25.13'W	533	GLO	41.5	9.7	11.4	37.4	7.9	5.8
RS-10	43°46.19'N	89°11.84'W	1109	GLO	52.4	10.1	12.4	25.2	6.7	4.8
RS-10	43°46.19'N	89°11.84'W	2018	GLO	37.7	12.5	11.2	38.6	8.5	8.3
RS-10	43°46.19'N	89°11.84'W	2509	GLO	52.2	6.3	16.3	25.2	8.9	3.0
RS-10	43°46.19'N	89°11.84'W	4106	GLO	25.1	4.2	6.5	64.2	7.4	4.2
RS-10	43°46.19'N	89°11.84'W	4840	GLO	26.0	3.2	8.3	62.6	9.1	3.0
RS-10	43°46.19'N	89°11.84'W	8111	GLO	25.3	5.1	6.8	62.9	7.7	5.0

Site	% smectite	% vermiculite	% illite	kaolinite + chlorite
1	32.9	26.5	18.4	22.2
2	33.6	22.9	22.5	21.1
3	25.7	32.1	20.6	21.5
3	50.9	26.3	9.6	13.2
4	33.3	21.9	31.7	13.1
5	40.2	17.2	24.1	18.4
6	42.2	28.1	9.4	20.3
6	44.5	24.0	13.1	18.5
7	30.2	25.8	21.0	22.9
8	35.1	20.9	24.5	19.5
B1	39.4	19.9	21.0	19.7
B2	36.0	16.1	27.0	20.9
B3	36.9	18.5	24.1	20.4
B4	36.4	22.7	17.8	23.2
B4	37.4	15.4	23.7	23.5
B5	35.9	21.3	20.4	22.3
B5	37.8	22.6	18.3	21.3
B6	37.9	21.8	18.0	22.3
9	34.8	23.1	20.7	21.5
10	35.3	22.7	21.0	21.0
11	40.0	16.2	23.3	20.5
12	39.4	22.5	20.0	18.1
13	50.1	21.2	15.0	13.7
14	43.3	19.7	18.1	18.9
15	6.9	9.9	55.8	27.4
16	12.9	12.2	50.4	24.4
17	6.2	10.2	48.3	35.3
18	9.5	18.2	41.6	30.8
8	19.7	25.1	33.0	22.3
19	14.8	13.3	43.8	28.1
20	6.0	10.8	45.9	37.3
21	6.9	14.1	44.9	34.1
21	7.6	13.9	48.0	30.5
22	14.8	15.5	48.4	21.3
23	6.7	8.3	57.1	27.9
24	9.6	14.4	47.3	28.7
25	5.5	16.6	50.3	27.6
14	10.4	12.4	43.0	34.2
26	11.7	16.8	50.3	21.2
15	13.0	12.1	47.9	27.0
2	13.6	13.8	47.9	24.8
27				

Site	% smectite	% vermiculite	% illite	kaolinite + chlorite
28	9.3	11.2	58.3	21.2
29	18.8	15.9	39.9	25.4
30	8.8	8.1	60.8	22.4
31	12.3	18.9	44.8	24.1
32	18.4	12.7	35.6	33.2
32	18.8	14.3	32.6	34.3
32	19.0	12.7	35.0	33.3
33				
34	23.8	24.9	30.9	20.4
34	11.8	16.7	38.6	33.0
34	19.4	21.8	34.5	24.2
34	16.6	17.3	37.9	28.2
34	16.9	16.3	35.3	31.4
35	11.4	12.0	45.4	31.2
35	19.5	21.7	29.4	29.5
35	20.5	31.5	27.1	20.8
36	26.3	23.6	25.7	24.3
36	41.8	19.1	22.2	16.9
36	40.3	13.0	27.3	19.4
36	35.7	20.7	24.8	18.7
37	45.2	21.9	14.3	18.6
38	40.1	18.9	18.5	22.5
38	37.5	18.9	20.9	22.7
39	41.6	22.0	16.3	20.1
LC1	38.3	14.9	23.9	22.9
LC2	38.3	16.9	23.9	20.9
CR1	40.2	11.2	31.9	16.7
CR3	40.5	11.4	27.9	20.2
GT6	45.1	11.9	24.9	18.1
Boice1	49.1	17.1	15.1	18.7
Harms3	45.8	18.1	21.3	14.8
40	41.5	13.5	27.6	17.4
RS-5	8.4	8.8	40.8	42.0
RS-5	16.3	4.5	41.0	38.3
RS-5	6.9	6.8	45.7	40.6
RS-9	21.3	6.2	41.6	31.0
RS-10	11.7	8.3	42.3	37.8
RS-10	8.5	8.4	43.8	39.3
RS-10	7.0	7.4	42.4	43.2
RS-10	13.7	6.7	48.7	30.9
RS-10	9.2	8.5	49.8	32.5
RS-10	7.1	5.9	50.7	36.3