

Assessment of State Rare Plant Populations at Cove Point Wetland (Year 2020)

Submitted by Brent W. Steury, 1 October, 2020

Cove Point wetland is located in Calvert County, Maryland, northeast of Cove Point Road, on the Dominion Liquefied Natural Gas (LNG) property. It is separated from the Chesapeake Bay by a single low dune and a rip-rap breakwater. In 2007, a breach of the barrier dune resulted in the intrusion of brackish bay water into the freshwater marsh. This lasted until 2010 when the breakwater was constructed, the breach restored, and the marsh began to revert back to a freshwater system. Many of the state rare plant species, first documented in the marsh in 1996, were not found in the marsh during surveys in 2008 - 2010.

This 2020 report includes an assessment of the rare Maryland state listed plant species found in Cove Point Marsh. 2020 surveys were conducted on 12 June and 17 September. On 12 June the site was accessed on foot and on 17 September kayaks were used to conduct surveys. The water levels were very high in September and the population levels of *Ammannia latifolia* were the highest ever recorded. Jessica Flester of the University of Maryland Center for Environmental Science, Chesapeake Biological Laboratory, accompanied me to obtain GPS data for each rare plant population. Polygons for *Carex hyalinolepis* and *Zizaniopsis miliacea* were measured by hand using a 25 m tape measure. The area of each polygon is in the species accounts below. A GPS point was obtained for all other species populations and the estimated number of plants at or between points was recorded. In some cases, more than one species was observed at a point. All GPS data is recorded in Table 1 and on the attached map.

Assessment of State rare plant populations in 2020 at Cove Point Marsh.

Ammannia latifolia (S2):

In 2019, eleven populations of *A. latifolia* were found containing approximately 5875 stems. The 17 September 2020 survey recorded the highest number of *A. latifolia* found in the marsh since monitoring began in 1996. The 2020 survey recorded 26 populations containing an estimated 42,095 stems, all in fruit and some still in flower.

Carex hyalinolepis (S2S3):

The two populations at Cove Point were observed on 12 June 2020. In 2017, a third population existed along the beachfront but it was beginning to erode into the Chesapeake Bay. This population has not been present since 2017. The beach at this location, just beyond where the rip-rap breakwater stops, is rapidly eroding through the beach dune and toward to marsh. This population of *C. hyalinolepis* was the first known Maryland rare plant population at Cove Point and was first recorded here in the 1990's.

The population of *Carex hyalinolepis* found in the northeastern corner of the wetland (purple polygon on the attached Map) has been shrinking since 2014 and in 2019 was nearly 40% smaller any previous measurements. In 2019 it measured 394.9 m². In 2020, a slight

increase in area was recorded at 402 m². The maximum number of fruiting stems per square meter was five. The approximate mean number of fruiting stems per square meter was 0.3.

The population of *Carex hyalinolepis* found at the end of Webster Drive on the southeastern end of the marsh has also been shrinking since 2014. In 2019 it measured only 136.4 m², a decrease of almost 80%. In 2020, although some *C. hyalinolepis* plants are present, an assessment of its total area could not be obtained due to the thickness of the exotic grass, *Phragmites australis*, which it is growing under. Treating the *P. australis* by hand with herbicide is highly recommended in this area.

Limnobium spongia (S1):

On 26 May 2011, for the first time since the breach of the barrier dune, a small population of this species was found along the southern edge of the marsh in two patches of not more than five plants each. In 2019 a single small population was found near the *Carex hyalinolepis* at the end of Webster Drive. In 2020, 2 populations were documented on 17 September 2020. These were observed at points 38 and 45 (see attached map and Table 1). The population at point 38 measured 1 m x 0.5 m and the point 45 contained a single plant. No flowers or fruits were observed.

Scutellaria galericulata (S1):

On 10 June, 2011, nine plants of this species were observed over 3.0 x 2.0 m along the boardwalk at Cove Point Marsh. No plants were observed in flower or fruit. On 2 September 2011, no plants were observed in this same area, despite routinely being found in September on numerous previous surveys. The large mats of peat that were deposited on the eastern end of the population during hurricane Isabelle in 2005 have changed the microtopography and probably the hydrology of this site to the species detriment. In 1996, 300 stems were observed in the population. In 2019, four small plants were found measuring six cm, four cm, and two at two cm each. On 12 June 2020, three stems were observed, the tallest measuring 5 cm. None were in flower or fruit. This location along the boardwalk is marked by the red dot on the attached map.

Sesuvium maritimum (S1):

During the 2009 survey, a large population (estimated to occupy nearly an acre of the marsh) of *Sesuvium maritimum* a State endangered (S1) species was found for the first time at Cove Point. *Sesuvium maritimum* is a brackish water species. The construction of the breakwater and subsequent conversion of the marsh back to a freshwater system has apparently extirpated this species from the marsh. By 22 July 2011, only 8 plants were found, near where the main breach occurred. On 20 September 2012, *Sesuvium maritimum* was still persisting along the marsh dune ecotone near the Chesapeake Bay. The population measured 34.0 x 2.0 m. In 2013, 2014, 2015, 2016, 2017, 2018, 2019, and 2020 no plants of *Sesuvium maritimum* were observed in Cove Point Marsh.

Zizaniopsis miliacea (S1):

On 10 June 2011 this population measured 57.1 x 11.3 m with GPS. On 14 June 2012 it measured 54.0 x 10.2 m over an area of 588 m² using GPS. On 6 June 2013 the population had noticeably depreciated and measured only 43.6 x 11.4 m over an area of 172.9 m². The once contiguous population was nearly broken into three patches and for the first time since 1996 the number of plants was so few that individuals could be counted. A total of 179 plants were observed. In 2014, the population had recovered slightly from its all time low observed in 2013. On 11 June 2014, the population measured 50.3 x 8.5 m over an area of 227 m². A total of 204 plants were counted. In 2015, on 29 June, a total of approximately 118 plants were observed. These were found in four small patches on the western side of the marsh and contained seven, five, and two patches of 3 plants. Most of the population was found along the southern side of the swamp and contained approximately 100 plants. In 2016, on 13 June, a total of approximately 183 plants were observed. These were found in four small patches that contained 18, eight, five and two plants. Most of the population was found along the southern side of the swamp and contained approximately 150 plants. In 2017, on 23 June, a total of approximately 179 plants were observed. These were found in four small patches on the western side of the marsh. Most of the population was found along the southern side of the swamp and contained approximately 150 plants. In 2018, 30 *Zizaniopsis miliacea* were found just north of the larger population to the south which measured 270.99 m². In 2019, seven small clumps of *Z. miliacea* containing 20, 16, 10, eight, two, and two clumps of three each were observed just north of the larger population along the southern edge of the marsh which contained 175 plants over an area of 153.2 m² a decrease in area of 44% in total area. On 12 June 2020, five clumps of *Z. miliacea* were observed to the north of the population along the southern edge of the marsh which contained an estimated 160 plants over an area of 175 m² (blue polygon on attached map). The smaller clumps contained 18, 16, 8, 5, and 2 stems. The population contained 19 plants in flower. *P. australis* continues to impact the *Z. miliacea* population and is commingled with it, especially along the northern edge. The southern part of the population continues to receive more light and is less encroached upon by *P. australis*.

Fuirena pumila (S2S3):

On 16 September 2013 three patches of this species were observed in the marsh for the first time since the breach of the barrier dune in 2007. Each patch contained between 10 and 20 stems over areas less than 1.0 x 1.0 m. All stems were in fruit. In 2014, four patches containing nine, 25, 46, and 100 fruiting stems were observed. In 2015, one large patch approximately 8 x 8 m and containing approximately 250 fruiting plants was observed along the western shore of the marsh. In 2016, four populations were found. Three occurred in the northwestern corner of the marsh and one on the southwestern shore. These populations contained 100, 3000, 50, and 300 plants. All populations were in flower and fruit. In 2017, nine populations of *Fuirena pumila* were mapped that contained a total of 11,865 plants in flower and fruit. In 2018, only four populations of *F. pumila* were found that contained 71 fruiting stems. In 2019, only one site with 35 flowering plants was located. On 17 September 2020, 11 populations containing an estimated 752 plants were observed (see attached map and Table 1).

Potamogeton pussillus subsp. *tenuissimus* (S1):

In 2014, the state rare submerged aquatic plant *Potamogeton pussillus* was found for the first time since the flora of Cove Point marsh was first surveyed in 1996. This population was determined to be subspecies *tenuissimus*. It was observed to be, by far, the dominant submerged aquatic species found in the marsh. It was abundant in the open water areas of the wetland and probably covers at least two acres. It was observed in flower and fruit on 15 September 2014. Surprisingly, on 14 September, 2015, no plants of *Potamogeton pussillus* were found in Cove Point Marsh, although it may have been present and not fruiting as it was in 2014. Fruiting plants are readily distinguished, but when vegetatively entangled with *Ruppia maritima*, which was commonly observed in 2015 (although not observed in 2014), it can be easily overlooked. No plants of *Potamogeton pussillus* were observed in 2016, 2017, 2018, 2019, or 2020.

Table 1

GPS Point #	Taxon Name	Estimated Number of Stems
16	<i>Fuirena pumila</i>	20
17	<i>Fuirena pumila</i>	36
18	<i>Ammannia latifolia</i>	40
19	<i>Ammannia latifolia</i>	250
20	<i>Ammannia latifolia</i>	85
21	<i>Ammannia latifolia</i>	30
22	<i>Fuirena pumila</i>	15
23	<i>Ammannia latifolia</i>	150
24	<i>Ammannia latifolia</i>	200
25	<i>Ammannia latifolia</i>	250
26	<i>Ammannia latifolia</i>	630
27	<i>Ammannia latifolia</i>	45
28	<i>Ammannia latifolia</i>	375
29	<i>Fuirena pumila</i>	15
30	<i>Ammannia latifolia</i>	20
31	<i>Ammannia latifolia</i>	600

32	<i>Ammannia latifolia</i>	12,000
33	<i>Ammannia latifolia</i>	50
34	<i>Ammannia latifolia</i>	5000
*35	<i>Ammannia latifolia Fuirena pumila</i>	30 Al; 70 Fp
36	<i>Ammannia latifolia</i>	8000
37	<i>Ammannia latifolia</i>	500
*38	<i>Fuirena pumila Limnobium spongia</i>	70 Fp; Ls 1 m x 0.5 m
39	<i>Ammannia latifolia</i>	150
*40	<i>Ammannia latifolia Fuirena pumila</i>	600 Al; 1 Fp
*41	<i>Ammannia latifolia Fuirena pumila</i>	8000 Al; 20 Fp
42	<i>Fuirena pumila</i>	30
43	<i>Ammannia latifolia</i>	40
*44	<i>Ammannia latifolia Fuirena pumila</i>	1500 Al; 225 Fp
*45	<i>Ammannia latifolia Limnobium spongia</i>	50 Al; 1 Ls
46	<i>Ammannia latifolia</i>	1500
47	<i>Ammannia latifolia</i>	2000
48	<i>Fuirena pumila</i>	250

* = more than one species at a single GPS point.