

THE BRYOPHYTES OF THE NEW YORK BOTANICAL GARDEN FOREST

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The New York Botanical Garden Forest (formerly known as the "Hemlock Forest") may not seem a likely habitat for a rich bryoflora, but a somewhat surprising number of species have been collected. This 40 acre urban forest in the borough of the Bronx in New York City, consisting of rocky cliffs, ephemeral streams and a mixed hardwood-coniferous forest, borders the Bronx River. A shrub-herbaceous layer is generally lacking throughout a major portion of the wooded area. The purpose of this project is to determine what bryophyte species exist within this inner city area.

Twenty-five collecting days were used in a sampling period between October 1, 1985 and August 5, 1986. Sampling was random, but the entire designated forest was thoroughly searched. Over 200 bryophytes were collected and are deposited at The New York Botanical Garden (NY). A total of 49 moss and 5 hepatic species were identified.

Collections were numbered using the NYBG Forest Project Grid System. Nomenclature generally follows Crum & Anderson (1980) and Stotler & Crandall-Stotler (1977). The list of species collected includes a brief description of habitat data. Species abundance is noted (Abundant = over 10 sittings or collections; Common = over 5 collections; Occasional = 2-5 collections; Rare = 1 collection).

A list of New York Botanical Garden bryophytes, collected in 1898 by Elizabeth G. Britton and Marshall A. Howe, is included to give a general idea of what had been in the forest at that time. The Hepaticae and Anthocerotae were collected and determined by M. A. Howe (1899) and the Musci were collected and determined by E. G. Britton (1899). It should be noted that this list included collections from throughout the entire Garden and the extensiveness of collecting is not known. "Hemlock Forest" is inscribed on many, but not all, of the collection labels.

A number of changes can be noted with the bryophyte flora when comparing the present list to the 1899 one. This does not seem surprising considering increased human impact. Future studies could be done to assess the effects of trampling and pollution on this habitat.

At present, the dominant species of The Forest are *Atrichum angustatum*, *Ceratodon purpureus*, *Dicranella heteromalla*, *Isopterygium elegans*, *Plagiomnium cuspidatum*, *Pohlia nutans* and *Polytrichum commune*. Six of these seven mosses were noted by Elizabeth Britton in the 1898 New York Botanical Garden survey.

Mosses

- Amblystegium juratzkanum* Schimp.--occasional; on river bank, on stones.
A. serpens (Hedw.) B.S.G.--rare; on stone wall.
A. varium (Hedw.) Lindb.--common; on stones, river bank, tree bases.
Anomodon rostratus (Hedw.) Schimp.--rare; on soil.
Aphanorhynchus serratum (Hook. & Wils. ex Drum.) Sull.--occasional, localized; on river bank.
Atrichum angustatum (Brid.) B.S.G.--abundant; on soil, rocky areas.
A. crispum (James) Sull.--occasional; on soil, rock ledges.
Barbula unguiculata Hedw.--occasional; on stones.
Brachythecium oxycladon (Brid.) Jaeg.--occasional; on rock steps, stone wall, soil.
B. plumosum (Hedw.) B.S.G.--occasional, localized; on rocks in stream.
B. rutabulum (Hedw.) B.S.G.--occasional; on rocks, soil.

- Bryum argenteum* Hedw.--abundant; on stones.
B. caespiticium Hedw.--occasional; on stone wall.
Callicladium haldanianum (Grev.) Crum--rare; on soil.
Campylium hispidulum (Brid.) Mitt.--rare; on stone wall.
Ceratodon purpureus (Hedw.) Brid.--abundant; on rocks, soil.
Dicranella heteromalla (Hedw.) Schimp.--abundant; on soil, rocks, tree bases, rock crevices.
Dicranum montanum Hedw.--occasional; mostly on tree bark, occasionally on wooden fences.
Ditrichum lineare (Sw.) Lindb.--occasional; on soil.
D. pallidum (Hedw.) Hampe--rare; on soil.
D. pusillum (Hedw.) Hampe--occasional; on soil.
Entodon cladorrhizans (Hedw.) C. Müll.--occasional; on fallen trees, decaying tree stumps.
Eurhynchium riparioides (Hedw.) Rich.--rare, localized; splash zone of waterfall.
Fissidens bryoides Hedw.--occasional, localized; on rock along river edge (mostly submerged).
F. bushii (Card. & Thér.) Card. & Thér.--rare; on soil.
F. fontanus (B. Pyl.) Steud.--rare; submerged in river.
Monosellium adnatum (Hedw.) Broth.--occasional; on tree bark.
Hygroamblystegium tenax (Hedw.) C. Jens.--rare; cliff beside river.
Hypnum cupressiforme Hedw.--rare; on cliff.
H. pallescens (Hedw.) P. Beauv.--occasional; on tree bark.
Isopterygium elegans (Brid.) Lindb.--abundant; on rock, soil.
Leptodictyum riparium (Hedw.) Warnst.--occasional, localized; submerged in river.
Leskea gracilescens Hedw.--rare; on tree bark.
Leucobryum albidum (Brid.) Lindb.--abundant; on soil, rock, tree stump
Mnium hornum Hedw.--rare; flood zone of river.
Plagiomnium cuspidatum (Hedw.) Kop.--abundant; on soil, rock, tree base
Platygyrium repens (Brid.) B.S.G.--occasional; on tree bark, tree root
Pogonatum pensilvanicum (Hedw.) P. Beauv.--rare; on clay soil.
Pohlia nutans (Hedw.) Lindb.--abundant; on soil, rock, tree bases.
Polytrichum commune Hedw.--abundant; on soil, rocky areas.
P. ohioense Ren. & Card.--abundant; on soil, rocky areas.
Pyralisiella polyantha (Hedw.) Grout--occasional, localized; on stone &
Schistidium alpicola (Hedw.) Limpr.--occasional; on stone fence and at
S. apocarpum (Hedw.) B.S.G.--rare; on stone fence.
Rhizomnium punctatum (Hedw.) Kop.--rare, localized; submerged in stream
Tetraphis pallidula Hedw.--occasional; on decaying trees, tree bark.
Tortella humilis (Hedw.) Jens.--rare; on soil, rock.
Tortula muralis Hedw.--rare; on stone wall.
Weissia controversa Hedw.--occasional; on stone wall.

Hepatics

- Calypogeia suelleriana* (Schiffn.) K. Müll.--rare; on rocky area.
Gymnocolea inflata (Huds.) Dum.--rare; on rock.
Lophocolea heterophylla (Schrad.) Dum.--occasional; on decaying tree stumps, tree bark.
Marchantia polymorpha L.--occasional, localized; along river bank.
Ptilavicinia lyellii (Hook.) Carruth.--rare; on decaying tree stump.

Checklist of bryophytes of The New York Botanical Garden
- Collections of 1898 and 1886 -

	1898*	1886
<i>Amblystegium juratzkanum</i>		X
<i>A. serpens</i>		X
<i>A. varium</i>		X
<i>Anomodon attenuatus</i>	X	
<i>A. rostratus</i>		X
<i>Aphanorrbegma serratum</i>		X
<i>atrichum angustatum</i>	X	X
<i>A. crispum</i>		X
<i>Barbula unguiculata</i>	X	X
<i>Brachythecium oxycladon</i>	X	X
<i>B. plumosum</i>	X	X
<i>B. rutabulum</i>		X
<i>Bryoandersonia illecebra</i>	X	
<i>Bryum argenteum</i>	X	X
<i>B. caespiticium</i>	X	X
<i>Burbaunia aphylla</i>	X	
<i>Callicledium haldanianum</i>	X	X
<i>Campylium hispidulum</i>		X
<i>Ceratodon purpureus</i>	X	X
<i>Climacium americanum</i>	X	
<i>Ctenidium molluscum</i>	X	
<i>Dicranella heteromalla</i>	X	X
<i>Dicranum montanum</i>		X
<i>D. scoparium</i>	X	
<i>Diphyscium foliosum</i>	X	
<i>Ditrichum lineare</i>	X**	X
<i>D. pallidum</i>	X**	X
<i>D. pusillum</i>		X
<i>D. pusillum var. tortile</i>	X	
<i>Etodon oladorrhizans</i>		X
<i>Eurhynchium riparioides</i>		X
<i>Fissidens bryoides</i>		X
<i>F. bushii</i>		X
<i>F. fontanus</i>		X
<i>F. taxifolius</i>	X	
<i>Funaria hygrometrica</i>	X	
<i>Hedwigia ciliata</i>	X	
<i>Helodium paludosum</i>	X	
<i>Homonellium adnatum</i>		X
<i>Hygroamblystegium tenax</i>		X
<i>Hypnum cupressiforme</i>		X
<i>H. pallidum</i>		X
<i>Isopterygium elegans</i>	X	X
<i>Leptobryum pyriforme</i>	X	
<i>Leptodictyon riparium</i>		X
<i>Leskea gracilescens</i>		X
<i>L. obscura</i>	X	
<i>Leucobryum albidum</i>	X**	X
<i>L. glaucum</i>	X	
<i>Mnium hornum</i>		X
<i>Orthotrichum ohioense</i>	X	

	1898*	1886
<i>Physcomitrium pyriforme</i>	X	
<i>Plagioannium cuspidatum</i>	X	X
<i>Plagiobothrium denticulatum</i>	X	
<i>Platygyrium repens</i>		X
<i>Pogonatum pensilvanicum</i>	X	X
<i>Pohlia nutans</i>		X
<i>Polytrichum commune</i>	X	X
<i>P. ohioense</i>	X	X
<i>P. piliferum</i>	X	
<i>Ptychomitrium incurvum</i>	X	
<i>Pylaisiella polyantha</i>	X	
<i>Rhizomnium punctatum</i>	X	X
<i>Schistidium alpicola</i>		X
<i>S. apocarpum</i>		X
<i>Sanatophyllum adnatum</i>	X	
<i>Tetraphis pellucida</i>		X
<i>Tortella humilis</i>		X
<i>Tortula aursalis</i>		X
<i>Ulota Hutchinsiae</i>	X	
<i>Weissia controversa</i>		X
<i>Bazzania trilobata</i>	X	
<i>Calyptogonia muelleriana</i>		X
<i>Cephalozia catenulata</i>	X	
<i>C. connivens</i>	X	
<i>C. lamifolia</i>	X	
<i>Cololejeunea hiddlecomiae</i>	X	
<i>Frullania eboracensis</i>	X	
<i>Gymnocolea inflata</i>		X
<i>Lophocolea heterophylla</i>		X
<i>Marchantia polymorpha</i>		X
<i>Odontoschisma sphagni</i>	X	
<i>Pallavicinia lyellii</i>		X
<i>Riccia sullivantii</i>	X	
<i>Netothylas orbicularis</i>	X	
<i>Phaeoceros laevis</i>	X	

*names updated

** additional NYBG - E. G. Britton collections, located in herbarium but not included in 1899 list.

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