Brock, M. 2020. New vascular plant records for Kentucky. Phytoneuron 2020-6: 1–8. Published 20 January 2020. ISSN 2153 733X

NEW VASCULAR PLANT RECORDS FOR KENTUCKY

MASON BROCK
Center of Excellence for Field Biology
Austin Peay State University
Clarksville, Tennessee 37044

ABSTRACT

Twelve new species are documented for the flora of Kentucky, including eight native and four non-native taxa: *Anemone ranunculoides, Callicarpa americana, Dichanthelium annulum, Erigeron allisonii, Houstonia micrantha, Lamium galeobdolon, Lepidium oblongum, Poa wolfii, Rhynchospora gracilenta, Trillium stamineum, Viburnum dilatatum,* and *Vicia minutiflora*.

Twelve new species have been documented for the state of Kentucky over the course of the past five years of field work and herbarium study. The details of each species' discovery, along with specimen citations, are outlined below.

Of these species, eight were discovered from simple on-ground exploration of various locations across the state. The four others were discovered as part of a National Science Foundation grant received by Austin Peay State University (ASPC) to rescue and integrate the former Western Kentucky University (WKU) collection. The WKU herbarium had itself, just a few years before closing, received and integrated the Davies herbarium from the University of Louisville (DLH) and acquired the largely unprocessed private collection of Max Medley. The NSF grant is providing funding to verify identities of all incoming specimens before integration into APSC and to process the Medley collection. As a result of this funding, these additional three new species for Kentucky were discovered.

The flora of Kentucky remains poorly known compared to neighboring states, with relatively sparse county-by-county range documentation (Kartesz 2015). The earliest complete county-by-county mapping is from efforts less than a decade old (Campbell & Medley 2012). Due to this gap in floristic knowledge, I have made it a priority to increase Kentucky collections, particularly in the diverse but scarcely documented south-central portions of the state. It should be noted that the floristic knowledge of counties along the Tennessee border remains remarkably incomplete.

The following is a list of the new species for the state. Non-native species are marked by an asterisk (*).

***ANEMONE RANUNCULOIDES** L. [Ranunculaceae]

This European species was documented at a bridge crossing a tributary of the Licking River in Bourbon County. It was growing abundantly on rich, calcareous slopes among native spring wildflowers such as *Cardamine diphylla, Dicentra cucullaria, Stylophorum diphyllum, Stellaria corei,* and *Thalictrum dioicum*. This represents the first documented instance of naturalization within the USA. It has been present at this location since at least at least 2012, when it was initially photographed by myself (and misidentified as *Ranunculus hispidus*).

This population was on a steep slope, which would be atypical for any sort of ornamental cultivation but it perhaps is a location where dumping might occur. It is unclear what the invasive potential for this species is, because the slopes were not surveyed beyond the vicinity of the bridge crossing.

Voucher. **Kentucky**. Bourbon Co.: W of Colville Covered Bridge, on the S side of the crossing of Hinkston Creek (South Fork of the Licking River), N-facing, steep mesic calcareous slope forest, trashed but with surprisingly ample native vegetation, 38.32424° -84.20335°, 16 Apr 2017, *Brock 1654* (APSC).

CALLICARPA AMERICANA L. (L.) [Lamiaceae]

This southeastern shrub is documented for the first time as a Kentucky native, in the Land Between the Lakes in Lyon County. It is found growing on the thin calcareous woods above the bluffs of the Cumberland River, associated with *Ulmus serotina*. Only a single depauperate individual, less than 1 meter tall, was observed.

The discovery of *Callicarpa americana* this far north was unexpected, as it is apparently absent from the bluffs of the Cumberland River in more southern areas of the Land Between the Lakes. The closest known populations of this species are located along the Tennessee River in Humphreys Co., Tennessee, where it grows on calcareous slopes.

Initially, there was some question as to whether this individual really does indicate the existence of a native population of *Callicarpa americana*. However, the remoteness of the locality (with the topography being an impossible location for a homestead), the similarity to its typical habitat further south, and the difficulty of surveying steep bluffs, all point to this individual being native. This locality has not been revisited since the initial discovery, and it is likely that further surveys will reveal more individuals.

Voucher. **Kentucky.** Lyon Co.: W bluff of the Cumberland River, at the end of a ridge that extends E from just S of the terminus of Old Ferry Road, on the middle prong of the three ridges, dry calcareous bluff at the edge of the old Cumberland River, one small plant seen, N 37°01’41’’ W 88 °04’29’’, 31 Jul 2014, *Brock 589* (APSC).

DICHANTHELIUM ANNULUM (Ashe) LeBlond [Poaceae]

A specimen of *Dichanthelium annulum* from the Cumberland River bluffs in Pulaski County was found in the Medley collection. The specimen had only previously been identified to the genus *Dichanthelium*.

Dichanthelium annulum is a poorly known species and is considered rare across its entire range. Its typical habitat has been described as “dry rocky or sandy soil of open woods and calcareous grasslands (barrens)” (Leblond 2001). This is compatible with the habitat Medley described on his specimen, “open, cliff edge limestone glades,” which is a community often referred to a “calcareous barren” in some classification schemes. Medley’s specimen of *Dichanthelium annulum* is found on the same river bend as with another species that is restricted to a single known locality in the state, *Tragia urticifolia*, which is also found in this xeric limestone barren community.

Voucher. **Kentucky**. Pulaski Co.: Open, cliff edge limestone glades and adjacent woods on SW-facing cliffs of Cumberland River on Cox Bend, Burnside 7.5’ Quad, 22 Jul 1987, *Medley 17465* (APSC).

ERIGERON ALLISONII Poindexter, Keener, & Noyes [Asteraceae]

This species was recently described (Weakley et al. 2018), elevating to species status the variety known as *Erigeron strigosus* var. *calcicola*.

While this species is common in limestone glades of the Nashville Basin, it has never before been documented in similar habitats in the Pennyroyal Plain. This was not entirely unexpected however, as the Pennyroyal Plain glades are comparatively depauperate and lacking many species

characteristic of the Nashville Basin glades (e.g. *Dalea gattingeri, Leavenworthia stylosa, Pediomelum subacaule*). It was then somewhat surprising to find a specimen of this taxon in the WKU collection, vouchered from a remnant glade at the edge of the city of Bowling Green. The collection was made in 1980 as part of a floristic study of a remnant glade complex on private land (Johnson 1981). The glade complex has apparently been substantially reduced in size since the 1981 study due to development.

This site was visited by myself and other botanists in July 2016, prior to being made aware of the existence of the *Erigeron allisonii* specimen. The remaining glade appears to remain in moderately intact condition, with the state-Threatened *Juncus filipendulus* being documented there from the first time in Warren County. However, the glade is located on private land in a rapidly urbanizing area and is under imminent threat of development. An unfinished road has been constructed that appears to be leading directly into one of the two remaining glade outcrops in this area. As of this publication, the location has not been revisited to determine whether *E. allisonii* is extant at this site.

Voucher. **Kentucky.** Warren Co.: Exposed limestone, 2.1 km NW of the intersection of Hwy 231 and US 68, with *Scutellaria* and *Sedum*, 5 Apr 1980, *Johnson 1242* (APSC)

HOUSTONIA MICRANTHA (Shinners) Terrell [Rubiaceae]

This species has been documented in Barren County, representing a significant range extension to the northeast of the nearest known locality. Populations were found in mowed areas near Mammoth Cave National Park, around roadsides, weedy lawns, and a cemetery. At the Diamond Caverns visitor's center, it is growing approximately 200 meters from the Edmonson County line.

In this vicinity, it appears to have a preference for dry, sandy soil with relatively sparse vegetation. In these areas it is sympatric with *Houstonia pusilla*, which is more common in the Mammoth Cave area and found in a wider range of habitats.

It is unknown if this population is the result of *Houstonia micrantha* extending its range northward in recent times or if this diminutive, ephemeral annual has been simply overlooked. Further searches in other sandy cemeteries in western Kentucky, such as Utley Cemetery in Marshall County, Edgewood Cemetery in Todd County, and Jenny Ridge Cemetery in Trigg County, failed to reveal any further populations. This suggests the population of *H. micrantha* at Mammoth Cave and Zion Cemetery may be somewhat isolated.

Voucher. **Kentucky.** Barren Co.: Zion Cemetery, NW of Park City, gravelly roadside just E of the cemetery, also seen by the parking lot on the E side of Mammoth Cave Parkway N of Doyle Road, abundant in areas of thin soil along roadside and gravelly, sandy trailside, corolla pure white, tube ~2 mm, 37.100353° -86.055544°, 2 Apr 2018, *Brock 1883* (APSC).

***LAMIUM GALEOBDOLON** (L.) Crantz [Lamiaceae]

This European species is documented in Kentucky along the Elk Fork (a tributary to the Red River) in Todd County and in both Cherokee and Iroquois parks in Louisville.

In Todd County, it was found along a gravel roadside in a young *Acer negundo*-dominated bottomland. Although this particular location is weedy, with much *Alliaria petiolata* and *Galium aparine*, just south of this vicinity is a location where the native *Trilium stamineum* was documented new for the state (see section below). The source of the *Lamium* population is unknown. It appears to be proliferating only locally along the highly disturbed forest edge.

Additional specimens from Jefferson County were located in the EKY herbarium, collected by Patricia Haragan. These were previously misidentified as *Lamium maculatum*, a species not known to escape in Kentucky. On the label she has indicated that plants at the Cherokee Park location have

established since 2005 and are "choking out other herbaceous species." *Lamium galeobdolon* is considered an invasive species in some areas of the USA and it should be considered a potential threat to Kentucky communities.

Vouchers. **Kentucky.** Jefferson Co.: Cherokee Park, in open woodland mid-slope, E-facing, along old trail, 19 Apr 2010, *Haragan s.n.* (EKY). Todd Co.: E side of the Elk Fork, at Old Watermelon Road low-water bridge crossing, edge of young bottomland forest along dirt roadside, 37.100353° -86.055544°, 20 Apr 2019, *Brock 2287* (APSC).

***LEPIDIUM OBLONGUM** Small [Brassicaceae]

This weedy mustard has been documented in Fayette and Todd counties. Both locations are in urban areas that receive frequent mowing, with thin soil due to asphalt or concrete.

This species was first brought to my attention by Dr. Julian Campbell in 2013, who collected a specimen from Lexington in a location he described as a "Nostoc and cigarette butts along a medium of a busy highway." Although Campbell initially identified the specimen as *Lepidium ruderale*, I annotated it to *Lepidium oblongum* upon further examination in 2016 (an identification he now concurs with). A second population was also discovered in 2019 along on old sidewalk edge in Guthrie, Todd County.

Although this species is native to the south-central USA, with populations documented from as close as Arkansas in the 1880s (*Letterman s.n.*, UARK), there is no evidence that *Lepidium oblongum* is native to Kentucky. The two localities are in maximally disturbed urban habitats, with no indications of the plants spreading beyond. Because of this, *L. oblongum* considered here as adventive in the state.

Vouchers. **Kentucky.** Fayette Co.: Abundant on medium along Tates Creek Road and New Circle Road, 17 Apr 2013, *Campbell s.n.* (APSC, EKY). Todd Co.: Guthrie, N side of Park Street (Hwy 41) on W side of town, rare at weedy unmowed edge of sidewalk though an old neighborhood, 17 Apr 2019, *Brock 2297* (APSC).

POA WOLFII Scribn. [Poaceae]

A specimen of *Poa wolfii* has been discovered in the Max Medley collection, from the bottoms of the Salt River in Bullitt County. Medley had previously identified the specimen only to genus level, as he did with many of his graminoid collections.

At the Bullitt County site, it is found in the broad bottoms of the Salt River as it winds through an area underlain by Devonian shale. This particular ecological community is poorly known in Kentucky, being located nearly entirely inside Fort Knox, a military installation. The *Poa wolfii* location is in the most upstream portion of this bottomland region, where a small portion of the community located outside Fort Knox in the vicinity of Shepherdsville. If this habitat could be explored further, more populations of *Poa wolfii* probably could be located.

The range of *Poa wolfii* is concentrated in the midwestern USA, where it is found in both bottomland and upland forests. At the Bullitt County site, Medley documented it growing sympatrically with *Poa sylvestris.* No attempt has been made to relocate the species in the field.

Voucher. **Kentucky.** Bullitt Co.: S side of Mud Run and W of Blue Lick Road, low flatwoods, 20 May 1988, *Medley 18946* (APSC).

RHYNCHOSPORA GRACILENTA A.Gray [Cyperaceae]

A specimen of *Rhynchospora gracilenta* has been discovered in the Max Medley collection, from the Cumberland Plateau in McCreary County. Medley had previously identified the specimen only to genus. The location is from an artificial pond on a ridgetop in what is now known as the Blue

Heron Campground. However, according to historic aerial photography, when the specimen was made in 1980 this site appears to be simply along an undeveloped dirt trail. The pond appears to still exist, although it has not been revisited to determine of *Rhynchospora gracilenta* is extant.

Rhynchospora gracilenta joins a few other species typical of open, acidic conditions that have their only Kentucky locality in McCreary County: *Parnassia asarifolia*, *Polygala polygama*, and *Sabatia brachiata*.

Voucher. **Kentucky.** McCreary Co.: Artificial pond, ridge top from Barthell to head of Natural Bridge Hollow, ca. 0.5 mi N of Natural Bridge on dirt trail, just N of old barn, 31 Jul 1980, *Medley 2711* (APSC).

Figure 1. *Trillium stamineum* in young upland woods, Logan Co., Kentucky.

TRILLIUM STAMINEUM Harbison [Trilliaceae]

This southeastern *Trillium* has been documented in Logan and Todd counties, which represent the northernmost known populations. The closest known localities are southward in Cheatham Co., Tennessee.

Trillium stamineum was found along Whipporwill Creek and the Elk Fork, both tributaries to the Red River. These populations are small, with around 50 total plants observed. At both sites, they are growing in calcareous forests the base of thinly forested bluffs, usually below exposed limestone cliffs. In addition, in the vicinity of Whipporwill Creek this species was also observed growing along the edges of steep sinkhole in a karst plain, with a few individuals even persisting in the grazed upland woods. These ecological integrity of these sites ranges from high quality, where it is associated with

spring ephemerals such as *Erythronium americanum,* to areas of heavy disturbance dominated by *Lonicera japonica*.

The southern portions of Logan and Todd counties lie in the Pennyroyal Plain ecoregion, a gently rolling karst landscape that was historically dominated by prairie vegetation, with the exception of areas protected from fire such as in river gorges and steep-sided sinkholes. The discovery of this species for the first time in the Pennyroyal Plain ecoregion was unexpected, as the ranges of many other taxa of calcareous habitats are at the edge of the Western Highland Rim in Tennessee and do not cross into the Pennyroyal Plain (e.g. *Nemophila aphylla*, *Rhododendron alabamense*, *Vicia minutiflora*). These calcareous slope forests of the Pennyroyal Plain in Kentucky in Trigg, Christian, Todd, Logan, and Simpson counties are generally poorly surveyed, due to lying entirely within privately owned land, with the exception of small city park in Simpson County. In the course of this exploration of Whipporwill Creek, 33 other new county records for Logan County were also vouchered.

Vouchers. **Kentucky.** Logan Co.: N of Dot, E side of Whippoorwill Creek at N end of bluffs that follow creek where the slope levels out, mesic slope with limestone exposure, thinly forested, with *Melica mutica* and *Lonicera japonica*, 36.70844° -86.96722°, 5 Apr 2016, *Brock 1234* (APSC). Todd Co.: E side of the Elk Fork, S of Old Watermelon Road low-water bridge crossing at first bend in the river, mesic calcareous forest, in lower areas of slope where it levels out, not in the steep N-facing bluffs, which are too thick with *Staphylea*, 25-50 plants, 36.66546°, -87.07528°, 20 Apr 2019, *Brock 2319* (APSC).

***VIBURNUM DILATATUM** Thunb. [Adoxaceae]

This non-native shrub was documented in the vicinity of Blue Heron, on the banks of the Big South Fork in McCreary County. It is spreading profusely, with young individuals in both disturbed and undisturbed mesic and riparian forest. In the USA, it is known almost exclusively from the New England and mid-Atlantic area, with sparse collections as far south as North Carolina (Weakley 2015). Its documentation in Kentucky represents a significant range extension westward.

Viburnum dilatatum is native to temperate forests of eastern Asia. From personal observation in the Kanto Region of Japan, it appears to thrive in openings in temperate forests and was the most common species of *Viburnum* that I encountered in that region.

The ability of *Viburnum dilatatum* to penetrate the forests of the Big South Fork, combined with bird dispersal, is alarming. It should be considered a high-level invasive threat in both Kentucky and Tennessee.

Voucher. **Kentucky.** McCreary Co.: Blue Heron, on the E side of the Big South Fork, abundant along the trails, parking lot edges, and other disturbed areas around this visitor's center, 36° 40‘ 05” N, 84° 32’ 48”W, 27 Sep 2014, *Brock 755* (APSC).

VICIA MINUTIFLORA F.Dietr. [Fabaceae]

This diminutive legume is documented here from Trigg County, discovered during an exploration of the southwest-facing bluffs of the Cumberland River at the state line. It is a species of the southeastern USA, typically found on calcareous bluffs and rocky limestone forests of the Interior Low Plateau, where it is common. It has previously been documented from three Tennessee counties bordering Kentucky (Kartesz 2015).

Vicia minutiflora is uncommon at this locality — with about 10 plants were observed. This community is a dry calcareous woodland with limestone outcrops, and the *V. minutiflora* was located above (but not on) the bluffs of the river. *Hypericum frondosum* was also documented as a new county record, occurring in abundance at this site.

Figure 2. *Vicia minutiflora* on the bluffs above the Cumberland River in Trigg Co., Kentucky.

A search of the APSU herbarium found no herbarium specimens collected from this area, which indicates little to no prior floristic work has been conducted at this site. However, Trigg County itself is relatively well floristically surveyed, since contains a portion of the Land Between the Lakes National Recreation area, which is located on the west side of the Cumberland River.

Voucher. **Kentucky.** Trigg Co.: E side of the Cumberland River, N of unnamed stream N of the state line, part of the "Linton Public Use Area," high limestone bluffs along edge of river, in vicinity of *Ulmus serotina* and *Hypericum frondosum*, 36.67234° -87.90474°, 27 Apr 2016, *Brock 1315* (APSC).

ACKNOWLEDGEMENTS

I would like to thank Austin Peay State University and the National Science Foundation for providing the financial support to support herbarium-based research over the years I have been working with the Kentucky flora. I would also like to credit Julian Campbell and Max Medley for their many collections, which comprised a significant portion of this publication. In addition, I would like to specifically credit Campbell with the long-running process of maintaining the Atlas of Kentucky Plants which has provided the baseline understanding of Kentucky floristic knowledge. I would also like to thank Thomas Murphy and Dwayne Estes for reviewing this publication and their continued support.

LITERATURE CITED

Campbell, J.J.N. and M.E. Medley. 2012. The Atlas of Vascular Plants in Kentucky. <http://www.bluegrasswoodland.com/Kentucky_Plants_Flora.html> Accessed 3 January 2020

Johnson, G. 1981. An unreported cedar glade in Warren County, Kentucky. Trans. Ky. Acad. Sci. 42: 101–105

Kartesz, J.T. 2015. The Biota of North America Program (BONAP) North American Plant Atlas. (http://bonap.net/napa). Chapel Hill, North Carollina [maps generated from Kartesz 2015. Floristic Synthesis of North America, Version 1.0. Biota of North America Program (BONAP). (in press)].

LeBlond, R. 2001. Taxonomy of the *Dichotoma* group of *Dichanthelium* (Poaceae). Sida 19: 821–837

Weakley, A.S., D.B. Poindexter, R.J. LeBlond, B.A. Sorrie, E.L. Bridges, S.L. Orzell, A.R. Frank, M. Schori, B.R. Keener, A.R. Diamond Jr., A.J. Floden, and R.D. Noyes. 2018. New combinations, rank changes, and nomenclatural and taxonomic comments in the vascular flora of the southeastern United States. III. J. Bot. Res. Inst. Texas 12: 29

Weakley, A.S. 2015. Flora of the Southern and Mid-Atlantic States. Working draft of May 21, 2015. Univ. of North Carolina Herbarium, North Carolina Botanical Garden, Chapel Hill. <http://www.herbarium.unc.edu/flora.html> Accessed 9 February 2019.