**Assessment of State Rare Plant Populations at Cove Point Wetland (Year 2021)**

**Submitted by Brent W. Steury, 19 November, 2021**

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 2021 report includes an assessment of the rare Maryland state listed plant species found in Cove Point Marsh. 2021 surveys were conducted on 25 June and 21 September. On 25 June the site was accessed on foot and on 21 September kayaks were used to conduct surveys. Evan Kostelecky and Stefenie Shenoy and of the University of Maryland Center for Environmental Science, Chesapeake Biological Laboratory, accompanied me on 25 June and 21 September, respectively, to obtain GPS data for each rare plant population. Polygons for *Carex hylinolepsis* and *Zizaniopsis miliacea* were measured by recording GPS data points. The areas of each polygon are given 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 maps 1-3.

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. In 2020, the 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. During the 21 September 2021 survey, we documented 16 populations containing 16,183 stems, all in fruit and some still in flower.

*Carex hyalinolepis* (S2S3):

In 2017, a population of *Carex hyalinolepis* 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.

A second population of *Carex hyalinolepis* was present until 2020 in the southwestern corner of the wetland at the end of Webster Drive. It has been shrinking in extent since 2014. In 2021, an assessment of its 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.

The *Carex hyalinolepis* population in the southeastern corner of the marsh measured 394.9 m2 in 2019. In 2020, a slight increase in area was recorded at 402 m2. On 25 June, 2021 it measured 406.6 m2 using GPS points to create the polygon shown on Maps 1 and 3.The maximum number of fruiting stems per square meter was two. The approximate mean number of fruiting stems per square meter was 0.1.

*Limnobium spongia* (S1):

In 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. One measured 1.0 m x 0.5 m and second population contained a single plant. On 21 September 2021, we recorded they largest extent of *Limnobium spongia* ever observed in Cove Point Marsh. A total of seven populations were documented coving a combined area of 51.5 m x 7.5 m (Table 1 and Map 1). Only one plant was observed in flower.

*Scutellaria galericulata* (S1):

In 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. In 2020, three stems were observed, the tallest measuring 5 cm. None were in flower or fruit. On 25 June 2021, 3 plants were observed measuring 10 cm, 15 cm and 60 cm. None were in flower or fruit. This location along the boardwalk is marked by point 1on the attached Map 1.

*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 2013-2021 no plants of *Sesuvium maritumum* were observed in Cove Point Marsh.

*Zizaniopsis miliacea* (S1):

In 2011 this population measured 57.1 x 11.3 m with GPS. In 2012 it measured 54.0 x 10.2 m over an area of 588 m ² using GPS. In 2013, the population had noticeably depreciated and measured only 43.6 x 11.4 m over an area of 172.9 m ². 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. In 2014, the population measured 50.3 x 8.5 m over an area of 227 m ². A total of 204 plants were counted. In 2015, 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, 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, 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. In 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. The smaller clumps contained 18, 16, 8, 5, and 2 stems. In 2021, seven small patches of *Z. miliacea* occurred northeast of the larger patch recorded as a polygon on Maps 1 and 2. These seven populations contained 10 plants (2 flowering), 8 plants (3 in flower), 22 (5), 3 (2), 18 (4), 7 (2), and 6 (none in flower). The polygon just west of these populations (see Maps 1 and 2) covered an area of 141.6 m and contained as estimated 100 plants, 12 of which were in flower. *Phragmites australis* continues to impact the *Z. miliacea* population and is commingled with it, especially along its 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. 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. In 2017, nine populations of *Fuirena pumila* were mapped that contained a total of 11,865 plants. 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. In 2020, 11 populations containing an estimated 752 fruiting stems were observed. During the 21 September 2021survey, eight populations containing 1056 fruiting stems were counted (See Map 1 and Table 1), the highest number recorded since 2013.

*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- 2021.

**Table 1**

|  |  |  |
| --- | --- | --- |
| GPS Point # | Taxon Name | Estimated Number of Stems |
| 3 | *Ammannia latifolia*  | 13 |
| 4 | *Ammannia latifolia*  | 25 |
| 5 | *Ammannia latifolia*  | 6 |
| 6 | *Fuirena pumila*  | 10 |
| 7\* | *Limnobium spongia*  | 0.5 x 1.0 M |
| 8\* | *Limnobium spongia*  | 2.0 x 1.0 M |
| 9\* | *Limnobium spongia*  | 3.0 x 0.5 M |
| 10\*\* | *Ammannia latifolia Fuirena pumila*  | 4 Al; 2 Fp |
| 11 | *Ammannia latifolia*  | 50 |
| 12 | *Ammannia latifolia*  | 60 |
| 13\*\* | *Limnobium spongia\* Fuirena pumila*  | 1.0 x 1.0 M Ls; 19 Fp |
| 14 | *Limnobium spongia*  | 25.0 x 1.0 M |
| 15 | *Limnobium spongia\* Fuirena pumila*  | 10.0 x 1.0 M Ls; 400 Fp |
| 16 | *Fuirena pumila*  | 455 |
| 17 | *Fuirena pumila*  | 100 |
| 18 | *Ammannia latifolia*  | 45 |
| 19 | *Ammannia latifolia*  | 250 |
| 20 | *Limnobium spongia\* Ammannia latifolia*  | 10.0 x 1.0 M Ls; 400 Al |
| 21 | *Ammannia latifolia*  | 15 |
| 22-23\*\*\* | *Ammannia latifolia*  | 2000 |
| 24-26\*\*\* | *Ammannia latifolia*  | 9000 |
| 27-28\*\*\* | *Ammannia latifolia* *Fuirena pumila*  | 4000 Al; 15 Fp |
| 29-30\*\*\* | *Ammannia latifolia*  | 50 |
| 31 | *Ammannia latifolia*  | 40 |
| 32 | *Ammannia latifolia*  | 225 |
| 33 | *Fuirena pumila*  | 55 |
| \* = Area of coverage in meters. |  |
| \*\* = More than one species at GPS point. |  |
| \*\*\* = number of stems between GPS points. |