

2012 Annual Report

Algae and Fungi

Bryophytes

Lichens

Vascular Plants

**Herbarium Activity
Statistics**

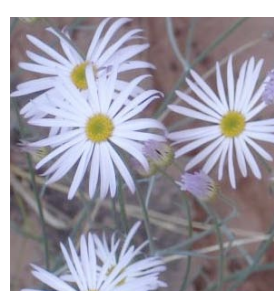
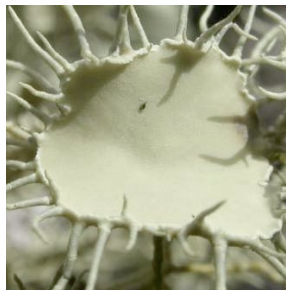
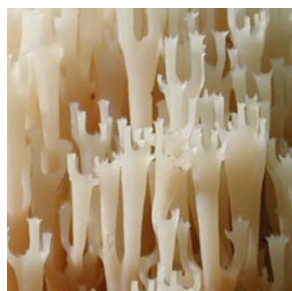
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D U K E H E R B A R I U M : 2 0 1 2 N E W S



FUNGAL HERBARIUM NEWS FLASH!!

In 2012, our fungal collections curator, Rytas Vilgalys, secured NSF funds for the digitization and image organization of the fungal herbarium. This digitization project is called *The Macrofungi Collection Consortium: Unlocking a Biodiversity Resource for Understanding Biotic Interactions, Nutrient Cycling and Human Affairs*. This NSF grant no. 1206197 (2012-2015) is led by Barbara Thiers at New York Botanical Garden. Funds will be available for our collection in 2013. Herbarium Data Manager (B. Shaw) is overseeing the import of existing Duke fungal specimens into the *MyCoPortal* (<http://mycoportal.org/portal/index.php>)

Herbarium Data Manager, **Blanka Shaw**, oversaw the conversion and upgrade of both the bryophyte and lichen databases into Specify6 collection management software in 2012. Blanka acts as the primary liaison to the Trinity Office of Technology Services, which provides server management and IT support. Blaine Ott (TOTS) facilitated migration of the cryptogamic herbarium databases to a new server in 2012.



CRYPTOGAMIC HERBARIUM DATABASING PROGRESS

Year	Records (cumulative) in in-house Specify databases		
	Bryophytes	Lichens	Algae
2005	57,561	5,757	0
2006	99,332	7,750	0
2007	127,503	10,199	1
2008	139,612	12,743	31
2009	154,334	14,251	2,909
2010	157,108	21,216	>9000
2011	162,988	26,299	14,988
2012	167,573	36,631	>18,000

ALGAL NEWS

The Duke Algal Herbarium participated in a 2012 Collaborative Proposal to NSF: Advancing Digitization of Biodiversity Collections

The MacroAlgal Herbarium Consortium: Accessing 150 Years of Specimen Data to Understand Changes in the Marine/ Aquatic Environment

Funded! Starts in July 2013!

2012 Loan Activity *from* Algal Herbarium
1 Loan (1 specimen)

2012 Algal Herbarium Size
18,970 specimens

FUNGAL NEWS

2012 Users of Fungal Herbarium

Duke Faculty/Staff/Postdocs/Grads

Gregory Bonito
Connie Robertson
Blanka Shaw
Jessie Uehling
Rytas Vilgalys (Curator)
Gwendolyn Williams

Bio Undergrad Students

Mycology course (Bio 220L)

2012 Loan Activity *to* Fungal Herbarium
1 Loan (16 specimens)

2012 Loan Activity *from* Fungal Herbarium
3 Loans (51 specimens)

2012 Accessions to Fungal Herbarium
333 specimens

2012 Fungal Herbarium Size
10,298 specimens

**2012 PEER-REVIEWED PUBLICATIONS
CITING DUKE ALGAL HERBARIUM**

None recorded.



**2012 PEER-REVIEWED PUBLICATIONS
CITING DUKE FUNGAL HERBARIUM**

Guevara, G., G. Bonito, J. Trapp, E. Cazares, G. Williams, R. A. Healy, C. Schadt and R. Vilgalys. 2013. New North American truffles (*Tuber* spp.) and their ectomycorrhizal associations. *Mycologia* 105(1):194-209. Epub 2012 Sep 6.

Healy, R.A., M.E. Smith, G.M. Bonito, D.H. Pfister, Z.-W. GE, G.G. Guevara, G. Williams, K. Stafford, L. Kumar, T. Lee, C. Hobart, J. Trape, R. Vilgalys and D.J. McLaughlin. 2013. High diversity and widespread occurrence of mitotic spore mats in ectomycorrhizal *Pezizales*. *Molecular Ecology* 22(6):1717-32. Epub 2012 Dec 3.

Holec, J., and M. Kolařík. 2013. *Ossicaulis lachnopus* (Agaricales, Lyophyllaceae), a species similar to *O. lignatilis*, is verified by morphological and molecular methods. *Mycological Progress* (in press). Epub 2012 Oct 16.



Uehling, J.K., T.W. Henkel, MC Aimé, R. Vilgalys, M.E. Smith. 2012. New species of *Clavulina* (Cantharellales, Basidiomycota) with resupinate and effused basidiomata from the Guiana Shield. *Mycologia* 104(2):547-56.

BRYOPHYTE NEWS

2012 Users of
Bryophyte HerbariumDuke Faculty/Staff/Postdocs/
Grads/Undergrads

Nicolas Devos
Arielle Garrett
Jacob Golan
Matt Johnson
Molly McMullen
Cinnamon Mittan
Jessica Nelson
Carl Rothfels
Blanka Shaw
Jon Shaw (Curator)

Outside Visitors (4)

2012 Loan Activity *to*
Bryophyte Herbarium
28 Loans (750 specimens)

2012 Loan Activity *from*
Bryophyte Herbarium
21 Loans (644 specimens)

2012 Accessions to
Bryophyte Herbarium
252 specimens

2012 Bryophyte Herbarium Size
255,252 specimens

BRYOPHYTE DATABASE

The bryophyte database is available for searches on the *Symbiota* portal of the Bryophyte Consortium of North American Herbaria:

<http://bryophyteportal.org/portal/collections/index.php>

Progress on the 2011-2015 NSF Digitization Project: North American Lichens and Bryophytes: Sensitive Indicators of Environmental Quality and Change, can also be viewed from this portal.

2012 PEER-REVIEWED
PUBLICATIONS BY DUKE
RESEARCHERS CITING DUKE
BRYOPHYTE HERBARIUM

Damayanti L., J. Munoz, S. Wicke, L. Symmank, B. Shaw, J.-P. Frahm & D. Quandt. 2012. Common but new: *Bartramia rosamrosiae*, a "new" widespread species of apple mosses (Bartramiaceae, Bryophytina) from the Mediterranean and western North America. *Phytotaxa* 73: 37-59.

Ellis, L. T., A. Alegro, P. Bansal, V. Nath, B. Cykowska, H. Bednarek-Ochyra, R. Ochyra, M. V. Dulin, P. Erzberger, C. Garcia, C. Sérgio, D. Claro, S. Stow, T. A. Hedderson, N. G. Hodgetts, V. Hugonnot, J. Kucera, F. Lara, L. Pertierra, M. Lebouvier, L. Liepina, A. Mežaka, L. Strazdin, a, L. Madžule, I. Rēriha, A. Mazooji, R. Natcheva, N. Phephu, D. A. Philippov, V. Plásek, L. Číhal, T. Pócs, R. D. Porley, M. Sabovljević, F. Salimpour, M. Behroozmand Motlagh, F. Sharifnia, S. Akhoondi Darzikolaei, A. Schäfer-Verwimp, V. Šegota, A. J. Shaw, M. Sim-Sim, P. Sollman, D. Spitale, A. Hölzer, A. Stebel, J. Vána, J. van Rooy, G. Vončina. 2012. New national and regional bryophyte records. *Journal of Bryology* 34: 231-246.

Heinrichs, J., A. Bombosch, K. Feldberg, H.-P. Kreier, J. Hentschel, J. Eckstein, D. Long, R.-L. Zhu, A. Schäfer-Verwimp, A. R. Schmidt, B. Shaw, A. J. Shaw, & J. Vána. 2012. A phylogeny of the northern temperate leafy liverwort genus *Scapania* (Scapaniaceae, Jungermanniales). *Molecular Phylogenetics and Evolution* 62: 973-985.

Ho, B.-C., L. Pokorny, B. Tan, J.-P. Frahm, A. J. Shaw, & D. Quandt. 2012. Molecular evolution and diversification of the moss family Daltoniaceae (Hookeriales, Bryophyta) with emphasis on unraveling the phylogeny of *Distichophyllum* and its allies. *Botanical Journal of the Linnean Society* 170: 157-175.

Johnson, M., B. Shaw, P. Zhou, & A. J. Shaw. 2012. Genetic analysis of the peatmoss *Sphagnum cribrosum*

(Sphagnaceae) indicates independent origins of an extreme infra-specific morphology shift., *Biological Journal of the Linnean Society* 106: 137-153.

Karlin, E. F., S. C. Hotchkiss, S. B. Boles, H. K. Stenøien, K. Hassel, K. I. Flatberg, & A. J. Shaw. 2012. High genetic diversity in a remote island population system: sans sex. *New Phytologist* 193: 1088-1097.

Pokorny, L., B.-C. Ho, J.-P. Frahm, D. Quandt, & A. J. Shaw. 2012. Phylogenetic analyses of morphological evolution in the gametophyte and sporophyte generations of the moss order Hookeriales (Bryopsida). *Molecular Phylogenetics and Evolution* 63: 351-364.

Shaw, A. J., K. I. Flatberg, P. Szövényi, M. Ricca, M. G. Johnson, H. K. Stenøien, & B. Shaw. 2012. Systematics of the *Sphagnum fimbriatum* complex: phylogenetic relationships, morphological variation, and allopolyploidy. *Systematic Botany* 63: 351-364.

Shaw, A. J., B. Shaw, M. Higuchi, T. Arikawa, Y. Hirayama, & N. Devos. 2012. *Climacium* (Climaciaceae): species relationships and biogeographic implications. *Bryologist* 115: 23-30.

Shaw, A. J., B. Shaw, M. Ricca, & K. I. Flatberg. 2012. A phylogenetic monograph of the *Sphagnum subsecundum* complex (Sphagnaceae) in eastern North America. *Bryologist* 115: 128-152.

Szövényi, P., S. Sundberg, & A. J. Shaw. 2012. Long-distance dispersal and genetic structure of natural populations: an assessment of the inverse isolation hypothesis in peat mosses, *Molecular Ecology* 21: 5461-5472.



MORE BRYOPHYTE NEWS



In 2012, an NSF grant was awarded that will result in significant enrichment of the *Frullania* liverwort collection at Duke

Frullania
Collaborative Research Network

NSF award ARTS: Collaborative Research: A model systematic treatment of a hyper-diverse lineage descended from early land plants (*Frullania*, Frullaniaceae, Marchantiophyta) (PI = B. Shaw, co-PI = J. Shaw) started in spring 2012.

<http://bryophyteportal.org/frullania/>

2012 PEER-REVIEWED PUBLICATIONS BY NON-DUKE RESEARCHERS CITING DUKE BRYOPHYTE HERBARIUM

Cooper, E. D., & M. J. Henwood. 2012. A molecular phylogeny of the *Lepidozia* generic complex supports re-circumscription of the Lepidozioideae. *Molecular Phylogenetics and Evolution* 65: 10-22.

Crandall-Stotler, B., & R. E. Stotler. 2012. Ontogenetic studies, sporophyte anatomy and phylogenetic affinities of *Phyllohallia nivicola* (Phyllohalliaceae, Marchantiophyta). *Nova Hedwigia* 95: 3-4.

Davison, P. G. & H. W. Robison. 2012. *Metzgeria uncigera* new to Arkansas. *Evansia* 29: 54-55.

Furze, J., J. Hill, Q. M. Zhu, & F. Qiao. 2012. Algorithms for the characterisation of plant strategy patterns on a global scale. *American Journal of Geographic Information Systems* 1: 72-99.

He, Q., Y. M. Wei, & R. L. Zhu. 2012. *Vitalianthus guangxianus* (Lejeuneaceae), a new species from Guangxi, China. *Journal of Bryology* 34: 32-36.

Hedenäs, L. 2012. Global phylogeography in *Sanionia uncinata* (Amblystegiaceae: Bryophyta). *Botanical Journal of the Linnean Society* 168: 19-42.

Liu, Y., J. M. Budke, & B. Goffinet. 2012. Phylogenetic inference rejects sporophyte based classification of the Funariaceae (Bryophyta): Rapid radiation suggests rampant homoplasy in sporophyte evolution. *Molecular Phylogenetics and Evolution* 62: 130-145.

Medina, R., F. Lara, B. Goffinet, R. Garilleti, & V. Mazimpaka. 2012. Integrative taxonomy successfully resolves the pseudo-cryptic complex of the disjunct epiphytic moss *Orthotrichum consimile* sl (Orthotrichaceae). *Taxon* 61: 1180-1198.

Ochyra, R., & J. R. Shevock. 2012. A fruiting plant of *Handeliobryum sikkimense* (Bryopsida, Thamnobryaceae) from Yunnan, China. *Nova Hedwigia* 94: 3-4.

Piñeiro, R., M. Popp, K. Hassel, D. Listl, K. B. Westergaard, K. I. Flatberg, H. K. Stenøien & C. Brochmann. 2012. Circumarctic dispersal and long-distance colonization of South America: the moss genus *Cinclidium*. *Journal of Biogeography* 39: 2041-2051.

Söderström, L., A. Hagborg, M.R. Crosby, & M. Von Konrat. 2012. Early Land Plants Today: Index of Liverworts & Hornworts 2009-2010. *Phytotaxa* 63: 21-68.

Spence, J. R., & J. R. Shevock. 2012. *Ptychostomum pacificum* (Bryaceae), a new fern species from California, Oregon, and Western Nevada, USA. *Madroño* 59: 156-162.

Terracciano, S., S. Giordano & V. Spagnuolo. 2012. A further tessera in the two-centuries-old debate on the *Hypnum cupressiforme* complex (Hypnaceae, Bryopsida). *Plant Systematics and Evolution* 298: 229-238.

Wyatt, R., & I. J. Odrzykoski. 2012. *Plagiomnium floridanum* sp. nov. (Mniaceae), a new moss from the southeastern United States. *The Bryologist* 115: 527-535.



LICHEN NEWS

2012 Users of
Lichen Herbarium

Duke Faculty/Staff/Postdocs/Grads

Chicita Culberson
Ester Gaya
François Lutzoni (Curator)
Nicolas Magain
Molly McMullen
Jolanta Miadlikowska
Eimy Rivas Plata
Camille Truong

Outside Visitors (3)

2012 Loan Activity *to*
Lichen Herbarium

41 Loans (2,330 specimens)

2012 Loan Activity *from*
Lichen Herbarium

13 Loans (473 specimens)

2012 Accessions to
Lichen Herbarium

492 specimens

2012 Lichen Herbarium Size
161,192 specimens

LICHEN DATABASE

The lichen database is available for searches on the *Symbiota* portal of the Lichen Consortium of North American Herbaria:

<http://lichenportal.org/portal/collections/index.php>

Progress on the 2011-2015 NSF Digitization Project: North American Lichens and Bryophytes: Sensitive Indicators of Environmental Quality and Change, can also be viewed from this portal.

2012 PEER-REVIEWED
PUBLICATIONS BY DUKE
RESEARCHERS CITING DUKE
LICHEN HERBARIUM

Gaya, E., F. Hognabba, A. Holguin, K. Molnar, S. Fernandez-Brime, S. Stenroos, U. Arup, U. Sochting, P. Van den Boom, R. Lucking, H. J. M. Sipman, & F. Lutzoni. 2012. Implementing a cumulative supermatrix approach for a comprehensive phylogenetic study of the Teloschistales (Pezizomycotina, Ascomycota). *Molecular Phylogenetics and Evolution*. 63: 374-387.

Geml, J., F. Kauff, C. Brochmann, F. Lutzoni, G. A. Laursen, S. A. Redhead, & L. Taylor. 2012. Frequent circumarctic and rare transequatorial dispersals in the lichenised agaric genus *Lichenomphalia* (Hygrophoraceae, Basidiomycota). *Fungal Biology* 116: 388-400.

Hodkinson, B. P., N. R. Gottel, C. W. Schadt, & F. Lutzoni. 2012. Photoautotrophic symbiont and geography are major factors affecting highly structured and diverse bacterial communities in the lichen microbiome. *Environmental Microbiology* 14: 147-161.

Hodkinson, B. P., J. K. Uehling, & M. E. Smith. 2012. *Lepidostroma vilgalysii*, a new basidiolichen from the New World. *Mycological Progress* 11: 827-833.

Prieto, M., I. Martinez, G. Aragon, C. Guiedan, & F. Lutzoni. 2012. Molecular phylogeny of *Heteroplacidium*, *Placidium*, and related catapyrenioid genera (Verrucariaceae, lichen-forming Ascomycota). 2012. *American Journal of Botany* 99: 23-35.

U'Ren, J. M., F. Lutzoni, J. Miadlikowska, A. D. Laetsch, & A. E. Arnold. 2012. Host and geographic structure of endophytic and endolichenic fungi at a continental scale. *American Journal of Botany* 99: 898-914.

2012 PEER-REVIEWED
PUBLICATIONS BY NON-DUKE
RESEARCHERS CITING DUKE
LICHEN HERBARIUM

Baloch, E., G. Gilenstam, & M. Wedin. 2013. The relationships of *Odontotrema*

(Odontotremataceae) and the resurrected *Sphaeropezia* (Stictiaceae)—new combinations and three new *Sphaeropezia* species. *Mycologia* 105(2):384-97. Epub 2012 Dec 11.

Benatti, M. N. 2012. Three resurrected species of the genus *Bulbothrix* Hale (Parmeliaceae, Lichenized Fungi). *Mycosphere* 3(1): 46-55.

Benatti, M. N. & J. A. Elix. 2012. The true identity of *Bulbothrix goebelii* (Zenker) Hale and the re-establishment of some of its synonyms as accepted species. *The Lichenologist* 44: 813-826.

Divakar, P. K., R. Del-Prado, H. Thorsten-Lumbsch, M. Wedin, T. L. Esslinger, S. D. Leavitt, & A. Crespo. 2012. Diversification of the newly-recognized lichen-forming fungal lineage *Montanelia* (Parmeliaceae, Ascomycota) and its relation to key geological and climatic events. *American Journal of Botany* 99: 2014-2026.

Esslinger, T. L., C. A. Morse, & S. D. Leavitt. 2012. A new North American species of *Hyperphyscia* (Physciaceae). *The Bryologist* 115: 31-41.

Hodkinson, B. P. & J. C. Lendemer. 2012. Phylogeny and taxonomy of an enigmatic sterile lichen. *Systematic Botany*, 37: 835-844.

Knudsen, K., A. Flakus, & M. Kukwa. 2012. A contribution to the study of Acarosporaceae in South America. *The Lichenologist* 44: 253-262.

Lendemer, J. C. 2012. A tale of two species: molecular data reveal the chemotypes of *Lepraria normandinoides* (Stereocaulaceae) to be two sympatric species. *The Journal of the Torrey Botanical Society*, 139: 118-130.

Luiz Gumboski, E. & S. Eliasaro. 2012. Espécies de *Cladonia* P. Browne (Cladoniaceae, Ascomycota) do Supergrupo *Cladonia* em restingas e costões rochosos dos Estados do Paraná e de Santa Catarina, Brasil. *Hoehnea* 39: 315-337.

Orange, A. 2012. Semi-cryptic marine species of *Hydropunctaria* (Verrucariaceae, lichenized Ascomycota) from northwest Europe. *The Lichenologist* 44: 299-320.

VASCULAR PLANT NEWS

2012 Users of
Vascular Plants Herbarium

Duke Faculty/Staff/Postdocs/Students

Will Cook
Amanda Grusz
Layne Huiet
Anne Johnson
Fay-Wei Li
Paul Manos
Eduardo Miereles
Jennifer Modliszewski
Kathleen Pryer
Bob Wilbur (Emeritus)
Carl Rothfels
Erin Sigel
Mel Turner
Michael Windham (Curator)

Outside Visitors (10)

2012 Loan Activity *to*
Vascular Plants Herbarium
46 Loans (2,971 specimens)

2012 Loan Activity *from*
Vascular Plants Herbarium
14 Loans (579 specimens)

2012 Accessions to
Vascular Plants Herbarium
509 specimens

2012 Vascular Plants
Herbarium Size
403,627 specimens

2012 PEER-REVIEWED
PUBLICATIONS BY DUKE
RESEARCHERS CITING DUKE
VASCULAR HERBARIUM

Beck, J.B., J. Allison, K.M. Pryer, & M.D. Windham. 2012. Identifying multiple origins of polyploid taxa: a multilocus study of the hybrid cloak fern (*Astrolepis integerrima*; Pteridaceae). *American Journal of Botany* 99: 1857-1865.

Beck, J.B., P.J. Alexander, L. Allphin, I.A. Al-Shehbaz, C. Rushworth, C.D. Bailey, & M.D. Windham. 2012. Does hybridization drive the transition to asexuality in diploid *Boechera*? *Evolution* 66: 985-995.

Burge, D.O., G. Jui, S.W. Kembel, & K. Zhukovsky. 2012. Microsatellite markers from *Ceanothus roderickii* (Rhamnaceae) using next-generation sequencing technology." *American Journal of Botany* 99: e127-e130.

Johnson, A.K., C.J. Rothfels, M.D. Windham, & K.M. Pryer. 2012. Unique expression of a sporophytic character on the gametophytes of notholaenid ferns (Pteridaceae). *American Journal of Botany* 99: 1118-1124.

Li, F.-W., K.M. Pryer, & M.D. Windham. 2012. *Gaga*, a new fern genus segregated from *Cheilanthes* (Pteridaceae). *Systematic Botany* 37: 845-860.

Rothfels, C.J., A. Larsson, L.-Y. Kuo, P. Korall, W.-L. Chiou, & K.M. Pryer. 2012. Overcoming deep roots, fast rates, and short internodes to resolve the ancient rapid radiation of eupolypod II ferns. *Systematic Biology* 61: 490-509.

Rothfels, C.J., E.M. Sigel, & M.D. Windham. 2012. *Cheilanthes feei* T. Moore (Pteridaceae) and *Dryopteris erythrosora* (D.C. Eaton) Kunze (Dryopteridaceae) new for the flora of North Carolina. *American Fern Journal* 102: 184-186.

Rothfels, C.J., M.A. Sundue, L.-Y. Kuo, A. Larsson, M. Kato, E. Schuettelpelz, & K.M. Pryer. 2012. A revised family-level classification for eupolypod II ferns (Polypodiidae: Polypodiales). *Taxon* 61: 515-533.

White, R.A. & M.D. Turner. 2012. The anatomy and occurrence of foliar nectaries in *Cyathea* (Cyatheaceae). *American Fern Journal* 102: 91-113.



2012 PEER-REVIEWED
PUBLICATIONS BY NON-DUKE
RESEARCHERS CITING DUKE
VASCULAR HERBARIUM

Alexander, S.N., L.C. Hayek, & A. Weeks. 2012. A subspecific revision of North American saltmarsh mallow *Kosteletzkya pentacarpos* (L.) Ledeb. (Malvaceae). *Castanea* 77: 106-122.

Alford, M.H. 2012. Noteworthy Collections: Mississippi and Louisiana. *Castanea* 77: 181-185.

Borchsenius, F., L. S. S. Suárez, & L. M. Prince. 2012. Molecular phylogeny and redefined generic limits of *Calathea* (Marantaceae). *Systematic Botany* 37: 620-635.

Burt-Utley, K. & J.F. Utley. 2012. New species and notes on *Begonia* (Begoniaceae) from Mexico and Central America. *Phytoneuron* 2012-74: 1-25.

Cron, G.V., C. Pirone, M. Barlett, W.J. Kress, & C. Specht. 2012. Phylogenetic Relationships and Evolution in the Strelitziaceae (Zingiberales). *Systematic Botany* 37: 606-619.

Egger, J.M. 2012. Lectotypification of *Castilleja breviflora* A. Gray non Benth. And its importance to the nomenclature of *Castilleja puberula* Rydb. (Orobanchaceae). *Phytoneuron* 2012-75: 1-8.

Feist, M. A. E., S. R. Downie, A. R. Magee, & M. R. Liu. 2012. Revised generic delimitations for *Oxypolis* and *Ptilimnium* (Apiaceae) based on leaf morphology, comparative fruit anatomy, and phylogenetic analysis of nuclear rDNA ITS and cpDNA trnQ-trnK intergenic spacer sequence data. *Taxon* 61: 402-418.

Finn, B., L. S. S. Suarez, & L. M. Prince. 2012. Molecular phylogeny and redefined generic limits of *Calathea* (Marantaceae). *Systematic Botany* 37: 620-635.

Horner, H. T., S. Wanke, & M. S. Samin. 2012. A comparison of leaf crystal macropatterns in the two sister genera *Piper* and *Peperomia* (Piperaceae). *American Journal of Botany* 99: 983-997.

Judd, W. S., N. C. Melvin, K. Waselkov, & K. A. Kron. 2012. Taxonomic revision of *Eubotrys* (Ericaceae, Gaultherieae). *Brittonia* 64: 165-178.

Leopold, E. B., J. Birkebak, L. Reinink-Smith, A. P. Jayachandar, P. Narvaez, & S. Zaborac-Reed. 2012. Pollen morphology of the three subgenera of *Alnus*. *Palynology* 36: 131-151.

McDade, L. A., T. F. Daniel, C. A. Kiel, & A. J. Borg. 2012. Phylogenetic placement, delimitation, and relationships among genera of the enigmatic Nelsonioideae (Lamiales: Acanthaceae). *Taxon* 61: 637-651.

Rose, J. P. 2012. The Systematics of *Monotropis* (Ericaceae). Doctoral dissertation, The Ohio State University.

Schneider, J. V., & G. Zizka. 2012. Taxonomic revision of the Neotropical genus *Lacunaria* (Quinaceae/Ochnaceae sl). *Systematic Botany* 37: 165-188.

Schwartsburd, P. B. 2012. Three new taxa of *Hypolepis* (Dennstaedtiaceae) from the Brazilian Atlantic Forest, and a key to the Brazilian taxa. *Kew Bulletin* 67: 1-11.

Sessa, E. B., E. A. Zimmer, & T. J. Givnish. 2012. Reticulate evolution on a global scale: A nuclear phylogeny for New World *Dryopteris* (Dryopteridaceae). *Molecular Phylogenetics and Evolution* 64: 563-581.

Sessa, E. B., E. A. Zimmer, & T. J. Givnish. 2012. Phylogeny, divergence times, and historical biogeography of new world *Dryopteris* (Dryopteridaceae). *American Journal of Botany* 99: 730-750.

Sorrie, B. A. 2012. Identification, distribution, and habitat of needle-leaved *Hypericum* (Hypericaceae) in the southeastern United States. *Phytoneuron* 2012-76: 1-14.

Sorrie, B. A., W. M. Knapp, L. D. Estes, & D. D. Spaulding. 2012. A new *Sisyrinchium* (Iridaceae) from Cedar Glades in Northern Alabama. *Journal of the Botanical Research Institute of Texas* 6: 323-329.

Tippery, N. P. & D. H. Les. 2013. Hybridization and systematics of dioecious North American *Nymphoides* (*N. aquatica* and *N. cordata*; Menyanthaceae). *Aquatic Botany* 104: 127-137. Epub 2012 Aug 24.

Tripp, E. A. & L. A. McDade. 2012. New synonymies for *Ruellia* (Acanthaceae) of Costa Rica and notes on other neotropical species. *Brittonia* 64: 305-317.

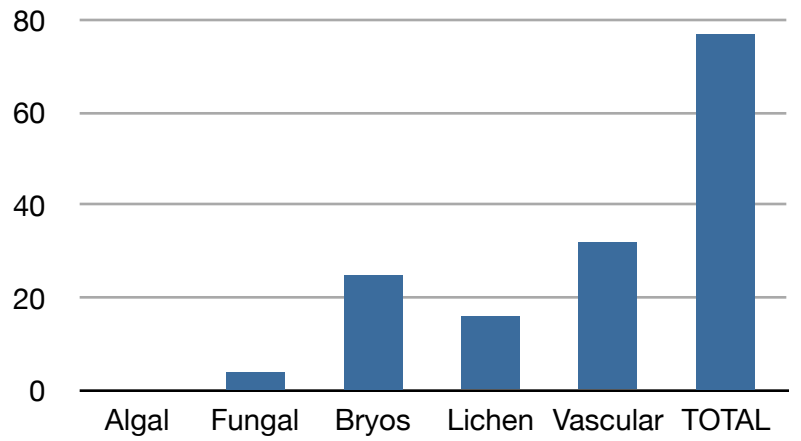
Whitson, M. 2012. *Calliphysalis* (Solanaceae): a new genus from the southeastern USA. *Rhodora* 114: 133-147.

Wilkins, C. F., & B. A. Whitlock. 2012. Corrigendum to: A new Australian genus *Androcalva* separated from *Commersonia* (Malvaceae sl or Byttneriaceae). *Australian Systematic Botany* 25: 82-82.



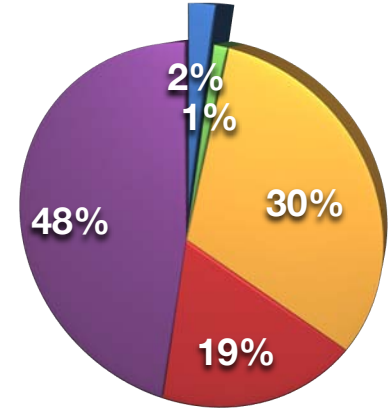


Refereed publications citing DUKE in 2012



	Algal	Fungal	Bryos	Lichen	Vascular	TOTAL
Collection size	18970	10298	255252	161192	403627	849339
(# specs in 2012)						
2012 Accessions	0	333	252	492	509	1586
In-house Users	1	6	10	6	14	37
Outside Visitors	0	0	4	2	10	16
Loans *to* Duke	0	1	28	41	46	116
(specimen total)	0	16	750	2330	2971	6067
Loans *from* Duke	1	3	21	13	14	52
(specimen total)	1	51	644	473	579	1748
In-house pubs	0	3	11	6	9	29
citing DUKE						
Outside pubs	0	1	14	10	23	48
citing DUKE						
Total pubs	0	4	25	16	32	77
citing DUKE						

2012 Herbarium Collection Size (849,339 specimens)



- Algal
- Fungal
- Bryophyte
- Lichen
- Vascular

