

## Washington Biologists' Field Club

April 9, 2021

Dear Mr. Archer,

We write you on behalf of the Washington Biologists' Field Club (WBFC), which is a nonprofit organization charged by the National Park Service with the care and maintenance of Plummers Island. Plummers Island is part of the Chesapeake and Ohio (C&O) Canal National Historic Park, and is an historic site of unique and ongoing scientific research value. WBFC owned the land from 1908 to 1959, when it deeded Plummers Island to the United States Government while preserving the right to maintain the island as a natural wild area and use it for scientific research, as set forth in the attached Agreement (Appendix A).

We are concerned about the proposed I-495/I-270 and American Legion Bridge toll lane widening project and the significant, probable threats from bridge construction, operation, and maintenance to Plummers Island and its historic character, including its biota, and the century of intensive research activities that have taken place on the island. In order to ensure that project's impacts on Plummers Island receive adequate consideration, we request that you (1) designate WBFC as a consulting party to the National Historic Preservation Act Section 106 process immediately, (2) assess adverse effects from and consider alternatives to the project that will not impact Plummers Island, (3) consider Plummers Island for individual eligibility for the National Register of Historic Places, and (4) commit to undertaking the mitigation measures listed in this letter to minimize harm to Plummers Island resulting from the Maryland Department of Transportation's (MDOT's) current preferred alternative.

**1) We request WBFC be added as a consulting party to Section 106 immediately due to our special relationship to Plummers Island.**

We appreciate that an MDOT "strike team" came to learn more about Plummers Island on March 1, 2021. However, this was the first time anyone on this project communicated with us, and we continue to have major concerns with the proposed plan and the failure to acknowledge or assess its impacts on Plummers Island.

It came to our attention, not through the project team, that we were not invited to participate in the I-495/I-270 Managed Lanes Project Section 106 process, despite our unique relationship to Plummers Island. We learned just two weeks before the deadline that comments on the draft Section 106 Programmatic Agreement would be due on April 12, 2021.

This is an unfortunate oversight. WBFC has been responsible for the day-to-day maintenance of the island for almost 120 years, and is the entity most knowledgeable about the island, its historical status, and the long-term scientific studies ongoing on the island. Plummers Island is uniquely significant, independent of the historic

characteristics of the C&O Canal National Historical Park as a whole. Our organization, with its long relationship to the site, is uniquely suited to provide information that is directly relevant to the Section 106 process.

Any mitigation measures for the C&O Canal National Historical Park as a whole would not be sufficient to protect Plummers Island. The WBFC, as a discrete entity that has engaged in biological research on the Island since 1901, is best able to determine which impacts would or could result from American Legion Bridge construction and operation activities and which measures are needed to avoid, minimize, and mitigate these impacts.

Accordingly, WBFC should immediately be afforded consulting party status, and should be included in all communications in connection with the Section 106 process.

**2) We are dismayed that the cultural resource evaluations circulated as part of the DEIS fail to specifically identify or discuss the historic significance of Plummers Island.** The Section 106 identification process should include an evaluation of the significance of Plummers Island as an individually significant historic site independent of the C&O Canal National Historical Park, or at minimum, should include additional descriptions of its contributing significance to that site. The cultural resource evaluations undertaken to date have largely ignored Plummers Island and its unique historic characteristics.

**3) We are troubled by the approach taken by the draft Section 106 Programmatic Agreement, which does not contemplate identifying the adverse impacts on Plummers Island or looking at ways to resolve those impacts until after key decisions about the project are made and mitigation measures foreclosed.** It is not appropriate to defer the assessment of these impacts or any analysis of measures to mitigate adverse effects until after key decisions have been made about alternatives and the preferred alignment for the project, as avoiding or minimizing impacts to Plummers Island will require selecting appropriate bridge alignment and construction alternatives. There is sufficient information available now to undertake these evaluations, and this should be done now, before the widest range of options for mitigating and minimizing adverse effects to Plummers Island have been foreclosed.

The measures to protect the island and its biota (the subject of long-term ongoing research) need to be considered now and in detail. A memorandum of agreement, which would be executed before the Record of Decision, is a more appropriate vehicle for resolving adverse effects on Plummers Island than a programmatic agreement.

Due to the extraordinary sensitivity of the resources and the research that will be impacted by the Project, it is imperative that measures to avoid, reduce, and minimize impacts to Plummers Island be considered now, not deferred until after key project decisions have been made. We therefore request those protections be evaluated as part of the Section 106 process now, and specific commitments to resolve adverse effects be included in a memorandum of agreement and ultimately, in the Record of Decision for the project.

**4) The unique history and significance of Plummers Island must be assessed independently of its status as part of the Chesapeake & Ohio Canal National Historical Park.** A December 11, 2020 *Washington Post* [article](#) states: “Caryn Brookman, who oversees Maryland’s environmental analysis of the highway expansion plan, said Plummers Island is protected as part of the 184-mile Chesapeake & Ohio Canal National Historical Park.” However, the significance of Plummers Island goes beyond that. The significance of the island as a long-term research site should give it protection as a wildlife management area, and it is also a unique and significant historical site in its own right. The island’s unique historic attributes include its value and history as an important research site (historic attributes are further reviewed in Appendix B).

The Federal Government acknowledged the importance of Plummers Island as a unique and special place in a unique management agreement with WBFC executed when Plummers Island was added to the C&O Canal National Historical Park in 1959 (see Appendix A). This agreement with the U.S. Government spared Plummers Island from destruction in the 1960 building of the American Legion Bridge, and the 1990s infilling of lanes in the middle of the bridge.

This 1959 agreement names some of the very unique and exceptional features of the island to the United States and to the world (full text below):

- The said Plummers Island has become among systematic biologists one of the world’s most famous collecting spots and type localities, and
- The discoveries have indicated the probability of new knowledge in the field of biology and natural history, and
- The fame of this island is world-wide and many scientific organizations are interested in its preservation as a source of discovery, and
- The Washington Biologists’ Field Club, Inc. and the United States Government desire to preserve this natural wild area as a sanctuary and scientific research preserve.

The current plan to build on the island or use it as a construction platform is in violation of the 1959 agreement. Any construction or other activity on the island scarring the landscape destroys the natural biota and opens up the island’s habitats to invasive species. Any such activity would violate the vitality, integrity and continuity of the ecosystem WBFC is warded to conserve, protect, study and report on.

It is now 2021 and WBFC has invested in 120 years of research, producing over 400 scientific papers on the flora and fauna of Plummers Island, documenting over 4,000 species there. The integrity of the island’s ecosystem is crucial to our long-term research, of following trends over many years. This is a unique biological reserve and resource. Plummers Island is a special place within the Mather Gorge of the Potomac River, one of the most biotically diverse areas in the United States given its small geographical area. There are many endangered, threatened, and rare species on Plummers Island, many known only from the gorge or the island.

Among the 19,000+ pages of the DEIS, the only mention of Plummers Island is buried in the DEIS technical reports. It is in the 18th Appendix of Appendix L (i.e. sub-Appendix R of Appendix L) that Plummers Island is mentioned. The entirety of the comments about Plummers Island in DEIS or appendices are: “The study area includes a portion of Plummers Island south of the American Legion Bridge and a small stream known as Rock Run Culvert. Exposed bedrock occurs on Plummers Island.” (DEIS, [Appendix R of Appendix L](#), p. 1) In this Appendix, RTE (Rare Threatened and Endangered) survey maps are shown as occurring on and around the Maryland side of the American Legion Bridge, including parts of Plummers Island. Yet, the DEIS erroneously states: “None of the targeted RTE plant species were found during the surveys” ([Full DEIS](#), p. 4-115).

**5) There are significant, irreversible adverse effects that would accrue to Plummers Island and WBFC research projects under the MDOT American Legion Bridge expansion plan.** The ongoing and active research spaces on this island are contributing historic features of the island, in addition to the architectural resources (the cabin built in 1901). There are distinct adverse effects that impact a property of such high research value, these include destruction of areas of the island, noise pollutants that impair the quality of studies, and many more things listed below and described in greater detail in Appendix C.

In the *Washington Post* article on Plummers Island, it is said the bridge would nearly double in size due to the new lanes, shoulders, and bike path. This would increase the runoff from the road, most of which is currently piped off the bridge low-point, and drained into a gully feeding into the bend of the channel adjacent to Plummers Island. In the draft Programmatic Agreement ([Appendix H](#) on an unnumbered page, PDF page 7) in the project DEIS, it states:

**Duration:** Because of the anticipated duration of this project, and that there may be additional elements that continue, a 15-year duration may be appropriate, or until all terms of the agreement are fulfilled or the project becomes inactive; can include provisions for extension of the agreement.

This is a very substantial amount of time to be impacted by construction. For a small federally protected island immediately downriver of the American Legion Bridge with unique biological, historical, and research value, the magnitude of these threats is extraordinary.

The adverse effects to the island’s historic features and significance as a research site posed by the I-495/I-270 project are extensive and further detailed in Appendix C of this letter. They include:

1. Damage to waterways
2. Destruction of rare plants (Simmons et al. 2020) and rare plant communities (Simmons et al. 2016) from the far west end of the island within the Zone of Destruction
3. Destruction of WBFC research plots
4. Destruction of past collection sites
5. Habitat destruction and disturbance lead to more invasive organisms

6. Potential for catastrophic destruction from major floods if water barriers and/or construction platforms emplaced for construction blow out
7. Sound from bridge construction and closer proximity of traffic in 2 new bridge lanes after they open on the bridge
8. Impacts on biota from salt and oil runoff from the bridge
9. Violation of long-term continuity of 120 years of research.

**6) Below are the minimum avoidance measures, design considerations, and mitigations to avoid or reduce impacts that should be made to avoid, minimize, and mitigate adverse effects to Plummers Island and the ongoing research there. These provisions should have been considered from the beginning of the MDOT-SHA project development and in the DEIS.**

As noted above, on March 1, 2021, an MDOT strike team for the project came to the island and spoke with the Washington Biologists' Field Club for the first time. It appeared the strike team had no idea of the significance of the island, and the information shared took them by surprise. Also, for the first time, we learned of the possibility of an upriver bridge alternative for addition of lanes only to the upriver side of the American Legion Bridge. No bridge alternatives were discussed in the Draft Environmental Impact Statement (DEIS), which is a major omission, and should have been presented there so that the public could have the same information to comment on. We would have certainly made DEIS comments on the bridge alternatives if any relevant information on bridge alternatives had been discussed in the DEIS. That information was lacking and clearly should have been included in the DEIS.

Clearly there needs to be a specific focus on design changes that will reduce and avoid impacts to Plummers Island. The first obvious choice for reducing and avoiding impacts is the "no build" option. Second is the upriver bridge alternative, which should have been evaluated in the DEIS and certainly must be now before the project is advanced.

Although WBFC is opposed to the American Legion Bridge expansion, particularly with toll lanes and lack of mass transit in the design (vans and buses from a few points are not an acceptable replacement for dedicated mass transit), the following types of mitigations are necessary and non-negotiable.

To protect Plummers Island, the minimum mitigations follow:

- Plan for major (not minor) flooding during the construction period.
- Avoid obstructing natural water flow into the Plummers Island channel.
- Build all the new lanes on the upriver side of the bridge.
- Build the access to and the construction platforms themselves only on the upriver side of the bridge and under the bridge.
- In any case, add sound barriers to the downstream side of the bridge.
- Use lane surfacing that is as quiet as possible.
- Place the outflow from bridge scuppers somewhere the runoff will not enter into Plummers Island waters.

- Avoid fugitive dust blowing onto the island by use of dust minimization measures including spraying.
- A waste and hazardous material disposal plan must ensure off-site disposal so as not to flow to or near Plummers Island.
- Provide prior notification informing WBFC of work schedules so notice can be given to researchers.
- Piping of road runoff (that contains oil and salt) is a major issue; currently the main scupper drainage flows into the channel separating the island from the mainland; future drainage should avoid the wetlands including the channel.
- For the duration of construction, any construction infrastructure should be designed to withstand major floods (over 14 feet) not minor (10-12 feet) floods; there have been 3 moderate (12-14 feet) and 2 major floods (17-19 feet) in the past 25 years. However, even minor floods recorded at Little Falls produce major flooding in the Plummers Island channel adjacent to the bridge (see Appendix D, point 6).
- Monitor during construction to ensure that construction work is not impacting the island and no construction workers or project personnel visit the island unless oriented and approved by the Washington Biologists' Field Club. These requirements should be included in bidding document and contractor's work plan as part of the environmental specifications that will be followed.
- Chance find or inadvertent discovery procedures should be followed and incorporated into bidding documents and contracts. Please provide a copy for our review to ensure they meet the requirements for protection of Plummers Island.

**7) To conclude, WBFC has had and continues to have a significant and primary responsibility to maintain this island as a long-term research site high in biodiversity with minimal disturbance. It must be protected.** We fund research studies each year. The island was already historically significant 60 years ago when the American Legion Bridge was built. It is only more significant and rarer today. It is nationally and globally significant, it is historically significant, and it is highly significant for ongoing research purposes. The research on the island is a historic feature.

We are not comfortable with the open-ended, non-committal attempts to reassure us that the strike team made. Under the Section 106 process, requests can be made for mitigations. There is a direct use of the island for purposes of Section 4(f) and a significant adverse effect under Section 106. Avoidance and mitigation measures cannot be deferred until later, after the Final Environmental Impact Statement, after the Record of Decision, or after predevelopment. That is already too late. We require assurances at an administrative level at all costs that the upriver bridge alternative (with all lanes added to the upriver side of the bridge) will be pursued and mitigation measures put in place to protect Plummers Island. Plummers Island is federally protected under legal agreements with the National Park Service and should become additionally protected with a determination of individual National Register of Historic Places eligibility or, at a minimum, assessment of contributing significance to the C&O Canal National Historic Park as soon as possible, with the biodiversity, engendered species, and research value of the island specifically identified as historical features of contributing importance.

**8) We reiterate our concerns with the nature of this process that does not allow the public to have adequate, timely information to advocate for their interests. We also reiterate that we support the no-build option.** Any proposals for redecking and rebuilding/refurbishment of the American Legion Bridge should fully assess potential alternatives and allow for public comment. Such proposals should also require, at a minimum, early focused attention on the high priority to avoid impacts on Plummers Island and to minimize and mitigate any potential adverse impacts to Plummers Island that may remain.

Respectfully,

Ralph Eckerlin, President

Robert Soreng, Vice President

Lowell Adams, Secretary

On behalf of the 85 members of the Washington Biologists' Field Club

## **APPENDIX A: Full Text of Agreement with National Park Service**

### AGREEMENT WITH NATIONAL PARK SERVICE

#### AGREEMENT AND STIPULATIONS BETWEEN THE WASHINGTON BIOLOGISTS' FIELD CLUB, INC. AND THE UNITED STATES OF AMERICA

This agreement made this 5th day of March, 1959, by and between the Washington Biologists' Field Club, Inc. and the United States of America.

WITNESSETH:

WHEREAS, The United States Government has by condemnation proceedings, in the United States District Court for the District of Maryland in Civil No. 10676 and by order of Court made the 24th day of June, taken possession of the defendant's Washington Biologists' Field Club, property designated in said proceedings as parcels "A" and "B" in tract no. 7, and

WHEREAS, This property was acquired by the Washington Biologists' Field Club, Inc. and has been used by the said Club as a natural wild area for scientific research for over 50 years and a great many scientific papers have been written in reference to biological and natural history discoveries made on said land and, more particularly, on that part of said land known as parcel "B" and more familiarly known as Plummers Island containing some 12.238 acres more or less, and

WHEREAS, The said Plummers Island has become among systematic biologists one of the world's most famous collecting spots and type localities, and

WHEREAS, The discoveries have indicated the probability of new knowledge in the field of biology and natural history, and

WHEREAS, The fame of this island is world-wide and many scientific organizations are interested in its preservation as a source of discovery, and

WHEREAS, The Washington Biologists' Field Club, Inc. and the United States Government desire to preserve this natural wild area as a sanctuary and scientific research preserve.

Therefore, The United States Government's petitioner in the United States District Court for the District of Maryland in Civil No. 10676 and the Washington Biologists' Field Club, Inc., defendant, and the owner of said parcel of land known as parcel "B" containing some 12.238 acres more or less which said land is an island in the Potomac River and is more familiarly known as Plummers Island, do hereby stipulate and agree that the said parcel "B" be withdrawn from these proceedings and that the said Washington Biologists' Field Club, Inc. does hereby agree to deed the said island to the United States Government without monetary consideration reserving in said deed to the Washington Biologists' Field Club, Inc., the right to

continue to maintain the island as a natural wild area and use it for scientific research and for meetings of the Club and to pursue its studies in the field of biology and natural history on the said island so long as the Washington Biologists' Field Club, Inc. exists and desires to continue to use the island for scientific research and so long as the further provisions and stipulations contained herein are complied with which are as follows:

1. The Washington Biologists' Field Club, Inc. agrees to supply the National Park Service with copies of scientific papers resulting from research conducted on said island when available.
2. The Washington Biologists' Field Club, Inc. will supply the National Park Service with an annual report and will include the names and addresses of the officers, list of the members, and a summarization of the scientific investigations carried on.
3. The Washington Biologists' Field Club, Inc. will indemnify the United States against any loss or damage or injury due to the Club's negligence or any of its members or guests in the use and occupancy permitted under this agreement.
4. The Washington Biologists' Field Club, Inc. shall maintain its building and facilities on the island or replace the same in orderly and safe condition without expense to the United States.
5. No additional buildings, structures, or other physical facilities shall be constructed on the island by the Washington Biologists' Field Club, Inc. without first obtaining written approval of the National Park Service.
6. It is further stipulated and agreed between the United States Government and the Washington Biologists' Field Club, Inc. that the membership of the Club as constituted on 1 August 1958,

Honorary Members:

Bartsch, Paul  
Mann, William M.  
Ricker, P. L.

Compton, Lawrence V.  
Davis, Malcolm  
Duvall, Allen J.  
Erickson, Ray C.  
Erlanson, C. O.  
Fredine, C. Gordon

Krombein, Karl V.  
Leonard, Emery C.  
Lincoln, Frederick C.  
Linduska, Joseph P.  
Meehean, O. Lloyd  
Morrison, J. P. E.

Active Members:

Aldrich, John W.  
Appel, William D.  
Benedict, J. E.  
Blake, S. F.  
Brown, Edgar  
Clarke, J. F. G.

Fuller, Henry S  
Gabrielson, Ira N.  
Gardner, Marshall C.  
Graham, Edward H.  
Griffith, Richard E.  
Handley, C. O., Jr.  
Hotchkiss, Neil  
Jackson, Hartley H. T.

Nelson, A. L.  
Oehser, Paul H.  
Parker, Kenneth W.  
Presnall, Clifford C.  
Reed, Theodore H.  
Russell, Paul G.  
Setzer, Henry W.  
Smith, Albert C.

Smith, Lyman B.  
Sohns, Ernest R.  
Stevenson, James O.  
Stewart, Robert E.  
Stickel, William H  
Swift, Ernest F.  
Uhler, F. M.  
Vogt, George B.  
Walker, Ernest P.  
Wetmore, Alexander  
Zahniser, Howard

Nonresident Members:

Allan, Philip F.  
Allen, Durward L.  
Archino, Samuel  
Bartlett, H. H.  
Bryant, Harold C.  
Cahalane, Victor H.  
Cottam, Clarence  
Couch, Leo K.  
Dargan, Lucas M.

Eklund, Carl R.  
Fowler, James A.  
Hamlet, John  
Holt, Ernest O.  
McAtee, W. L.  
Myers, G. S.  
Peterson, Roger T.  
Wallis, William W.  
Wherry, Edgar T.

shall have the privilege of having their ashes placed on said island and a small bronze plaque in their memory placed on the stones of said island and that this privilege shall apply only to the membership as named above as it shall exist as of 1 August 1958.

7. It is further stipulated and agreed that the United States Government will allow the membership of the Washington Biologists' Field Club, Inc. to have access by foot over the land owned by the United States Government to the island at all times and whenever desired.
8. The Washington Biologists' Field Club, Inc. will be permitted to maintain and operate passenger-carrying ferry boats from and to the island which is to be for the exclusive use of the Club and its members and guests for access to the island.
9. The Washington Biologists' Field Club, Inc. will be permitted to erect and maintain a fence and gate at a suitable location to exclude the general public from the island, but the National Park Service is to be furnished keys to the lock or the National Park Service may provide its own lock if keys are delivered to the Washington Biologists' Field Club, Inc., and will also be permitted to clear the channel between the island and the Maryland shore to maintain a free flow of water therein.
10. It is further stipulated and agreed that authorized agents and personnel of the National Park Service shall have access to the island and the right to take scientists to the island, but, in that event, the Washington Biologists' Field Club, Inc. shall not be responsible for any injuries or damages resulting to said persons due to conditions upon said island provided said injuries or damages are not caused by negligence of the Club or by a failure on the part of said Washington Biologists' Field Club, Inc. to comply with the requirements of this stipulation.
11. It is further stipulated and agreed that all rights accruing to the Washington Biologists' Field Club, Inc, or to any member thereof by reason of the provisions of this stipulation or any amendment thereto may be terminated if said Washington Biologists' Field Club, Inc. no longer exists or in the event after due written notice

that the provisions of this stipulation and/or deed which will be executed following signing of this stipulation have been violated and continue to be violated by said Washington Biologists' Field Club, Inc. or its members, guests, employees, or servants for a period of time in excess of six months after receipt of said notice, and further in the event the island shall be no longer used for scientific research by the Washington Biologists' Field Club, Inc. for more than two years then this stipulation and any like provisions of the deed to be executed conveying the property to the United States shall terminate.

12. It is further stipulated and agreed that the United States may construct or permit the construction of needed nonrecreational public improvements upon the island or a portion thereof, which said improvements shall not be inconsistent with the uses to which the island has been dedicated by the Washington Biologists' Field Club, Inc.

13. It is further stipulated and agreed that this stipulation shall become effective after the filing and acceptance by the United States of a deed of conveyance containing the provisions outlined herein.

The United States of America

By: WILLIAM E. FINLEY

Director of the National Capital Planning Commission

Condemning Authority

The Washington Biologists' Field Club, Inc.

By: LLOYD W. SWIFT

President

I, Albert C. Smith, certify that I am the Secretary of the corporation named as party herein; that Lloyd W. Swift, who signed this contract on behalf of the party, was then President of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

ALBERT C. SMITH, *Secretary*

## **APPENDIX B: Historical Importance of Plummers Island, Maryland (Feb 2021)**

### **Background:**

The Washington Biologists' Field Club (WBFC) was established in 1901 by a group of prominent biologists for the purpose of acquiring a parcel of land and carrying out intensive studies of all groups of plants and animals living in the same area. For this purpose, WBFC bought Plummers Island and adjacent land on the Maryland shore of the Potomac (leased in 1901 and purchased 1908), and WBFC biologists and their colleagues have been carrying out intensive research into the biology of the area for the past 120 years. The island became part of C&O Canal National Historic Park in 1961, but WBFC has retained stewardship of Plummers Island and continues to manage it as a research area.

Under the stewardship of WBFC, Plummers Island and adjacent land on the Maryland shore of the Potomac have been the subject of continuous long-term ecological research stretching over more than a century, providing an unequalled depth for study of long-term ecological change. Almost 400 scientific publications have documented many aspects of the island's biology, and current scientific studies are extending a foundation that has been almost 120 years in the making. We live in a time of extreme environmental change, and research on long-term changes in populations of organisms is of vital importance for understanding how to manage human activities in our changing world. The century-long record of studies on Plummers Island makes it a unique and extremely valuable resource for such studies, and it is sometimes called "the most thoroughly studied island in North America."

WBFC has also served to promote communication and collaboration among biologists working on all groups of organisms, partly through meetings and joint projects on Plummers Island. WBFC membership has included many scientists with international reputations, who have carried out research whose importance extends far beyond their own specialties. In particular, WBFC membership has included several of the major figures in the twentieth-century environmental movement (see especially Bailey, Peterson, Pinchot, Swift, and Zahniser, below). Much information about WBFC and Plummers Island, including documentation for much of this information, is in its website (<https://wbfc.science>) and a published history:

Perry, M. C. 2007. *The Washington Biologists' Field Club: Its Members and Its History*. Washington DC.

Extensive records for WBFC are archived at the National Museum of Natural History.

**There are four categories that confer significance for the National Register of Historic Places.**

Plummers Island has important associations under three of them:

## **1. Is the property associated with events, activities, or developments that were important in the past?**

Long-term studies of factors influencing lichen growth and mortality on Plummers Island allowed Mason Hale and Jim Lawrey to provide compelling evidence that lichen decline following the opening of the new American Legion Bridge was due to uptake of pollutants from automobile exhaust. This evidence that was important in driving antipollution legislation in the second half of the twentieth century, and especially in convincing Congress to ban the use of tetraethyl lead in gasoline (see Hale, below).

## **2. With the lives of people who were important in the past?**

Many members were well known in their fields and made important scientific contributions. Members that are remembered outside the immediate biological community for their contributions include:

**Vernon Bailey** - Chief Field Naturalist for the Biological Survey (Dept. of Agriculture). He played a leading role in documenting the diversity of wildlife in the U. S., and he developed no harm live traps and catch-and-release sampling methods to replace the wasteful sampling with lethal traps that had long been the norm for studying populations of small animals.

**Frederick Vernon Coville** - a Dept. of Agriculture scientist, his research allowed blueberries and cranberries to be cultivated commercially; before this work, they could not be grown and could only be collected from wild shrubs. Coville was also important in developing conservation policy for arid lands, and served as the first Director of the U. S. National Arboretum. He was a life trustee of the National Geographic Society and longtime chair of its Committee on Research, and a longtime advisor to the Carnegie Institution of Washington.

**Mason Ellsworth Hale Jr.** - an expert on lichens at the Smithsonian Institution; his work on factors influencing lichen growth and mortality allowed him to provide detailed evidence of lichen decline caused by uptake of pollutants from auto exhaust following the opening of the American Legion Bridge, evidence that was important in convincing Congress to ban the use of tetraethyl lead in gasoline (see above).

**Henry Weatherbee Henshaw** - a zoologist and ethnologist with the Bureau of Ethnology, later the Biological Survey (Dept. of Agriculture), he did important work on native North American languages, and produced the first serious study classifying languages for the continent as a whole.

**Frederick Gustav Meyer** - a Dept. of Agriculture scientist, he was the first to make scientific observations and collections of wild Arabica coffee in its native range in southwestern Ethiopia; led a UN-FAO expedition to collect genetically diverse coffee in Ethiopia and establish international germplasm repositories for coffee, resulting in development of high-quality disease-resistant arabica coffee; also much work on ornamental and medicinal plants.

**Roger Tory Peterson** - credited as the inventor of the modern field guide, and a major figure in the twentieth-century environmental movement; his field guides have been used by many millions of people.

**Gifford Pinchot** - first Chief of the US Forest Service and founder of the Society of American Foresters, considered the "father" of modern forestry; his decisions on management of multiuse lands set the agenda for American conservation; later a 2-term governor of Pennsylvania.

**Charles Vancouver Piper** - a Dept. of Agriculture scientist, he played the central role in bringing the soybean to American agriculture (now our second most important crop, worth \$40 billion/year), and he was the first to apply modern plant breeding techniques to grasses for golf course greens.

**Lloyd W. Swift** - Director, Division of Wildlife Management, U. S. Forest Service, where he was responsible for coordinating management of game, fish, non-game, and endangered species within multiple-use management programs on the 200-million acres of National Forest lands; after retiring, he served as Secretary and board member of the World Wildlife Fund.

**Alexander Wetmore** - an internationally known ornithologist, served for seven years as Secretary of the Smithsonian Institution and a longtime trustee of the National Geographic Society.

**Howard Clinton Zahniser** - Director of the Wilderness Society, he played a major role in formulating the 1964 Wilderness Act.

### **3. With significant architectural history, landscape history, or engineering achievements?**

**Architectural history** - The WBFC cabin on Plummers Island was built in 1901. We have very good documentation of its construction, and it has been well maintained, substantially in its original condition.

**Landscape history** - We have 120 years' data documenting the history of the return of natural vegetation to a heavily disturbed site (logged and farmed), and of factors influencing the spread of invasive species. This historical data has been essential to important accomplishments of scientists on Plummers Island. For instance, detailed documentation of lichen decline following the opening of I-495, crucial in convincing Congress to ban lead in gasoline (see above), would not have been possible without long-term historical data and collections that allowed them to document the abundance, health, and lead content of lichens on Plummers Island before and after the freeway construction. Long-term monitoring of the plants on Plummers Island has also been crucial for documenting when various invasive species first appeared, and what environmental factors may have led to their introduction and establishment.

**Engineering achievements** - None.

### **4. Does it have the potential to yield information through archeological investigation about our past?**

No archaeological work has been done on Plummers Island. There are remnants of old rock walls, and possible hides for guards (Civil War era?) facing the Potomac River. Several past members have done important linguistic and ethnological work on North American cultures (especially Henshaw, above).

## Appendix C: Endangered, Threatened, and Rare Species on Plummers Island

The species on Plummers Island, including endangered, threatened, and rare species, have been studied since 1901. They are part of the island's historic and ongoing research value. Current awareness of and attention to their protection in the state's DEIS process has been inadequate.

Plummers Island has numerous state endangered, threatened, and rare species. Plummers Island has three extant endangered plants that have been considered endangered in Maryland for [many years](#) and were mentioned as endangered in the I-495/I-270 Managed Lanes DEIS, [Appendix R of Appendix L](#), page 1. These state endangered plants are:

1. Coville's Phacelia (*Phacelia covillei*)
2. Horse-tail Paspalum (*Paspalum fluitans*)
3. Pale Dock (*Rumex altissimus*)

Curiously in [March 2021](#), Maryland DNR downgraded two of those species (Coville's Phacelia and Horse-tail Paspalum) from endangered to threatened although their status, if anything, is more imperiled by the planned widening of the American Legion Bridge. On what basis could these species have been downgraded? The WBFC cannot agree with this change without compelling evidence.

The above list of three state RTE plant species is not complete or exhaustive (see Simmons et al. 2020); there are additional Maryland RTE plants on the island, such as Smooth Rose Mallow (*Hibiscus laevis*) which is a rare plant of concern; Pink Valerian (*Valeriana pauciflora*) which is endangered; Leatherwood (*Dirca palustris*) which is threatened; and Sticky Goldenrod (*Solidago racemosa*) which is threatened and part of a rare natural community. There are also several grass and sedge species including Flat-spiked Sedge (*Carex planispicata*) and Open-flower Panic Grass (*Dichantheium laxiflorum*). Other rare species include Ostrich Fern (*Matteuccia struthiopteris*) and Smooth Wild-petunia (*Ruellia strepens*).

RTE animals that live on or utilize the island include Eastern Small-footed Myotis (state endangered) and Northern Long Eared Bat (state threatened/US threatened). We can provide recent inventories of species on Plummers Island upon request.

The Endangered Species Act protects both federally listed endangered species and those species deemed endangered, threatened, or in need of conservation within the state, based on habitat and conservation factors. At the state level, threatened and endangered species are regulated under the Maryland Non-game and Endangered Species Act (Annotated Code of Maryland 10-2A-01).

Excerpts from a December 2020 *Washington Post* article by Katherine Shaver tell more of the story:

*Tucked below the American Legion Bridge on the Maryland side of the Potomac River ... Plummers Island, ... "the most thoroughly studied island in North America."*

*For nearly 120 years, the 12-acre patch of rock and woods has been home to the Washington Biologists' Field Club. Its 85 botanists, entomologists, ornithologists and other scientists have spent decades scrutinizing the island's thousands of species of plants, insects and wildlife.*

*Robert Soreng, the club's vice president and a botanist at the Smithsonian National Museum of Natural History, said Plummers Island provides a critical research site because of its remarkable biodiversity and protected status under the National Park Service. Studying the same wilderness since 1901, he said, has revealed how nature responds to human development, climate change, invasive species and other changes.*

*"This is incredibly valuable for studying long-term trends," Soreng said. "We know more about what's there than in any other place."*

*But Soreng and other scientists say the island's research value is in danger of being lost to a new, wider American Legion Bridge. Under a plan by Maryland Gov. Larry Hogan (R) to relieve traffic congestion on the Capital Beltway, an expanded bridge between Virginia and Maryland could require piers on the island's western edge. Trees would also have to be cut in that area to build a road for construction vehicles to access the bridge site over four to five years.*

***Plummers Island is in the Potomac Gorge, between Great Falls and Georgetown. The gorge is home to hundreds of rare species, including the highest concentration of rare plants in Maryland, according to the National Park Service.***

*Moreover, the biologists say, its protection from development has provided a rare chance to do fieldwork nine miles from downtown Washington.*

*"When you think about the Washington area, there aren't many places that haven't been disturbed by humans," said Matthew Perry, a club member and emeritus scientist with the Patuxent Wildlife Research Center in Laurel.*

*Soreng said more than 400 scientific papers have emerged from Plummers Island research. The most well-known study showed that many of the island's lichen species had died off and others had soaked up significantly more lead after the bridge was built, because of emissions from leaded gasoline used at the time.*

*... Club members have included legendary ornithologist Roger Tory Peterson; Gifford Pinchot, the first chief of the U.S. Forest Service; and Frederick Coville, who helped establish the National Arboretum.*

*"There's an extraordinary concentration of world-class biologists," said Bruce Stein, a club member and chief scientist for the National Wildlife Federation.*

*"Everything that's in there," Soreng said, "someone is recording."*

*Ralph Eckerlin, the club's president and a Northern Virginia Community College biology professor, said he worries about the birds, crickets, katydids and other species that rely on calling out to one another.*

*Pamela Goddard, a Mid-Atlantic specialist for the National Parks Conservation Association, said Plummers Island must be spared as precious urban green space.*

*"The promise for national parks is that they'll be protected," Goddard said. "They're not here as land to be developed for a highway."*

## APPENDIX D: WBFC Comments on American Legion Bridge Construction and Expansion Impacts to Plummers Island

### Threats to Plummers Island from American Legion Bridge Construction and Expansion (Submitted to the MDOT-SHA Strike Team, February 28, 2021 for the March 1 joint meeting with WBFC)

#### 1. Damage to waterways:

- a. Potomac River shore: mud flats and sandbars are wetland features in the MDOT recalibrated (post the DEIS comments) Zone of Destruction.
- b. We don't know what the new and reconstructed bridge piers will do to flow along the river or channel, particularly if the point of rocks and Rock of Gibraltar (at the upper tip of the island) are destroyed or significantly altered. Sand bars and mud flat habitats could be substantially reduced for plants and animals that depend on these.
- c. The Island Channel (AKA "Rock Run Culvert"). The head of the channel down to the dog leg would not see daylight for years of construction. After which this part of the channel would be overshadowed by the 2 added lanes on the island side of the bridge. What are the consequences to waterways there and downstream?
- d. With the Channel covered by planking for the construction platform, high and mid-level floods will be redirected over those onto the island flood plain, potentially adversely affecting much of that flood plain.
- e. If sub-point d happens, all research plots in the flood plain could be substantially altered, (including vegetation plots 1, 3, 9, 10, 11, 12, and habitats for plants and animals)
- f. The "frog water" pools at the head of the island noted in the DEIS and circumscribed in subsequent documents are highly vulnerable to disturbance (vegetation plot 3 is in this zone).
- g. Zone of potential effects/disturbance uncertain, but estimated by DEIS to be 2/5 of the island. What is the MDOT plan for protecting this zone?
- h. Amphibians are in global and local decline due to pollution, diseases, ozone, and habitat destruction. Eleven species of amphibians are known from Plummers Island (Manville 1968 and <https://collections.nmnh.si.edu/search/herps/>): *Acris crepitans*, northern cricket frog; *Hyla versicolor*, eastern gray treefrog; *Lithobates clamitans*, green tree frog; *Lithobates palustris*, pickerel frog; *Lithobates sylvaticus*, wood frog; *Pseudacris crucifer*, spring peeper; *Pseudacris feriarum*, upland chorus frog; *Ambystoma maculatum*, spotted salamander; *Eurycea longicauda longicauda*, long-tailed salamander; *Hemidactylium scutatum*, four-toed salamander; *Notophthalmus viridescens viridescens*, eastern newt; *Pseudotriton ruber*, northern red salamander.

#### 2. Destruction of rare plants (Simmons et al. 2020) and rare plant communities (Simmons et al. 2016) from the far west end of Plummers Island within the Zone of Destruction:

- a. *Hibiscus laevis* (mud flats just below and above point of rocks)
  - b. *Solidago racemosa* (point of rocks, below Rock of Gibraltar)
  - c. *Hypericum prolificum* (point of rocks, below Rock of Gibraltar)
  - d. *Paspalum fluitans* (mud flats just below and above point of rocks)
  - e. other native plants rare on the island occurring only on west end in Zone of Destruction: e.g., *Sedum ternatum*. (on Rock of Gibraltar)
  - f. Piedmont / Central Appalachian Sand Bar / River Shore (Low Herbs Type): *Eragrostis hypnoides* - *Lindernia dubia* - *Ludwigia palustris* - *Cyperus squarrosus* Herbaceous Vegetation (USNVC: C EGL006483). Non-tidal mudflats. Global/State Ranks: G3/SNR (Simmons et al. 2016)
  - g. Potomac Gorge Riverside Outcrop Barren (Potomac Gorge Type): (*Hypericum prolificum*, *Eubotrys racemosa*) / *Schizachyrium scoparium* - *Solidago racemosa* - *Ionactis linariifolia* Herbaceous Vegetation (USNVC: C EGL006491). Global/State Ranks: G2/S1.
- 3. Destruction of WBFC research plots:**
- a. Vegetation research plots from 1997 and 2013-2015 will be destroyed (plots 4, 5, on the sandbar at the head of the island will be totally destroyed [see also sub-point 1e]), A historic National Park Service vegetation plot on the Potomac River sandbar could be destroyed.
- 4. Destruction of past collection sites:**
- a. many plants and animals were vouchered or recorded from the west end of the island, some are only known on the island from there.
- 5. Habitat destruction and disturbance lead to more invasive organisms:**
- a. the west end of the island is covered in a tangle of oriental bittersweet (first recorded from the island in 1982), and shrubs of amur honeysuckle (first recorded from the island in 1997), among many other invasive plants recorded there. Invasive species establishment and expansion will be sorely exacerbated by disturbance involved the construction process.
- 6. Potential for catastrophic destruction from major floods if water barriers and/or construction platforms emplaced for construction blow out. Construction timbers potentially could rip out acres of trees and other vegetation in the island flood plain. Note 1:** 51 out of the 100 recorded historic Potomac River floods (over 9.4 ft at Little Falls Gauge, NOAA data) were recorded since the first bridge was built in 1962, 33 since the midsection of the bridge was filled in 1992, 1996 included 2 of the top 7 floods, and 2018 included 4 historic floods. In 2019 the island flood plain was inundated on and off for much of winter and spring. **Note 2:** Mather Gorge (Cohn 2004) is much narrower at the American Legion Bridge and Plummers Island than at Little Falls Gauge, so the high-water marks listed below substantially underestimate the peak flows at the

bridge and head of Island by as much as 7 ft (verified at the bridge side of the channel bend, March 25, 2021).

rank	height	ft	date	rank	height	ft	date
				47	11.68	ft	4/18/2011
5	19.29	ft	1/21/1996	50	11.56	ft	12/17/2018
7	17.84	ft	9/8/1996	54	11.44	ft	9/21/2003
31	12.82	ft	3/15/2010	58	11.3	ft	5/20/2011
36	12.38	ft	6/5/2018	61	11.17	ft	1/27/2010
37	12.35	ft	3/6/1993	65	11.01	ft	9/29/2018
46	11.7	ft	5/18/2014	66	10.88	ft	3/12/2011
67	10.87	ft	12/12/2003	90	10.16	ft	3/25/1993
68	10.85	ft	9/11/2018	92	10.13	ft	1/29/1993
70	10.79	ft	3/22/1998	95	10.09	ft	11/29/1993
77	10.55	ft	4/18/1993	96	10.04	ft	5/13/2008
81	10.43	ft	1/10/1998	97	9.97	ft	9/23/2003
82	10.37	ft	3/30/1994	98	9.78	ft	9/9/2011
86	10.33	ft	10/31/2012	99	9.67	ft	5/6/2009
87	10.28	ft	3/30/2005	100	9.43	ft	4/17/2007

**7. Sound from bridge construction and closer proximity of traffic in 2 new bridge lanes after they open on the bridge:**

- a. The noise factor cannot be ignored by humans or wildlife. Already the sound of traffic is disturbing to human conversation at our meeting place the WBFC Cabin grounds.

**8. Salt and oil runoff impacts on biota from the bridge:**

- a. This depends on where the outflow is drained from the bridge drainage scuppers (particularly at the bridge’s low-point)
- b. The unintended consequences of that volume of road salts on freshwater ecosystems can be severe. A colleague is working on this very subject on area highways, and the impacts he found were surprisingly devastating. One of the worst impacts was mobilizing (and making bioavailable) toxic metals in waterways.

**9. Violation of long-term continuity of 120 years of research (Perry 2007; Shetler et al. 2006):**

- a. Lichen study on Plummers Island validated essentiality of long-term research contributing to national and global removal of Lead from gasoline: A drop from 70 species to 20 species due to sensitivity to Lead pollution on the island (Lawrey & Hale 1979).
- b. The decline of forest breeding birds on Plummers Island is related to the American Legion Bridge (Johnston & Winings 1987).

- c. Insects, like other organisms, are experiencing major declines globally (Borenstein 2018; Hallman et al. 2017; Jarvis 2018; Vogel 2017). Giant silk moths (Saturniidae) include Imperial, Cercropia, Luna, Polyphemus, Royal Walnut, Rosy maple etc. In New England, most of these are state endangered species because they have been hammered by an introduced biocontrol agent -- a non-native tachinid fly, *Compsilura concinna*, which was introduced to try and control gypsy moths in Massachusetts. That fly has wreaked havoc in New England because it is a generalist and the Saturniids have been heavily impacted. This pest has arrived in DC and vicinity but impacts here are not yet known (John Lil pers. comm. 2020). Thanks to the long history of research on insects of Plummers Island (**more than 3000** species documented there; Brown & Bahr 2008a,b), the island is a key place to further document this aspect of “insect apocalypse” (Jarvis 2018) assuming the island remains intact. Erwin (1981) and Brown (2001) have documented long-term trends in beetles and moths, respectively, with shifts in species composition related mainly to vegetation succession. The AL Bridge project puts WBFC Plummers Island research on trends in biodiversity in jeopardy.
- d. Bellwether issues of plagues, invasions and expansion of exotic species are expected to be exacerbated due to disturbance from construction – some examples of timing of introductions spread, and manifestations of infestations of plants animals, and diseases from around the region are recorded from Plummers Island (plant records from Shetler et al. 2006, WBFC Invasive Biota Committee reports 2015-2020), and <https://collections.nmnh.si.edu/search/botany/>)
- i. arrival and expansion of garlic mustard (1915), now rampant
  - ii. arrival and expansion of tree of heaven (or hell) (1933), now 50+ trees
  - iii. arrival and expansion of Japanese honeysuckle (1949), now dominant
  - iv. arrival and expansion of Japanese stilt grass (1979), now locally dominant
  - v. arrival and expansion of oriental bittersweet (1982), now all over and covering trees
  - vi. arrival and expansion of amur honeysuckle (1997), now dominant on west end
  - vii. arrival and expansion of winter creeper (1997), now patchily established but potentially widespread.
  - viii. arrival and expansion of ivy (ca 2015), now patchily established but potentially widespread
  - ix. Emerald Ash Borer (EAB) arrival and expansion in 2015 and death of ash trees (2016), mass die off of ash trees, a major shift in forest climax community (Simmons et al. 2016)
  - x. fig buttercup arrival and expansion and expansion (3 plants 2017, 50 plants in 2019, 160 plants 2020), expanding exponentially

- xi. arrival and expansion of European and Asian earthworms, which rapidly consume forest detritus and restructure soils, upending soil ecological processes and networks of indigenous species adapted to them, favoring colonization and replacement by invasive species,  
[https://en.wikipedia.org/wiki/Invasive\\_earthworms\\_of\\_North\\_America](https://en.wikipedia.org/wiki/Invasive_earthworms_of_North_America)
- xii. arrival and expansion of Asian clams (*Corbicula fluminea*), shells now abundant in sandy soils across the island (arrived in Ohio River Valley ca 1959, established in the Potomac River by 1982)
- xiii. Chestnut blight, was discovered in the USA in New York in 1904, arrived in Maryland by 1906, Chestnuts were historically on Plummers Island adjacent mainland, last documented in 1934, but considered extinct there by 1935. This once dominant species of the eastern deciduous forest was mostly wiped out within 50 years.
- xiv. Beech blight is coming. Popkin (2019) documents a deadly beech disease is spreading in the northeast USA. There is a mature beech forest on the mainland side of Plummers Island, near Lock 12. We will be watching for the blight here, unless the forest is cut down for the bridge construction.
- e. Research following climate change impacts to the ecosystems and organisms on Plummers Island will be conflated with issues involved with disturbance from bridge construction and emplacements.

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