A scenic view of a paved path leading to a canal in a wooded area with autumn foliage. The path is on the left, and the canal is on the right. The trees are mostly bare, with some yellow and orange leaves still on the branches. The sky is a clear blue. The overall scene is peaceful and natural.

# An Overview of the Invertebrate Fauna of Plummers Island, Maryland

Chesapeake and Ohio Canal National Historical Park

John W. Brown

Systematic Entomology Laboratory, USDA

National Museum of Natural History

Washington, DC 20013-7012

# Outline

- Introduction to Plummers Island



# Outline

- Introduction to Plummers Island
- History of biological investigations



# Outline

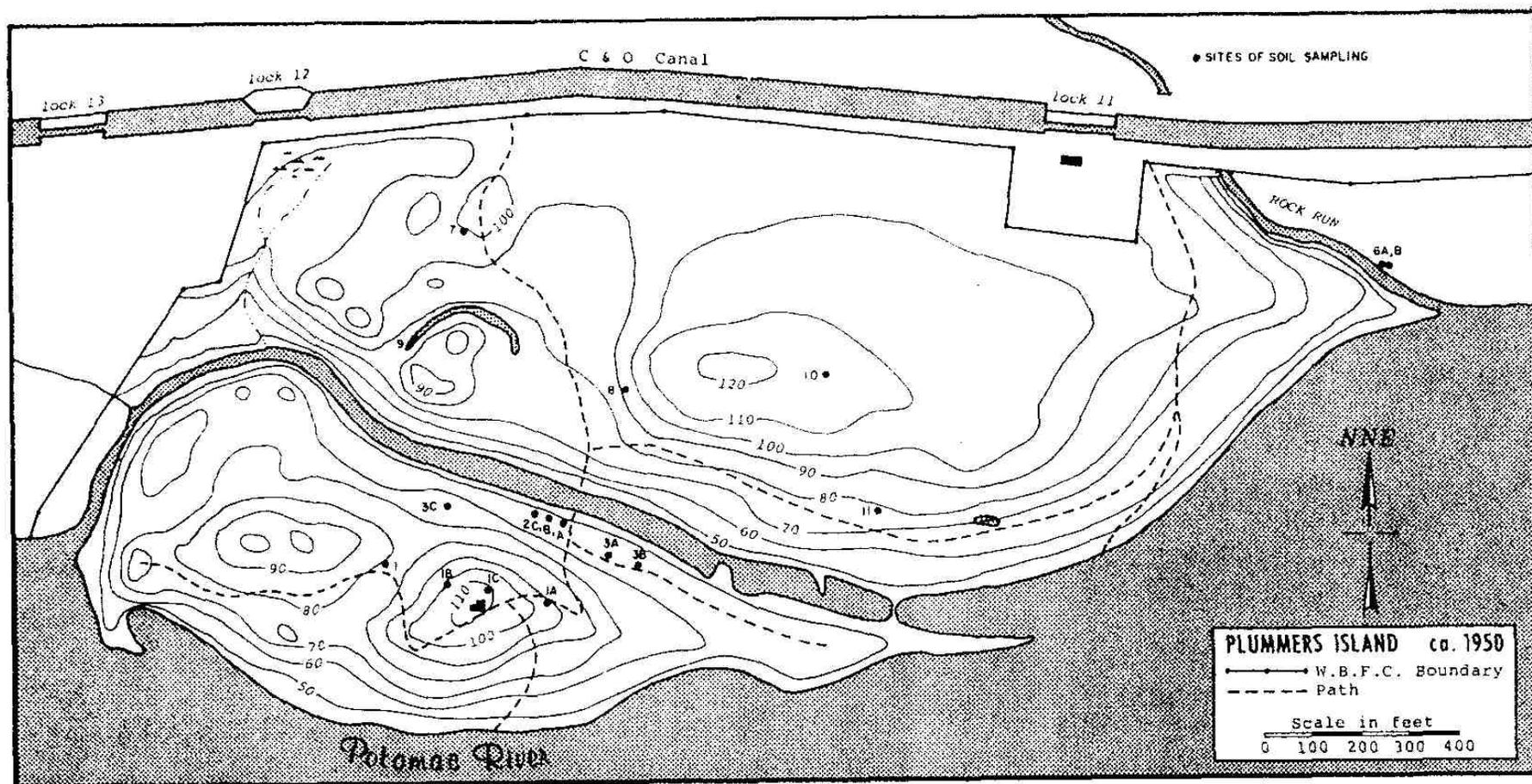
- Introduction to Plummers Island
- History of biological investigations
- Status of knowledge of invertebrates

# Outline

- Introduction to Plummers Island
- History of biological investigations
- Status of knowledge of invertebrates
- Changes in the Lepidoptera (butterflies and moths) fauna over the last 100 years



# Topographic map of Plummers Island



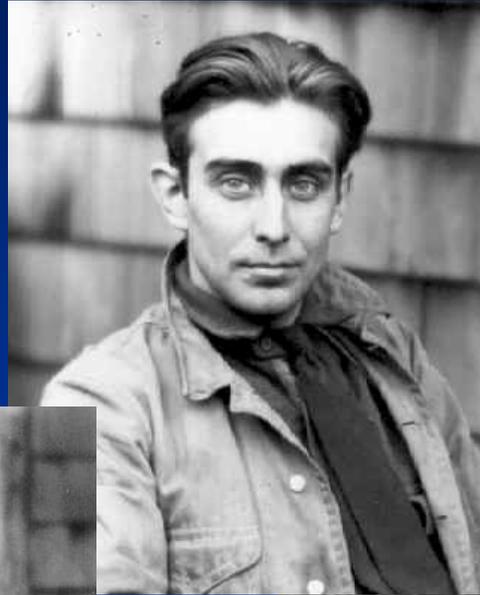
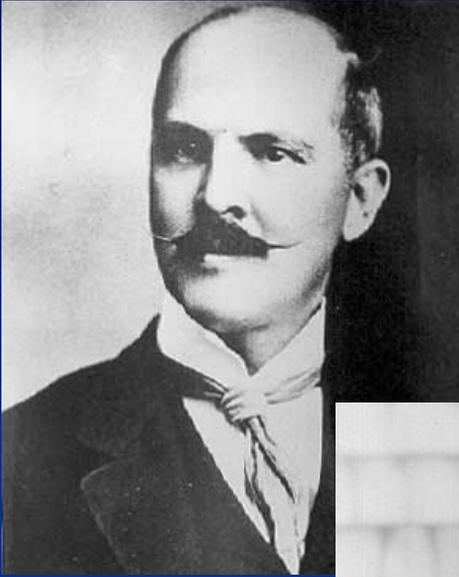
# Vegetation at east end of Plummers Island



# Washington Biologists' Field Club

## Early entomologists (1901-1925)

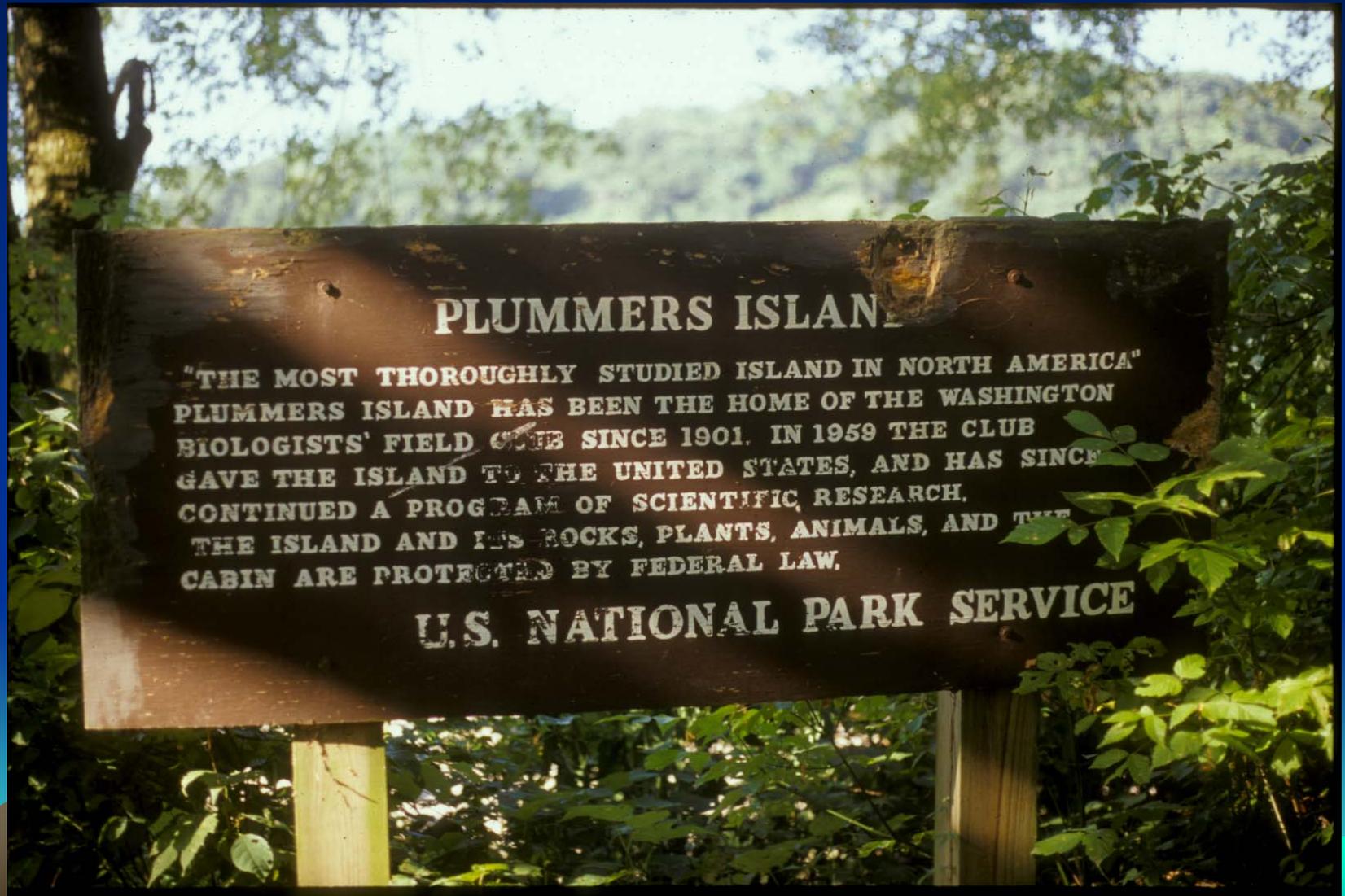
### Ashmead, Barber, Shannon, Busck



Cabin atop highest point on Plummers Island  
Built in 1901 by Washington Biologists' Field Club



# Sign at east end of island



## PLUMMERS ISLAND

"THE MOST THOROUGHLY STUDIED ISLAND IN NORTH AMERICA"  
PLUMMERS ISLAND HAS BEEN THE HOME OF THE WASHINGTON  
BIOLOGISTS' FIELD CLUB SINCE 1901. IN 1959 THE CLUB  
GAVE THE ISLAND TO THE UNITED STATES, AND HAS SINCE  
CONTINUED A PROGRAM OF SCIENTIFIC RESEARCH.  
THE ISLAND AND ITS ROCKS, PLANTS, ANIMALS, AND THE  
CABIN ARE PROTECTED BY FEDERAL LAW.

U.S. NATIONAL PARK SERVICE

# Mining (for data that is) Museum-style

- 2001 – NPS contract to Entomology Department, National Museum of Natural History, Smithsonian Institution.
- 2003 – NPS contract to Department of Invertebrate Zoology, Museum of Natural History, Smithsonian Institution.
- 2003 – WFBC grant to continue inventory of Lepidoptera.
- 2005 – Inventory of collection complete; report submitted to NPS.
- 2006 – Book on the invertebrates of Plummers Island funded by WFBC.



# Total numbers of insects species by Order

## HEMIMETABOLOUS

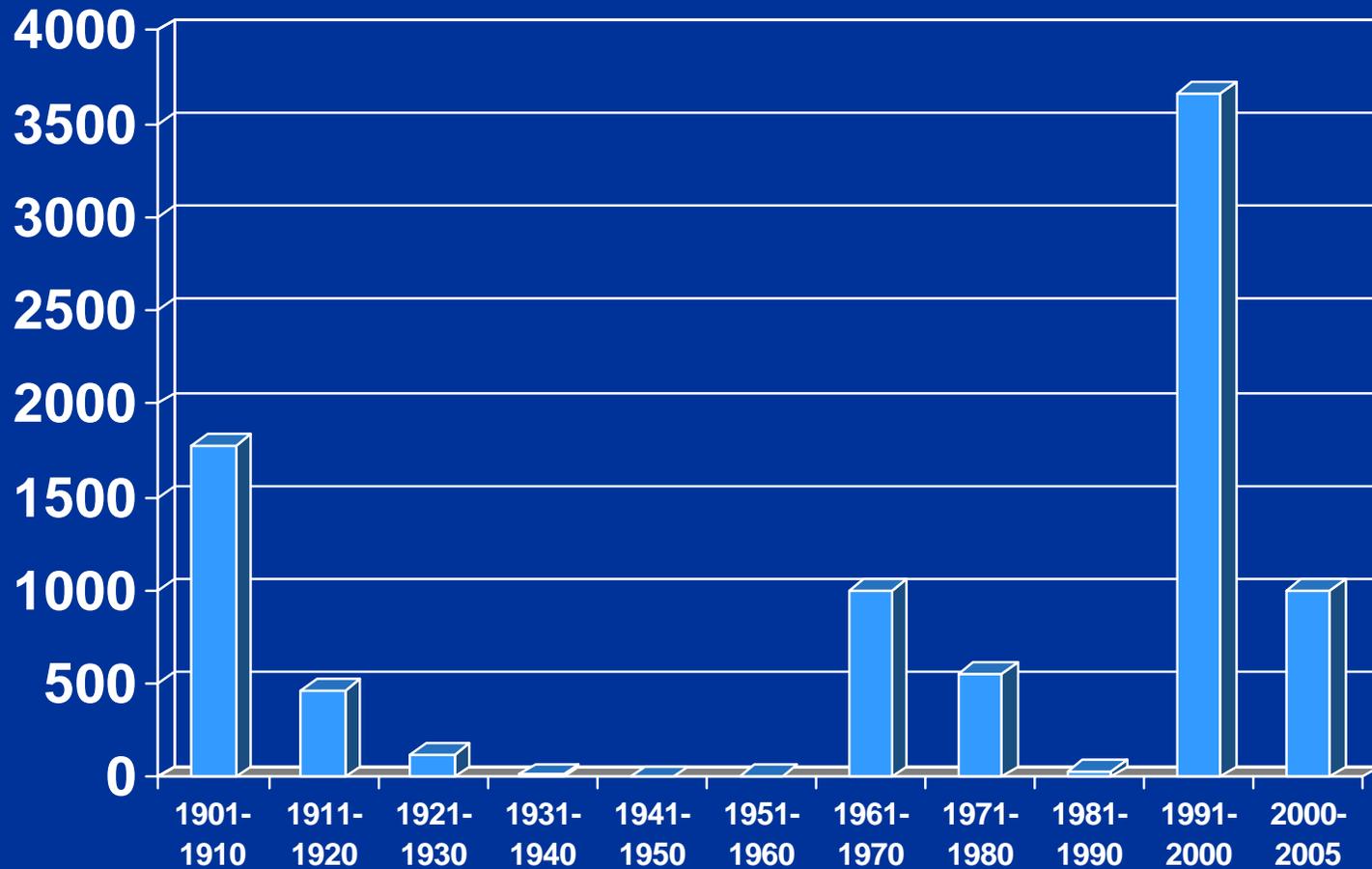
Odonata	45
Dermaptera	1
Blattoidea	5
Phasmatoidea	1
Orthoptera	63
Psocoptera	14
Thysanoptera	57
Hemiptera (Heteroptera)	204
Hemiptera (Homoptera)	100

## HOLOMETABOLOUS

Neuroptera	15
Megaloptera	7
Coleoptera	661
Mecoptera	5
Trichoptera	47
Lepidoptera	828
Diptera	680
Hymenoptera	533
<b>TOTAL INSECTS</b>	<b>3,275</b>



# Lepidoptera



# Lepidoptera

8,000 records; 828 species; 48 families

Family	# spp.	1901- 1920	1990- 2005	change	species turnover
Acrolophidae	12	11	9	-18%	20%
Tortricidae	119	71	59	-17%	54%
Limacodidae	15	13	14	+8%	11%
Pyralidae	47	42	20	-48%	54%
Crambidae	73	54	43	-20%	39%
Geometridae	77	54	44	-19%	57%

# Conclusions

Data-mining, literature review, and field work have combined to document about 3,500 species of invertebrates.



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Changes in the insect fauna likely are attributable to vegetation succession.



# Acknowledgments

Funding

National Park Service

Washington Biologists' Field Club

Collecting

Students, interns, volunteers

Insect identifications

Entomology staff at National Museum  
of Natural History – Smithsonian and  
USDA