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Editors: Priscilla Titus and Steve Young; Assistant Editor: Connie Tedesco

Correspondence to NYFA, 3140 CEC, Albany, NY 12230

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SLENDER FALSE BROME (BRACHYPODIUM SYLVATICUM SSP. SYLVATICUM): A NEW INVASIVE PLANT IN NEW YORK

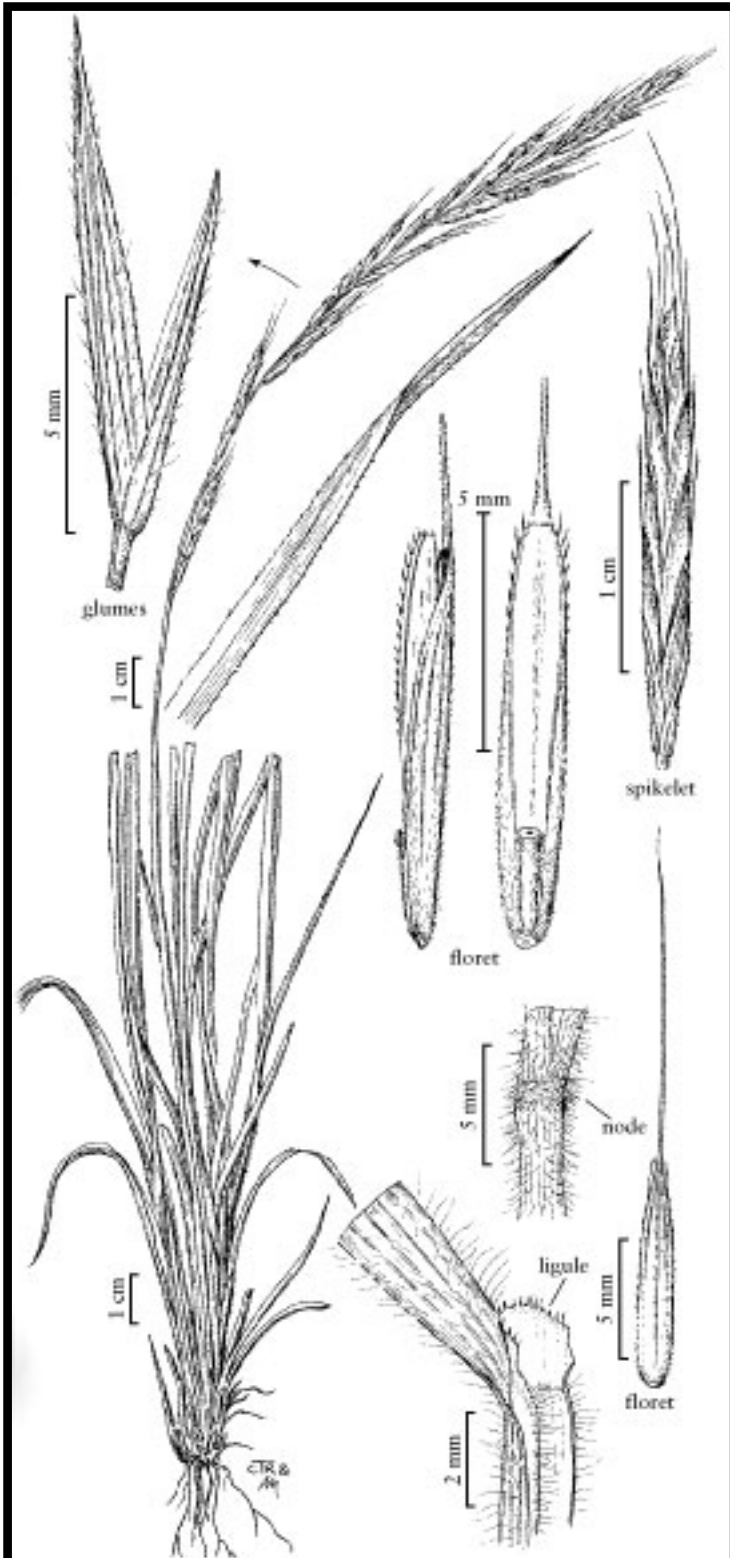
by Steven Daniel and David Werier



Clumped *Brachypodium sylvaticum* plants exhibiting drooping leaves and inflorescences. Photo by Steven Daniel.

In early September we independently found and vouchered two populations of slender false brome (*Brachypodium sylvaticum* ssp. *sylvaticum*) in New York (Bergen Swamp in Genesee County and Connecticut Hill in Tompkins County [SW of the corner of Tower and Cayutaville Roads]). The population at Bergen Swamp has likely been established for at least a decade. The second author saw the slender false brome at Bergen in 2004 but never collected a specimen. Jay

Greenberg (Bergen Swamp Preservation Society Trustee, personal communication) also noticed the plants along one of the main trails at Bergen beginning in or before the mid-1990's but didn't know what it was.



Slender false brome – *Brachypodium sylvaticum*
 Illustration by Cindy Talbot Roché and Annaliese Miller;
 Reprinted from Piep 2007. Page 189

This species is native to Asia, Europe, and North Africa (Shouliang and Phillips 2006) and has become naturalized in the Pacific Northwest and northern California (Johnson 2004, Piep 2007). In North America, slender false brome was first documented in Oregon in 1939 (Kaye 2001). In eastern North America it has previously only been found in Virginia (Piep 2007). Specimens from the New York populations have been verified by Tom Kaye (Institute for Applied Ecology), Rob Naczi (New York Botanical Garden), and Michael Piep (Intermountain Herbarium, Utah State University).

Slender false brome is considered highly invasive in the Pacific Northwest and now covers many thousands of acres in western Oregon, and also occurs locally in northern California and Washington State. In the Pacific Northwest it has shown a very rapid expansion of its range, thrives in a variety of ecological conditions where it often forms dense monospecific stands, and has even become a dominant species in some plant communities (Kaye 2001, 2003, Johnson 2004; Tom Kaye, Institute for Applied Ecology, personal communication). Preliminary observations at the Bergen Swamp population suggest that this plant is quite invasive in New York as well. The Bergen population is extensive, grows in very dense stands, and has been observed adjacent to state-listed plants. Since populations have been found at two sites in New York that are relatively far apart (approximately 85 miles), we suspect that this species may be overlooked and already well-established in other sites in at least central and western New York State.



**A forest understory invaded by *Brachypodium sylvaticum* at Bergen swamp.
Photo by Steven Daniel**

Slender false-brome is a perennial grass that grows in clumps. Its abundant leaves are 5-12 mm wide and remain bright green late into the fall. The overall appearance of the plants is a dense tuft of bright green drooping leaves. The leaves and flowering stalks droop at their tips. The flowering stalks (culms) have densely hairy nodes and are slightly elevated above the rest of the plant. There are 4-12 spikelets (clusters of flowers) per culm and these each have a tiny (0.5-2 mm long) pedicel (spikelet stalk) which occurs singly at each node of the inflorescence (Piep 2007). The roots, at least those of the New York specimens, have a strong wintergreen aroma. In New York, this species starts to flower in early July and the florets persist into October or perhaps later.

Although this species can appear, at first glance, like a species in the genus *Bromus*,

Brachypodium sylvaticum has open leaf sheaths and spike-like racemes (i.e. the inflorescences have florets that appear to be stalkless and come directly off of the main axis [i.e. a true spike] but actually are on small stalks that come off of the main axis [i.e. a true raceme]), as opposed to the closed leaf sheaths and panicles of *Bromus* (i.e. the inflorescences are branched with florets on stalks coming off of branches within the inflorescences). Species in the genus *Elymus*, for which it could also be mistaken, would have either a spike or a panicle, not the spike-like raceme of *B. sylvaticum*.

In its native range slender false brome appears to mainly be a forest understory plant but is also known to occur in open grasslands (Stace 1997, Shouliang and Phillips 2006). In the Pacific Northwest it grows in a broad range of

habitats, occurring in forest understories, open habitats, riparian and upland sites, and forest edges (Kaye 2001). At Bergen Swamp, the plants appear to be most extensive in shaded mesic to wet forests, but also occur along edges of open fens, and even on sphagnum hummocks. Slender false brome is particularly abundant along and near trails, suggesting that people and deer are major vectors in its spread in New York, as they appear to be in the Pacific Northwest (Tom Kaye, personal communication). At the Tompkins County (New York) site, the plants occur in a forest understory that is seasonally wet.

Since this species appears to stay green after other species have senesced, searching for it in the fall may be productive. Please report all new findings to us: David Werier (nakita@lightlink.com) and Steve Daniel (sdaniel1@rochester.rr.com). Since this species is apparently spread by seeds, if you find some slender false brome make sure your clothes and shoes are free of seeds before you leave the site.

Some different control treatments (i.e. physical, chemical, biological, and integrated pest management) have been researched in the Pacific Northwest (see the false-brome working group's web page <http://www.appliedeco.org/invasive-species-resources/FBWG>). If this species is not already widespread in New York, it will be extremely important to control all the known populations and attempt to keep them from spreading to other sites. Otherwise, as with other invasive species, areas will need to be prioritized for control.

For updated information on this species occurrence in New York see the New York Flora Atlas (<http://newyork.plantatlas.usf.edu/Plant.aspx?id=7190>). Photos can be viewed by clicking on "photo gallery" above the map on the NY Flora Atlas web page. For additional information about this species see an alert posted for California (http://www.cal-ipc.org/ip/management/plant_profiles/Brachypodium_sylvaticum.php), an alert posted for Washington (<http://www.kingcounty.gov/environment/animalsAndPlants/noxious-weeds/weed-identification/false-brome.aspx>), and resources in the literature cited section below.

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Drooping *Brachypodium sylvaticum* inflorescence. Photo by David Werier

This article was reprinted with permission from *Solidago* (the newsletter of the Finger Lakes Native Plant Society) 10(3): 1, 12-13.

On December 16, 2009, the Scientific Review Committee of New York that is evaluating non-native plants for their invasiveness reviewed *Brachypodium sylvaticum* and ranked it as a Very High invasive species.

THE SAINT BONAVENTURE UNIVERSITY HERBARIUM

By Stephen W. Eaton

St. Bonaventure University, a Franciscan institution, is literally located on the bank of the Allegheny River in Cattaraugus County, in southwestern New York, a few miles north of the New York/Pennsylvania border. The topography of the area is called the High Plateau section of the Allegheny Plateau, where the River is at about 1,400 ft. elevation and the dissected plateau rises to a maximum of 2,500 ft. Phytogeographic elements contributing to the flora are boreal (the large conglomerate blocks in the unglaciated region and the kettlehole bogs located along the Kent Tennial Moraine), Hemlock-White Pine-Northern Hardwoods, Beech Maple Forest, Mixed Mesophytic (Alleghenian) Forest, Coastal Plain, Ozarkian, and Prairie Peninsular Regions (Braun 1950, Curtice 1959).

The Herbarium is housed in the new Science Hall at St. Bonaventure in a separate room containing seven standard Lane Botanical steel cabinets. The vascular plants are housed in numbers one to six and the bryophytes are contained in number seven. The contact person in charge is Kevin Vogel and he can be reached at:

Biology Department
St. Bonaventure University
St. Bonaventure, NY 14778
716-375-2558
email: kvogel@sbu.edu

The collection of plants are primarily of recent origin; some of the oldest are specimens given to the University when the Allegany School of Natural History in Allegany State Park was disbanded (1926-1942) in the early 1940s at the beginning of World War II. The region has been explored mainly by botanists from Buffalo and Albany and since the late 1930s by members of the faculty at St. Bonaventure.

Father Philotheus Boehner, O.F.M. came to Bonaventure in the late 1930s from Germany to help establish and direct the Franciscan Institute. He had also been a student of the mosses in Germany and brought with him collections from Europe. He began collecting about the University along with Hubert Vecchierello, O.F.M. of the Biology Department who worked on Vascular Plants. They published their studies in *Science Studies*, a publication of the sciences at the University (then College) (Boehner, P. 1941a, 1941 b, 1941c, 1942a, 1942b, 1943 and Vecchierello, H. 1940-43).

The main bulk of the bryophyte collection was assembled by Father Philotheus from 1940 until the time of his unfortunate death of a heart attack on May 22, 1955, at which time he was instructing E. H. Donahue (1967, 1968, 1971) and myself in field identification of these interesting plants.

During the last few years Diane Lucas Ohio has been visiting her sister in Olean near St. Bonaventure and has voluntarily taken the effort of reviewing all the scientific names in the bryophyte collection and bringing them up to date. She has placed the specimens in new boxes and new packages with original data including the dried plant. Lucas has entered the entire data collection into an electronic database, exclusive of Boehner's European collection, and

eventually it will be available on the St. Bonaventure University website.

In 1956 we estimated the herbarium contained about 2000 bryophyte and 3000 vascular plant specimens (Eaton *et al.* 1956). Eaton continued collecting with varying emphasis up to 1985. Approximately every other year he taught a course in plant taxonomy in the graduate program during fall and spring terms, and later every third fall. From the 1950s through the early 1970s when the summer graduate program in biology was active, he also offered a summer course in plant taxonomy. In conjunction with these courses a few more thousand specimens were added to the herbarium (Janik 1958, Remery 1962, Schick and Eaton 1963). During the growing seasons of 1958, 1959, and 1960, Stanley J. Smith, curator of the New York State Museum at that time, explored the Allegheny River valley and nearby areas from Allegany to Onaville. This work was in conjunction with a broader study of the Seneca Nation lands before construction of the Kinzua Dam created the Allegheny Reservoir (Smith 1961). At this time Eaton accompanied Smith on several collecting trips, which were thoroughly enjoyed and most productive. Smith reviewed all of the approximately 4000 vascular specimens in the herbarium in 1958.

In the summer of 1970, Warren H. Wagner of the University of Michigan came for two days, during which time he helped with the fern and fern allies collections in the field, and reviewed herbarium specimens. Alfred F. Finocchio joined the biological faculty in 1962 teaching in the undergraduate school and developed courses in botany in the graduate school and had many students complete doctorates.

In 1980 Edith Schrot joined Eaton in exploring the county and we began the compilation of data for a flora of Cattaraugus County (Eaton and Schrot 1987). The County is unique in New York State as the northern half was glaciated and the southern half was left unglaciated. During the Pleistocene evidence of the last two stages, the Illinoian and the Wisconsin can be seen. Within the younger Wisconsin, three oscillations are indicated (Miller, 1973, Tesmer 1975, Muller 1977). In the unglaciated portion many exposures of massive blocks of conglomerate occur where particularly interesting Hepaticae are found between the blocks. Parks and Farrar (1984) have found gametophyte stages of the ferns *Trichomanes sp.* and *Vittaria sp.* on these conglomerates. Vascular plants such as *Adlumia fungosa*, *Ilex montana*, *Kalmia latifolia*, and *Dryopteris campyloptera* occur in the Leetonia soils derived from the breakdown of the conglomerates.

In the postglacial gorges of the northern areas on the exposed calcified shales are located *Pamassia glauca*, *Lobelia kalmia* and *Carex aurea*. Indicative of the great variety of ecological niches in the County is a list of 94 species or combinations of *Carex* and 32 are considered rare. These are *Carex chordorrhiza*, *C. aggregata*, *C. cephaloidea*, *C. diandra*, *C. prairea*, *C. disperma*, *C. arcta*, *C. cephalantha*, *C. seorsa*, *C. bebbii*, *C. brevior*, *C. aenea*, *C. albicans* var. *albicans*, *C. rugosperma*, *C. aurea*, *C. gynandra*, *C. emoryi*, *C. haydenii*, *C. limosa*, *C. paupercula*, *C. lanuginosa*, *C. caroliniana*, *C. virescens*, *C. platyphylla*, *C. albursina*, *C. pauciflora*, *C. typhina*, *C. pseudocyperus*, *C. hystericina*, *C. schweinitzii*, *C. retrorsa*, *C. oligosperma*. (*ibid*, 1987).

During the past few years, Sr. Frances Cardillo O.S.F, one of Finocchio's Ph.D. students of the St. Elizabeth Mother House in Allegany, has created an electronic database of vascular plants

and these will be available in the future on the St. Bonaventure University website. In a summary of treatment of the 131 families of vascular plants in Cattaraugus County, we substantiated the occurrence of 1,280 species (72% native) and 357 (27.9%) adventive or introduced species (*ibid*, 1987). The herbarium contains roughly 10,000 specimens including bryophytes and vascular plants.

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IMPONDERABLES

We received the following responses in answer to last month's question: "If one has a single female winterberry plant (*Ilex verticillata*) and no space for another plant, would it be possible to get a scion from a male plant and graft it onto the female so as to have a pollen source and obtain the beautiful fruits"?

Donald Leopold of SUNY-ESF writes: "The blue hollies cultivars (*Ilex x meserveae*) are grafted and sold in this way, i.e., male and female on the same plant, so grafting male and female branches of winterberry on the same plant shouldn't be a problem. Other species of hollies are apparently also grown in this manner although I'm not aware of such winterberry plants being sold by any nurseries".

Likewise, Wayne Morris of Long Island City responded "A male scion can be grafted onto a female holly as a way to get pollination for fruiting. Other methods (whip, cleft, etc.) besides budding will work, too. Also, many years ago, I was told by Bill Flemer III at Princeton Nurseries that if there was a male holly within about a quarter mile of a female, it would be pollinated and bear fruit. Whether it is the same species wouldn't matter as long as they were both flowering at the same time.

Wayne also provided the excerpt below from *The Handbook of Hollies*, American Horticultural Magazine, Vol. 49 No. 4, Fall 1970.

Grafting or budding would be desirable in placing a male twig onto a female tree for pollination; to obtain a bush or tree with both red and yellow berries; to grow very hard-to-root species or cultivars on root systems which are better adapted to local soil conditions. Scarce material for propagating purposes can be budded and by this method more plants can be obtained than by any other method. It would even be possible to have a number of cultivars budded or grafted to one specimen.

This month's "Imponderable" question is from Ruth Schottman: "I once watched a tree explode (a black locust) when hit by lightning. I don't think animals hit by lightning explode, though they can be burned, stunned, paralyzed, killed. Is this because plants have rigid cell walls and animals don't? Also: pistol shot noises of trees are especially noticeable on a sunny day when temperature reaches 20 degrees F after several sub-zero days. Was ice inside the xylem expanding and breaking the vessel walls?"

Please send your answers to editor@nyflora.org

Editor's Correction



Sara Stebbins noticed that last month's Regional Spotlight was **incorrectly** labeled as *Huperzia lucidula* rather than *Spinulum annotinum*. Thanks for keeping us on our toes Sara!

Spinulum species (formerly *Lycopodium*) have spores produced on stroboli at the apex of the stem; *Huperzia* species have spores produced in sporangia located in the axils of leaves along the stem.

For more information see: <http://newyork.plantatlas.usf.edu/Plant.aspx?id=1876>

WINTER MUSINGS

The Trees

The trees are coming into leaf
Like something almost being said;
The recent buds relax and spread,
Their greenness is a kind of grief.

Is it that they are born again
And we grow old? No, they die too.
Their yearly trick of looking new
Is written down in rings of grain.

Yet still the unresting castles thresh
In fullgrown thickness every May.
Last year is dead, they seem to say,
Begin afresh, afresh, afresh.
~Philip Larkin

When snow falls, nature listens.

~Antoinette van Kleeff

The snow doesn't give a soft
white damn whom it touches.

~e.e. cummings

*The sun lay like a friendly arm across
her shoulder.*

~Margorie Kinnan
Rawlings,
South Moon Under

CYBER BOTANY

Here are a few websites to satisfy your winter botanical exploration cravings:

⇒ http://www.earlham.edu/~biol/brents/field_botany/quiz3.htm

⇒ http://www.funtrivia.com/quizzes/sci_tech/botany/general_botany.html

⇒ <http://science.discovery.com/quizzes/botany/botany-quiz.html>

If you know of a website that others would enjoy, please send the address to:

editor@nyflora.org

FOR YOUR CONSIDERATION

NYFA Field Trips 2010

We are still looking for input regarding 2010 field trips. The trips that we are currently considering include:

- Flat Rock sandstone pavement barrens in Clinton County
- Alvar in Jefferson County
- Peat lands at Star Lake/Cranberry Lake and/or Spring Pond or Massawepie in St. Lawrence and Franklin Counties (July 2010)
- Allegheny State Park (possibly see Trichomanes) in Cattaraugus County
- Breezy Point and Gateway NRA in Queens and Brooklyn
- Inman and/or Lorraine Gulf Tug Hill (Jefferson County)
- Allenburg Bog in Cattaraugus County

Please let us know which you trip(s) you are interested in attending and/or suggest others by going to the following website and voicing your opinion:

<http://doodle.com/ikyrmzrni2za9hpv>

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Our new website www.nyflora.org links to the Cafe Press site where we have many items for sale with our logo. Shirts, hats, mugs and even buttons. Take a look and proudly wear your NYFA logo. A percentage of the proceeds from each item helps us continue with our projects to study and protect our native flora.



Handy Resources

Announcing - Another special issue of the Northeastern Naturalist!

Soil and Biota of Serpentine: A World View: Proceedings of the Sixth International Conference on Serpentine Ecology. This 450-page special issue with color photographs will be available around mid-February, with a discount if ordered early. For more information see:

<http://www.eaglehill.us/programs/journals/nea/nea-sena-hotoffthepress.shtml>

Please Contribute to the NYFA Newsletter!

Have you had a memorable time on a NYFA field trip or workshop? Discovered a new book about native wildflowers? Enjoyed a woodland walk? We encourage NYFA members to submit short articles and photographs for publication. Please send your submissions to Priscilla Titus at editor@nyflora.org

Be sure to give us your name, phone number, and mailing address. We hope to hear from you!

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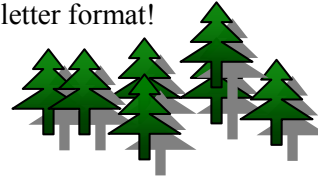
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