

EXCLUDED TAXA
Digital Atlas of the Virginia Flora
Current as of April 21, 2024
© Virginia Botanical Associates 2024

INTRODUCTION

The following is an annotated list of more than 300 taxa that have been reported for Virginia but are currently excluded from mapping in the Digital Atlas. The reasons for their exclusion fall into several categories, the most common of which are 1) lack of supporting voucher specimens, or 2) lack of evidence that a taxon meets the basic criteria for establishment described in About the Digital Atlas. Also included are species that are known or suspected to be errors based on misidentifications. VBA decided to post this list in order to call attention to these taxa, generate new information, and reduce the perpetuation of misinformation that has characterized many of the entries. Massey (1961) reported many species from Virginia without known documentation or based on errors of interpretation of the "Gray's manual range." Despite years of cleaning up these errors and unsubstantiated taxa in the first three editions of the Atlas, many of them were given a new lease on life by Kartesz (1999), and from there by other sources such as USDA Plants and iterative drafts of Weakley's regional flora (many of these errors have been corrected in the current (2015), online version of Kartesz's North American Plant Atlas). Previous errors mapped in hard-copy Atlas editions and the Digital Atlas have also been repeated by various sources. Today, modern technology and search engines can and will find the most obscure details from centuries of botanical literature, with no ability to distinguish valid from erroneous contexts. As a result, it is clear that we are going to have to live with web-based information that conflicts with the Digital Atlas; at the same time, we hope this list offers greater clarity about why certain plants are not part of our treatment.

That said, it is a certainty that some of the taxa below *will* prove to be part of the Virginia flora; this has already been the case with some plants on previous iterations of the list. While hundreds of thousands of voucher specimens have been examined over years of compiling this atlas, it is likely that Virginia specimens representing significant records reside in uncanvassed out-of-state herbaria; and until all U.S. herbaria have been databased, such records will be difficult or impossible to locate. In addition, non-native species introduced through escape from cultivation or otherwise are becoming established at an unprecedented rate. Even with some of the best known, established exotics such as *Pyrus calleryana* (Bradford pear) and *Euonymus alatus* (winged euonymus), there have simply not been enough collectors out there to maintain an adequate representation of their distributions by county. A few species on the list are already known to be escaped, but are just not vouchered. Many more will be validly documented in the future.

The Flora of Virginia (Weakley, Ludwig & Townsend 2012 and its 2020 mobile App update) provides an even longer appendix of "Taxa Not Treated in this Manual" that contains virtually every plant ever rumored to be in Virginia. Bear in mind, however, that many of the Flora's "waifs" are mapped in the Digital Atlas due to differences in criteria for inclusion. Also, some of the "unverified" taxa have been verified since the 2012 Flora's publication. Lastly, a number of the Flora's waifs, unverified taxa, and taxa reported incorrectly have not been included in our Excluded Taxa list because the source of their attribution to Virginia is not known to us at this time.

We encourage anyone with new or additional information about any of the excluded taxa, or voucher specimens thereof, to contact us. This list will be updated periodically as new data become available.

PTERIDOPHYTES AND LYCOPHYTES

ASPLENIACEAE

***Asplenium xgravesii* Maxon.** Graves' Spleenwort. Formerly mapped for Warren County based on a single collection from the Massanutten Mountains. The supporting specimen, however, was annotated to *A. bradleyi* D.C. Eat. by Charles Werth. *Asplenium xgravesii* is a sterile hybrid of *A. bradleyi* x *A. pinnatifidum*. Since the two parents occur in close proximity in a few Virginia localities, this hybrid may yet be discovered in the state.

CYSTOPTERIDACEAE

***Cystopteris fragilis* (L.) Bernh.** Fragile Fern. Reported by Flora of the Southeastern U.S. (Weakley et al. 2023) for Virginia; the basis for this is unknown to us. Flora of North America (Vol. 2: 269, 1993) does not map this circumboreal species south of Pennsylvania.

DRYOPTERIDACEAE

***Dryopteris filix-mas* (L.) Schott.** Male Fern. Reported by Simmons et al. (2020) as adventive in northern Virginia, where single individuals have been found in more or less natural forested habitats in two Fairfax County locations and one Arlington County location. A circumboreal species known as a native in e. North America only as far south as Pennsylvania; presumably escaped from cultivation in Virginia. Simmons suspects the northern Virginia plants represent the species' Pacific Northwest genotype.

SELAGINELLACEAE

***Gymnogynum kraussianum* (Kunze) Weakley.** [syn. – *Selaginella kraussiana* (Kunze) A. Br.]. Mat Spikemoss. Reported by Lellinger (1985) as adventive in northern Virginia, but details or supporting specimens are not known. Native of South Africa, frequently cultivated and also reportedly introduced in North Carolina, South Carolina, Georgia, and California.

THELYPTERIDACEAE

***Phegopteris connectilis* (Michx.) Watt.** Northern Beech Fern. Reported (as *Dryopteris phegopteris* (L.) C. Chr.) by Allard and Leonard (1943) from Fauquier County in the Bull Run Mountains and subsequently listed by Massey (1961); the attribution was based on a misidentified specimen of *P. hexagonoptera* (Michx.) Fee. This circumboreal species extends south in the higher Appalachians, and is reported from several counties of West Virginia that border Virginia, as well as from North Carolina and Tennessee. Although it has been searched for unsuccessfully, it could possibly occur in sheltered habitats of the Virginia mountains, most likely on wet cliffs or rocky ravine slopes.

***Phegopteris decursive-pinnata* (N.C. Hall) Fee.** Japanese Beech Fern. A small colony of this fern was recently discovered by Nelson DeBarros among old confederate fortifications in a Fairfax County Park. Native of e. and se. Asia, and presumably escaped from cultivation in our area. Only time will tell whether it will become an established member of the flora.

GYMNOSPERMS

CUPRESSACEAE

***Juniperus virginiana* L. var. *silicicola* (Small) E. Murray.** [syn. – *J. silicicola* (Small) L.H. Bailey]. Southern Red Cedar, Coastal Red Cedar. See Comments under map of *Juniperus virginiana* L. var. *virginiana*.

GINKGOACEAE

***Ginkgo biloba* L.** Ginkgo. Reported by Steury (2011) as escaped (two young trees) in Arlington County. Seedlings have also been observed in an urban forest at Arlington National Cemetery and in the Richmond area. More convincing evidence that this species has established from escape is needed. Native of southeastern China, much cultivated in our area but not otherwise reported to escape.

PINACEAE

***Larix decidua* P. Mill.** European Larch. Reported by Massey (1961) from Augusta and Rockingham counties. These reports are of trees planted by the U.S. Forest Service on Elliott Knob (Augusta County) and elsewhere. No evidence of regeneration is known.

***Pinus thunbergiana* Franco.** [syn. – *P. thunbergii* Parlatore]. Japanese Black Pine. This Asiatic tree is salt-tolerant and frequently planted for ornament on beach-front properties in the City of Virginia Beach and elsewhere, but is not known to escape.

TAXACEAE

***Taxus cuspidata* Sieb. & Zucc.** Japanese Yew. Shetler & Orli (2000) report that this species “may also escape” in the D.C. area; we have sight records of seedlings but no evidence that it escapes away from plantings. Much cultivated native of Japan.

DICOTS

ACANTHACEAE

***Hygrophila polysperma* (Roxburgh) T. Anderson.** Reported by Reams in *New Phytologist* 52: 8-13 (1953) as introduced in lakes in the vicinity of Richmond. Voucher specimens are not known and this species is unlikely to have persisted or naturalized. Native of the East Indies, widely cultivated in aquaria, well established only in Florida in North America.

AIZOACEAE

***Trianthema portulacastrum* L.** Horse Purslane. Reported by Massey (1961) from limy soil in waste areas, with no locality given; specimens or other documentation have not been found. A cosmopolitan weed, introduced across much of the southern U.S., most common in the southwestern U.S.

AMARANTHACEAE

***Amaranthus blitoides* S. Wats.** Reported by Massey (1961) from waste places in Arlington, Roanoke, and Shenandoah counties, but no supporting specimens have been found. A specimen at ODU labelled with this name is believed to be misidentified. Native of the western U.S., widely introduced elsewhere.

***Amaranthus crispus* (Lesp. & Thev.) N. Terracc.** Erroneously reported by Massey (1961) based on the range given in Gray's Manual, eighth ed. (Fernald 1950). Native of South America, sparsely introduced in North America.

***Amaranthus hypochondriacus* L.** Prince's Feather. Widely cultivated ornamental originating in the southwestern U.S. through hybridization, according to *Flora of North America* (Vol. 4: 424, 2003). Weakley et al. (2023) says the type locality is "Virginia," but documentation of this plant outside of cultivation here is lacking.

***Amaranthus torreyi* (A. Gray) Wats.** [syn – *Amaranthus bigelovii* Uline & Bray]. Reported by Fernald in *Rhodora* 42: 450 (1940) from "roadsides and waste places" in Dinwiddie County; this is presumably the basis for the species' inclusion in Massey (1961). According to Weakley (2012), Fernald misapplied this name to *Amaranthus arenicola* I.M. Johnston. Native of the southwestern U.S.

***Froelichia floridana* (Nuttall) Moquin-Tandon.** Florida Cottonseed. Reported by Massey (1961) based on the range cited in Gray's Manual, eighth ed. (Fernald 1950). Also reported by Kartesz (1999), citing "voucher at Delaware Natural Heritage Program;" this is erroneous according to Bill McAvoy (pers. comm.). This species is native to the southeastern U.S., disjunct (and probably introduced) to Maryland and Delaware.

***Gomphrena globosa* L.** Globe Amaranth. Reported by Massey (1961) as escaping cultivation but "hardly naturalized." Also mapped for Virginia by Flora of North America (Vol. 4: 453, 2003), the documentation unknown. However, FNA maps this species in the approximate area of the Newport News chrome ore piles, where *Gomphrena serrata* L. was collected by Reed. It seems possible that the Newport News specimen might have been misidentified by Reed; further investigation is needed.

APIACEAE

***Angelica atropurpurea* L.** Purple Angelica. Reported in error for the Blue Ridge Parkway based on a misidentified specimen of *Angelica triquinata* Michx. collected by Freer in Bedford County. Native to northeastern and north-central North America, with disjunct populations in two West Virginia counties bordering west-central Virginia; however, it seems unlikely that any plant this large and showy would not have been discovered by now.

***Apium graveolens* L.** Celery. Reported as a waif (without a voucher) in Mathews County. This garden vegetable is not known to escape cultivation.

***Scandix pecten-veneris* L.** Venus'-comb. Mapped by Weakley et al. (2023) in the Virginia Piedmont. We do not know of any specimens or reports of this. There is a specimen attributed to Virginia at VPI, but it was actually collected in Alabama. Native of Mediterranean Europe and Africa; introduced in various places in North America, especially the Southeast (SC to TX) and the Pacific coast states.

***Thaspium pinnatifidum* (Buckley) A. Gray.** Cutleaf Meadow Parsnip. Reported by Massey (1961) from Amelia County. The basis for this is unknown, as specimens have not been found. In addition, the central Virginia Piedmont is a phytogeographically improbable locality for this species, which is endemic to calcareous forests of Kentucky, western North Carolina, eastern Tennessee, and northern Alabama.

Tiedemannia filiformis* (Walt.) Feist ssp. *filiformis [syn. – *Oxypolis filiformis* (Walt.) Britt.]. Water Dropwort. Reported in error in all three hard-copy editions of the Atlas, and consequently mapped in Virginia by Kartesz (1999). The name was mistakenly applied to *Oxypolis ternata* (Nutt.) Heller.

AQUIFOLIACEAE

***Ilex amelanchar* M.A. Curtis ex Chapman.** Sarvis Holly. Fernald (1950) reports this species as occurring "n. to se. Virginia (according to Loesener);" on this basis, it was also reported by Massey (1961). There is no evidence of this southeastern Coastal Plain endemic in Virginia; its known range is from southeastern North Carolina to Louisiana.

***Ilex mucronata* (L.) M. Powell** [syn – *Nemopanthus mucronatus* (L.) Trelease]. Catberry. Reported by Fernald (1950) from "upland Virginia," and later by Massey (1961) from Frederick County. Specimens substantiating these reports have never been found. As far as we know, this northern species reaches its southern limits at high elevations of North Fork Mountain in Pendleton County, West Virginia.

ARALIACEAE

***Aralia elata* (Miq.) Seeman.** Japanese Angelica-tree. Reported by Weakley et al. (2023) from the Virginia Piedmont, but specimens have not been seen. Frequently cultivated native of Japan; to be expected in Virginia as it is widely reported as an escape in states immediately to the north, and also in North Carolina.

ARISTOLOCHIACEAE

***Hexastalis shuttleworthii* (Britten & Baker f.) Small var. *shuttleworthii*.** Large-flowered Heartleaf. Mapped in several southwestern Virginia counties through three hard-copy editions of the Atlas, based on misidentified specimens of large-flowered forms of *H. heterophylla* (Ashe) Small. Mapped by Kartesz (1999) based on the erroneous Atlas records. Native to the Southern Appalachians, south of Virginia.

***Isotrema tomentosum* (Sims) H. Huber** [syn. – *Aristolochia tomentosa* Sims]. Woolly Dutchman's-pipe. Reported as escaped in Virginia by Flora of North America (Vol. 3: 48, 1997), the documentation unknown. Native to the southeastern and south-central U.S., generally southwest of our area.

ASTERACEAE

***Antennaria howellii* Greene ssp. *canadensis* (Greene) Bayer.** See Comments under map of *A. howellii* ssp. *neodioica* (Greene) Bayer.

***Arctium lappa* L.** Greater Burdock. Reported by Massey (1961) from James City and New Kent counties and the cities of Chesapeake and Newport News. Subsequently mapped for Fauquier County, Virginia by Kartesz (2014). Supporting specimens have not been found. Native of Eurasia, primarily introduced in northern North America.

***Artemisia absinthium* L.** Common Wormwood. Reported by Massey (1961) as "escapes from cultivation along waysides," with no specific locality. Specimens have not been found. Native of Europe, primarily introduced across northern North America; considered a noxious weed in parts of the western U.S.

***Artemisia caudata* Michx.** [syn. = *A. campestris* L. ssp. *caudata* (Michx.) H.M. Hall & Clem.]. Pacific Wormwood. Reported by Massey from "coastal sands," but in Goochland County, a Piedmont locality. Subsequently mapped for Virginia by Kartesz (1999, 2014). A specimen supporting this record has never been found. Native of the western U.S., rarely introduced eastward.

***Bidens eatonii* Fernald.** Eaton's Beggarticks. Reported by Massey (1961) from Amelia County. This is almost certainly based on an identification error, as the range of this northern species lies well north of our area.

***Doellingeria sericocarpoides* Small.** Southern Flat-top Aster. Sorrie (2022) clearly established that Fernald's *D. umbellata* var. *brevisquamus* is not conspecific with *D. sericocarpoides*, and that "good" material of the latter does not occur north of south-central North Carolina. Weakley et al. (2023) note that the "brevisquamus" material from north of North Carolina may warrant varietal recognition under *D. umbellata*, but more material and study is needed.

***Elephantopus elatus* Bertoloni.** Southern Elephant's-foot. Reported by Johnston in *Castanea* 42: 188 (1972) and carried through all three hard-copy editions of the Atlas, based on a misidentified specimen of *Elephantopus nudatus* Gray. Native to the Coastal Plain from South Carolina to Louisiana.

***Eupatorium compositifolium* Walter.** Coastal Dog Fennel. Reported in error as new to Virginia by Fleming and Ludwig in *Castanea* 61: 91 (1996). This species northern range limit on the Coastal Plain is east-central North Carolina.

***Eupatorium recurvans* Small.** Mapped in error for several counties of southeastern Virginia through three hard-copy editions of the Atlas. The name was misapplied to specimens of *E. mohrii* Greene. This species reaches its northern limit in southeastern North Carolina.

***Glebionis segetum* (L.) Fourreau** [syn. – *Chrysanthemum segetum* L.]. Corn Daisy. Reported by Massey (1961) based on "Virginia in range," and consequently mapped for the state by Kartesz (1999). There is no solid evidence for these reports. Native of Eurasia, introduced sparingly in eastern North America and commonly on the western U.S. Pacific coast.

***Helianthus resinosus* Small.** Resinous Sunflower. Listed (as *H. tomentosus* Michx.) for "w. Virginia" by Fernald (1950), forming the basis of its inclusion in Massey (1961). Documentation for this attribution is unknown. Native to the southeastern U.S., from North Carolina to Mississippi.

***Marshallia pulchra* W.M. Knapp, D.B. Poindexter, & Weakley.** [syn. < *M. grandiflora* Beadle & Boynt.], Grassleaf Barbara's-buttons. Reported by Massey (1961) based on "Virginia in range." This species is native to rocky woodlands and scoured riversides just west and southwest of Virginia, from southwestern Pennsylvania through eastern West Virginia to southwestern North Carolina and eastern Tennessee. However, there has never been any evidence of it in Virginia.

***Marshallia trinervia* (Walt.) Trel.** Broadleaf Barbara's-buttons. Reported for Virginia by Gleason & Cronquist (1991), the basis unknown. Native to the southeastern U.S. from Mississippi and Alabama to south-central Tennessee and southwestern North Carolina.

***Packera glabella* (Poir.) C. Jeffrey.** [syn – *Senecio glabellus* Poir.]. Smooth Ragwort. Reported by Massey (1961) from "wet woods" in Henrico County. No supporting specimens for this record have been found. The species is native to the southeastern U.S., with a known northern range limit on the Atlantic slope in east-central North Carolina.

***Parthenium hysterophorus* L.** Santa Maria Feverfew, Whitetop Weed. Previously mapped in Chesterfield, Franklin, and Scott counties, but the three supporting specimens were all misidentified *Tanacetum parthenium* (L.) Schultz 'Bipontius.' Native of Tropical America, well established in the Gulf Coast states but only sparsely introduced in the northeastern U.S. A noxious, often invasive weed in other parts of the world, it is also toxic to humans and animals in various ways.

***Pilosella flagellaris* (Willd.) P.D. Sell & C. West.** [syn. = *Hieracium flagellare* Willd.]. Reported by Massey (1961) based on the range given in Gray's Manual, eighth ed. (Fernald 1950); also mapped for Virginia by Flora of North America (Vol. 19: 284, 2006), the documentation unknown. Native of Europe, introduced in most states north of Virginia; derived from the hybrid *P. caespitosa* × *officinatum*.

***Rhaponticum repens* (L.) Hidalgo.** [syn. = *Acroptilon repens* (L.) DC.] Russian Knapweed. Mapped for Virginia by Flora of North America (Vol. 19: 172, 2006); however, the FNA author (D.J. Keill) notes that he has not actually seen specimens from Virginia. Native of Eurasia, introduced over much of central and western North America; it is toxic to horses and considered a noxious weed in the West.

***Solidago altissima* L. var. *gilvocanescens* (Rydb.) Semple** [syn – *S. altissima* L. ssp. *gilvocanescens* (Rydb.) Semple; *S. canadensis* L. var. *gilvocanescens* Rydb.]. This var. of the Great Plains is reported from Virginia by Kartesz (1999), based on Massey (1961), who listed it based only on the Gray's Manual range (Fernald 1950). The few known Virginia specimens that have been labeled as such have proven to be other taxa. Flora of North America (Vol. 20: 53, 2006) does not map this taxon anywhere in the eastern U.S.

***Solidago boottii* Hook.** [syn. = *Solidago arguta* Aiton var. *boottii* (Hooker) Palmer & Steyermark]. Boott's Goldenrod. Fernald (1950) reported the range of this goldenrod as "n. to Virginia," and Massey mapped it from five counties in the Coastal Plain and Ridge and Valley. These reports are likely based on misidentifications or

outdated interpretations of the *Solidago arguta* complex; no specimens of *S. boottii* have been identified among Virginia collections and the range, as currently understood, is primarily Midwestern/Ozarkian, with scattered occurrences eastward to central South Carolina. See also Comments under map of *S. arguta* var. *caroliniana* Gray.

***Solidago riddellii* Frank ex Riddell.** Riddell's Goldenrod. Specimen at Gray Herbarium: "Ft. Monroe, Va., Geo. Vasey, 1879". The occurrence of this goldenrod of upper Midwest prairies on a Virginia Coastal Plain military base is highly implausible. It is conceivable that the specimen was cultivated, but seems more likely the result of an error in labeling. Vasey was from Illinois and collected extensively there and elsewhere in the Midwest. Although he has no known connection with Fort Monroe, he could have visited the site after becoming Chief Botanist and Curator of the USDA National Herbarium in Washington, D.C.

***Solidago virgata* Michx.** Wand Goldenrod. Mapped in error (as *S. stricta* Ait.) for several counties of southeastern Virginia through three hard-copy editions of the Atlas, and consequently by Kartesz (1999). The name was misapplied to specimens of *S. gracillima* Torr. & Gray. Also mapped for Virginia (as *S. stricta* ssp. *stricta*) by Flora of North America (Vol. 20: 138, 2006), the documentation unknown unless it was based on the old Atlas attributions. See comments under *Solidago stricta* in the Digital Atlas for information about recent nomenclatural changes in this group.

***Symphotrichum dumosum* (L.) Nesom var. *subulifolium* (Torr. & Gray) Nesom.** See Comments under map of *S. dumosum* var. *dumosum*.

Symphotrichum oolentangiense* (Riddell) G. L. Nesom var. *oolentangiense [syn – *Aster azureus* Lindley]. Sky-blue Aster. Reported by Massey (1961) with no specific locality information. Documentation of this primarily Midwestern aster in Virginia is lacking, and it has never been reported for the state elsewhere.

***Trilisa odoratissima* (J.F. Gmel.) Cass.** [syn – *Carphephorus odoratissimus* (J.F. Gmel.) Herbert. Vanilla-leaf. Reported by Massey (1961) from "low pineland. Virginia occurrence uncertain." There is no evidence whatsoever that this southeastern Coastal Plain endemic (se. North Carolina to Louisiana) occurs, or ever occurred, in Virginia.

BERBERIDACEAE

***Berberis vulgaris* L.** European Barberry, Common Barberry. Reported by Massey (1961) from "in thickets and along fence rows" in Giles, Montgomery, and Scott counties, but said to be "mostly eradicated for control of wheat rust." Subsequently mapped in Virginia by Kartesz (1999, 2014), based on the Massey report. Supporting documentation for these records has not been found. The species is a commonly cultivated European shrub, but not known to us as a contemporary escape.

BORAGINACEAE

***Asperugo procumbens* L.** German Madwort. Reported by Massey (1961) from "waste places," based on the range given in Grays Manual, eighth ed. (Fernald 1950). There has never been any solid evidence of this species in Virginia. It is native to Eurasia and widely introduced in northern and western North America.

***Echium pustulatum* Sibth. & Sm.** Blue-devil. Reported by Massey (1961), and subsequently by Kartesz (1999, 2014). Massey gives no source or locality information, and no specimens have been found. Native of Mediterranean Europe.

***Lappula squarrosa* (Retz.) Dumort.** Stickseed. Reported by Massey (1961) from Henrico County, and subsequently by Kartesz (1999, 2014). The only known specimen is an 1979 collection with no location data other than "Virginia." Native of Europe.

***Lithospermum occidentale* (Mackenz.) Weakley, Witsell, and D. Estes** [syn. – *Onosmodium occidentale* Mackenz.]. Scientific Note in *Castanea* 51: 152, (1986), "Onosmodium molle subsp. occidentale in Tennessee and the Southeast," describes a collection from Tazewell County Virginia, annotated by J.M. Baskin and C.C. Baskin at either VDB, UCHT, or TENN. As currently understood, a Virginia occurrence of this taxon seems phytogeographically improbable, and the collection is likely referable to *Lithospermum parviflorum* or *L. molle*.

BRASSICACEAE

***Armoracia rusticana* G. Gaertn., B. Mey., & Scherb.** Horseradish. Persists in gardens, but not definitely documented as an escape. Small-scale commercial growers sometimes plant this species along streams in natural settings, and a population reported as an escape from such a locality in Grayson County is considered suspect.

***Borodinia missouriensis* (Greene) P.J. Alex. & Windham** [syn. = *Boechera missouriensis* (Greene) Al-Shehbaz]. Missouri Rock Cress. Reported by Massey (1961), citing the range given in Gray's Manual, eighth ed. (Fernald 1950). Documentation for Virginia has never been found. The species is native to the northeastern and central U.S. It occurs in local areas both to the north and south of Virginia, and thus might be expected here.

***Brassica oleracea* L.** Cabbage, Broccoli. Reported by Massey (1961). This common garden vegetable may be rarely spontaneous in situ, but is not known to escape cultivation.

***Descurainia pinnata* (Walt.) Britt. var. *pinnata*.** Southeastern Tansy Mustard. See Comments under map of *D. pinnata* var. *brachycarpa* (Richardson) Fernald.

***Erucastrum gallicum* (Willd.) O.E. Schulz.** Common Dog-mustard. Reported by McMullen and Bodkin in *Castanea* 51(3): 219 (1986) from Rockingham County and consequently mapped for Virginia by Kartesz (1999, 2014), based on an error in identification. However, this species is a rapidly spreading European weed, especially in northeastern and north-central North America, and is likely to be documented in Virginia sooner or later.

***Leavenworthia uniflora* (Michx.) Britt.** Michaux's Gladecress. Reported by Domangue and McMullen (2013) from the parking lot of a church in Shenandoah County. The source of this population is somewhat of a mystery; it is conceivable that it was introduced with limestone gravel quarried out of state. In any case, its potential persistence here seems doubtful. This species is endemic to calcareous glades and barrens of the Central Basin and Ridge and Valley regions in eastern and central Tennessee, central Kentucky, and northwestern Georgia.

***Lepidium perfoliatum* L.** Perfoliate Pepperwort. Mapped by Kartesz (1999) based on "Max Medley, pers. comm." This European weed is widely introduced in North America and is likely in Virginia, but vouchers have not been seen.

***Lunaria rediviva* L.** Perennial Honesty. Listed in error as a waif from Montgomery County in Ed. II of the Atlas, and subsequently mapped for Virginia by Kartesz (1999). The record was based on a misidentified specimen of *Lunaria annua* L. Native of Europe, frequently cultivated but very sparingly introduced in northeastern North America.

***Nasturtium microphyllum* Boenningh. ex Reichenb.** [syn. – *Rorippa microphylla* (Boenn. ex Reichenb.) Hyl. ex A. & D. Love. Narrow-fruited Watercress. Mapped for Virginia by Kartesz (1999), citing "Alan S. Weakley personal communication." The documentation for this is not known to us, and *Flora of North America* (Vol. 7: 490, 2010) does not map this species in Virginia. A native of Europe and scattered introduction in North America, primarily northward.

BETULACEAE

***Corylus avellana* L.** European Hazel. Rare in urban forests at two City of Alexandria sites in northern Virginia. Additional evidence of establishment and persistence is needed before mapping. Native of Europe and frequently planted in North America; a rare escape in the northeastern states, more frequent in the Pacific northwest.

CACTACEAE

***Opuntia lindheimeri* Engelm.** Texas Prickly-pear. Reported from Henrico and Isle of Wight counties by Weakley et al. (2023), the basis for the latter report unknown. The Henrico specimen (annotated by Majure) is at NCU, and was collected from a roadside ditch. Robert Wright reports additional populations in Amelia and Hanover counties. Frequently cultivated in Virginia but not certainly established from escape. Native to the south-central and western U.S., populations in the Atlantic states are believed to be introduced.

***Opuntia stricta* (Haw.) Haw. var. *stricta*.** Listed and mapped for Isle of Wight County by Benson (1982), based on a 1936 collection by Fernald, Griscom, and Long (at GH): "sandy roadside south of Zuni." Native along the coast from southeastern South Carolina to southern Florida; unlikely to be native or naturalized in Virginia.

CAMPANULACEAE

***Lobelia amoena* Michx.** Southern Lobelia. This is attributed to Virginia by Kartesz (1999), who cites McVaugh (1936). But, according to Weakley et al. (2023), McVaugh does not record *L. amoena* for Virginia and no specimens have been seen. In addition, an occurrence of this species in Virginia would be significantly disjunct (further north) from the known range. The attribution might refer to *Lobelia georgiana*, which was once considered a var. of *L. amoena*.

***Lobelia glandulosa* Walt.** See Comments under map of *Lobelia elongata* Small.

CAPRIFOLIACEAE

***Diervilla sessilifolia* Buckley.** Smooth Southern Bush-thoneysuckle. Reported by Massey (1961) from Warren County based on the report of a collection by Hunnewell (*Rhodora* 51: 60, 1949); this was later reported to be an error by Fosberg and Mazzeo (*Castanea* 30: 204, 1955).

***Dipsacus sativus* (L.) Honckeny.** Indian Teasel. Reported for the Virginia mountains by Weakley (2012), who says its occurrence is "implied" by various sources and that specimens have not been seen. Also mapped for Virginia by Kartesz (1999) based the same attribution in previous versions of Weakley's flora. As far as we know, specimens of this taxon in Virginia herbaria are lacking. This is a relatively rare introduction from Europe, much less common than either *Dipsacus fullonum* or *D. laciniatus* and restricted to small areas of the northeastern and western U.S. (Kartesz 2014).

***Sambucus nigra* L.** European Elderberry. Reported by Fernald in *Rhodora* 43: 652 (1941) from waste ground in Petersburg (Dinwiddie County), where "probably spread from cultivation." More convincing evidence of establishment from escape is needed. Native of Europe, uncommonly cultivated in our area.

CARYOPHYLLACEAE

***Cerastium diffusum* Pers.** Dark-green Mouse-ear. Reported by Fernald (as *C. tetrandrum* Curtis) in *Rhodora* 40: 415 (1938) from Sussex County. However, Morton in *FNA* (Vol. 5: 85, 2005) reports that Fernald's collection is referable to *Cerastium brachypetalum* Pers.

***Sagina subulata* (Swartz) K. Presl.** Awl-leaf Pearlwort. Mapped for Virginia by Kartesz (1999, 2014), citing "1978 Rhodora." That paper (by Garrett Crow) cites a specimen at MO: "Bedford Co.; specific locality unknown, Curtis, s.n., 20 May 1872". It seems likely that this specimen was mis-labeled, or was from a planted population. A native of Europe, sometimes grown as a ground cover. Naturalized escapes and occasional waifs are known from Oregon, California, Baja California, and Mexico.

***Silene caroliniana* Walt. var. *wherryi* (Small) Fern.** See Comments under map of *S. caroliniana* var. *pennsylvanica* (Michx.) Fern.

***Silene dioica* (L.) Clairv.** Red Campion. McGuire (1950) lists this European species as occurring "south to Virginia" and Kartesz (2014) maps it in Fauquier County. This species and cultivar variants are frequently planted and have been reported as escaped in northern North America. However, we are not aware of any Virginia specimens, and at least one specimen labeled as such was misidentified.

***Silene flos-cuculi* (L.) Clairv.** Ragged Robin. A small colony was reported by Wright et al. (2023) from a field along Dunlap Creek in Alleghany County, probably escaped from a nearby abandoned homestead. This European species is frequently cultivated and is widely escaped in New England and at scattered locations in northern North America. It may well prove to be more established in the Appalachian part of Virginia, but more evidence is needed.

***Stellaria prostrata* Baldw.** Prostrate Starwort. Reported by Fernald in *Rhodora* 41: 540-541 (1939) from "lawns and grasslands...in southeastern Virginia, becoming an objectionable weed...." His specimens were from Greensville and Southampton counties. Mapped for Virginia by Kartesz (1999) based on Fernald's report. Fernald later corrected the identification to *S. media* (L.) Cyrill var. *glabrata* G. Beck; according to Weakley (2012), this is referable to *Stellaria pallida* (Dum.) Crepin.

CHENOPODIACEAE

***Atriplex rosea* L.** Tumbling Orache. Reported by Massey (1961) from "waste places," with no specific locality given; subsequently mapped for Virginia by Kartesz (1999).

***Beta vulgaris* L. ssp. *vulgaris*.** Garden Beet, Swiss Chard. Reported as a waif by Weakley et al. (2012). This common garden vegetable may be occasionally spontaneous in situ, but is not known to escape cultivation.

***Dysphania multifida* (L.) Mosyakin & Clemants** [syn – *Chenopodium multifidum* L.]. Cutleaf Goosefoot. Reported by Massey (1961) based on the range given in Gray's Manual, eighth ed. (Fernald 1950); also mapped in Virginia by Flora of North America (Vol. 4: 271, 2003). Evidence that this species is in Virginia is lacking, although it is reported from most states north and south of our area. Native of South America.

***Oxybasis salina* (Standley) Uotila.** [syn – *O. glauca* (L.) S. Fuentes ssp. *salina*]. Rocky Mountain Goosefoot. Mapped for Virginia by Kartesz (1999), citing 1917 Bull. Torrey Bot. Club. The report is based on confusion with *O. glauca* of which this species is sometimes treated as a var. (as by Flora of North America, Vol 4: 284, 2003). *Oxybasis salina* s.s. is native to the western U.S. and not reported from anywhere in the eastern U.S.

***Spinacia oleracea* L.** Spinach. Mapped for Virginia by Kartesz (2014) and reported as a waif by Weakley, Ludwig & Townsend (2012) and Robert Wright (pers. comm.). This common garden vegetable may be occasionally spontaneous in situ, but is not known to escape cultivation.

CISTACEAE

***Hudsonia ericoides* L.** Northern Golden-heather. Attributed to Virginia by FNA. The basis for this is unknown. This species occurs on the Coastal Plain of DE, MD, and SC, and in the mountains of NC.

CONVOLVULACEAE

***Cuscuta epithymum* L.** Clover Dodder. Reported by Massey (1961) based on the range given in Gray's Manual, eighth ed. (Fernald 1950); later mapped for Virginia by Kartesz (1999), citing Massey's report. There is no solid evidence of this European introduction in Virginia, but it occurs in West Virginia, Pennsylvania, and Maryland, and might be expected in our area sooner or later.

***Stylisma aquatica* (Walt.) Raf.** [syn – *Breweria michauxii* Fern. & Schub.]. Water Dawnflower. Fernald (1950) reported the range of this species as "n. to southern Virginia (fide House and Small)," and it was subsequently repeated by Massey (1961). The basis for this is unknown and doubtful, as the known range is from southeastern North Carolina to Texas, primarily on the Coastal Plain.

CRASSULACEAE

***Sempervivum tectorum* L.** Hens-and-chickens. Reported by Massey (1961) as an escape from cultivation, with no locality information given. This is a frequent constituent of rock gardens, but we have no evidence whatsoever that it can reproduce and establish independently of such plantings. Massey's report was evidently perpetuated by Kartesz (1999) and *Flora of North America* (Vol. 8: 169, 2009).

CUCURBITACEAE

***Cucumis sativus* L.** Cucumber. Mapped for Virginia by Kartesz (1999). Unlike some other cucurbits, this species does not appear spontaneously and repeatedly as an ephemeral waif of alluvial sand bars, river shores, and waste ground.

***Cucurbita foetidissima* Kunth.** Buffalo Gourd. There is an old collection of this species from Fairfax County at US, but more evidence of establishment from escape is needed. Mapped for Virginia by Kartesz (2014).

***Cucurbita maxima* Duchesne.** Hubbard Squash. Mapped for Virginia by Kartesz (1999). This commonly cultivated squash is rarely spontaneous in situ but not known to escape.

***Cucurbita moschata* Duchesne.** Butternut Squash. Mapped for Virginia by Kartesz (1999). This commonly cultivated squash is rarely spontaneous in situ but not known to escape.

***Lagenaria siceraria* (Molina) Standl. ssp. *siceraria*.** Bottle Gourd. Mapped for Virginia by Kartesz (1999). Frequently cultivated and occasionally spontaneous in situ, but not known to escape.

ERICACEAE

***Chamaedaphne calyculata* (L.) Moench.** Leatherleaf. Reported by Massey (1961) based on the erroneous assumption of "Virginia in range." This circumboreal shrub is widespread in northern North America, and disjunct very locally in the North Carolina and South Carolina coastal plain and the North Carolina mountains, thus "skipping" Virginia.

***Gaultheria hispidula* (L.) Muhl. ex Bigel.** Creeping Snowberry. Reported by Massey (1961) based on the erroneous assumption of "Virginia in range." Native of northern North America, ranging south in the East to the Allegheny Highlands of West Virginia; it occurs in several West Virginia counties along or near the Virginia border, but extensive field work in nearby parts of Virginia has failed to turn this species up.

***Gaylussacia bigeloviana* (Fernald) Sorrie & Weakley.** This taxon has been reported for Virginia (as *G. dumosa* var. *bigeloviana*) by Fernald (1950) and Massey (1961). In an examination of Virginia herbarium specimens, Bruce Sorrie found no evidence of this taxon in the state. However, "transitional" specimens have been found,

and given that this northern species occurs both to the north and south of Virginia makes its potential occurrence here seem plausible. See also Comments under map of *Gaylusscia dumosa* (Andr.) Torr. & Gray.

***Rhododendron canescens* (Michx.) Sweet.** Southern Pinxter-flower. Reported in error by Fernald in *Rhodora* 42: 470-471 (1940), based on misidentifications of *R. periclymenoides* (Michx.) Shinnery; Massey (1961) erroneously reported it from many additional counties. Native to all southeastern states south and southwest of Virginia.

***Vaccinium oxycoccos* L.** Small Cranberry. Reported by Massey (1961) based on the erroneous assumption of "Virginia in range." This species is circumboreal and widespread in northern North America, ranging south in the Appalachians to the high Allegheny Mountains of West Virginia.

***Vaccinium virgatum* Ait.** Swamp Blueberry. Reported in error by Fernald in *Rhodora* 45: 456 (1943) based on misidentifications of *V. elliotii* Chapm.; Massey's (1961) report was based on Fernald's. More recently aberrant, glandular juvenile forms of *V. fuscatum* Ait. have also been mistaken for this species, which is native to the Coastal Plain from southeastern North Carolina to southeastern Texas.

EUPHORBIACEAE

***Croton michauxii* G.L. Webster.** Sand Rushfoil. Fernald (1950) alleges that this species occurs "n. to Virginia." The basis for this report is unknown and likely based on confusion with *C. willdenowii* Webster. According to Weakley (2012), *C. michauxii* only ranges north to South Carolina, and is rare north of Georgia. Kartesz (2014) lumps these two species under the name *C. michauxii*.

***Euphorbia glyptosperma* Engelm.** [syn. – *Chamaesyce glyptosperma* (Engelm.) Small]. Govaerts, Frodin, and Radcliffe-Smith (2000) include Virginia in the range of this species, which is native primarily to western North America. The basis for this attribution is unknown and seems very unlikely to represent an established population.

***Euphorbia heterophylla* L.** Fiddler's Spurge. Specimens bearing this name have been collected from several Virginia counties. Some of them have been annotated to *Euphorbia cyathophora* Murray. John Hayden examined images of the remainder and determined that they also are *E. cyathophora*. At this point, all reports of *E. heterophylla* from Virginia are based on misidentifications and there is no evidence of its occurrence in the state.

***Euphorbia oblongata* Griseb.** Balkan Spurge. There are iNaturalist reports of this species from the northern Virginia D.C. suburbs, Fredericksburg, and metro Richmond area. Most of the habitats appear to be in yards, but at least one population may be truly escaped, albeit in a highly ruderal, urban setting. This species is similar to *Euphorbia spathulata* but differs in having a perennial rootstock, villous stem, and very showy, bright yellow flowers. Balkan Spurge is well established in the western U.S., with scattered reports from the eastern states. Further investigation is needed to determine whether it is spreading and becoming an adventive weed in Virginia.

FABACEAE

***Arachis hypogaea* L.** Peanut. Reported by Massey (1961) and mapped for Virginia by Kartesz (1999, 2014). Grown commercially in southeastern Virginia. Does not escape.

***Cladastris kentukea* (Dum.-Cours.) Rudd.** Yellow-wood. Reported by Steury (2011) from Fairfax County as planted, with numerous saplings escaping into nearby areas. More evidence of establishment is needed.

***Genista tinctoria* L.** Dyer's Greenweed, Dyer's Broom. According to Gleason & Cronquist (1991) and Fernald (1950), this species is naturalized south to Virginia. However, we have not seen any evidence of this European plant in the state outside of cultivation.

***Indigofera hirsuta* L.** Hairy Indigo. Reported as a waif (“two scrawny plants”) at a construction site in Chesterfield County near Richmond; possibly part of a seed mix planted following maintenance of a utility right-of-way (Wright et al. 2023). Native of the Old World Tropics, often used in wildlife food plots and occasionally escaped in states to the south of Virginia. It is probably not cold-hardy in our area, and must be considered doubtfully persistent.

***Lathyrus sylvestris* L.** Meadow Pea. Virginia specimen (without specific locality) was seen and reported by Isely (1990), but its origin, cultivated or escaped, was not indicated. Native of Eurasia; cultivated for both ornament and erosion control.

***Medicago polymorpha* L.** Smooth Bur-clover. Reported by Massey (1961) as frequently planted in the eastern part of the state, and occasionally escaping. However, solid evidence of this is lacking.

***Mimosa pudica* L.** Sensitive Plant, Shameplant. Reported by Reed (coll. no. 45,915) from chrome ore piles in Newport News, August 1959 (Phytologia 10:384, 1964). The specimen, however, has been found to be immature, and not definitely referable to this species.

***Tephrosia hispidula* (Michx.) Pers.** Reported for Virginia by Fernald in *Rhodora* 42: 457 (1940), citing “very old specimens without definite data.” One of the referenced specimens is at GH, with no date, collector, or location other than “Virginia” on the label; under these circumstances, we are unable to map this taxon. A southeastern Coastal Plain endemic, ranging north to east-central North Carolina and apparently historically, to “Virginia.”

***Trifolium striatum* L.** Knotted Clover. Isely (1990) lists Virginia in this species' range, but the documentation is unknown. Native of Europe.

***Vicia faba* L.** Faba Bean. Reported as a waif in *Flora of Virginia* (Weakley, Ludwig & Townsend 2012). Frequently cultivated garden vegetable, occasional spontaneous in situ but not known to escape.

***Vigna radiata* (L.) R. Wilczek.** Mung Bean. Reported by Steury (2011) from Fairfax County, a single plant on a sand bar along the Potomac River. If this bean, like the tomato and some cucurbits, proves to be a more frequent constituent of disturbed alluvium, it will be mapped.

FAGACEAE

***Quercus geminata* Small.** Sand Live Oak. Reported in error (as *Q. virginiana* var. *maritima* [Chapm.] Sarg.) for southeastern Virginia by Fernald in *Rhodora* 49: 139 (1947), based on odd forms of *Quercus virginiana* P. Mill. The natural range is from southeastern North Carolina to Mississippi on the Coastal Plain.

FUMARIACEAE

***Corydalis halei* (Small) Fern. & Schub.** [syn – *Corydalis micrantha* (Engelm. ex A. Gray) A. Gray var. *australis* (Chapm.) Shinnery]. Southern Corydalis. Reported by Massey (1961) citing the Gray's Manual range (Fernald 1950), which states “n. to? Virginia.” Documentation of this species in Virginia is unknown; it is native to the southeastern U.S., ranging north on the Atlantic slope to eastern North Carolina.

GARRYACEAE

***Aucuba japonica* Thunb.** Japanese Acuba, Gold-dust Plant. Single-shrub escapes have been vouchered by Rod Simmons from two locations in Arlington and Fairfax counties. More evidence of establishment is needed.

GENTIANACEAE

***Bartonia paniculata* (Michx.) Muhl. ssp. *iodandra* (B.L. Robins.) J. Gillett.** Northern Screwstem. Reported by Massey (1961) from Greensville County. This is clearly an error, as this northern subspecies ranges south only to MA.

***Frasera caroliniensis* Walt.** American Columbo. Reported by Massey (1961), citing the Gray's Manual range (Fernald 1950). However, there has never been any evidence of this species in Virginia. It does range fairly close to the southwesternmost Virginia counties, in Tennessee and Kentucky.

***Gentiana andrewsii* Griseb. var. *andrewsii*.** Prairie Closed Gentian. Cited by Massey (1961) in error, but later mapped in Augusta County in the first two hard-copy editions of the Atlas. These plants were later determined to be odd forms of *Gentiana saponaria* L. that had the corolla pleats longer than the lobes. Additional specimens of "*Gentiana andrewsii*" from Fairfax and Loudoun counties proved to be misidentifications of aberrant *Gentiana clausa* Raf. However, comparison of misidentified specimens to those of "good" *G. andrewsii* from further north showed that they did not even come close to the unique floral morphology of the latter. Rumors persist that this species occurs (or historically occurred) in northern Virginia, but until legitimate specimens are found and confirmed, species will continue to be treated as unverified. Also mapped for Virginia by Kartesz (1999).

***Sabatia kennedyana* Fern.** Plymouth Gentian. This species was found by G.P. Fleming on the peaty border of an old mill pond at Fort A.P. Hill, Caroline Co., in 1993 and reported as new to Virginia in *Castanea* 61:93 (1996). Subsequently, it was determined to have been introduced at this locality.

GROSSULARIACEAE

***Ribes lacustre* (Pers.) Poir.** Bristly Black Currant. Mapped for both Rockingham and Bath counties in Ed. III of the Atlas, and subsequently in Kartesz (1999). The Rockingham record is based on a vegetative specimen that cannot be positively identified to species (and, if anything, appears *not* to be *R. lacustre*), and we have not been able to find any basis for the Bath County record. This northern species occurs in several West Virginia counties bordering Virginia, so its occurrence here might be plausible. It should be looked for in high-elevation swamps and wet forests.

HALAGORACEAE

***Myriophyllum sibiricum* Komarov.** Common Water-milfoil. Reported by Weakley (2012) at the southern edge of its range in Virginia. Specimens, however, have not been seen.

***Myriophyllum tenellum* Bigel.** Leafless Water-milfoil. This species was mapped in Virginia Beach City through three hard-copy editions of the Atlas, and consequently by Kartesz (1999). However, no basis can be found for its inclusion. In the absence of a specimen or valid report, it is now considered an error. The species is native to northeastern North America but is rare south of New England and the Great Lakes region.

***Proserpinaca intermedia* Mackenz.** Reported by Fernald in *Rhodora* 41: 551 (1939) and *Rhodora* 45: 454 (1943), by Massey (1961), and others. See Comments under map of *Proserpinaca pectinata* Lam.

HAMAMELIDACEAE

***Fothergilla gardenii* L.** Coastal Witch-alder. Fernald reported this species from "Virginia," which was repeated by Massey (1961). There has never been any evidence of this southeastern Coastal Plain endemic in the state; it ranges from southeastern North Carolina to Alabama.

HIPPOCASTANACEAE

***Aesculus glabra* Willd. var. *glabra*.** Ohio Buckeye. Reported by Massey (1961), stating "Virginia in range." It is now known that Virginia is peripheral to this tree's range, which is primarily in the central U.S., west of the Appalachians. More recently reported by Domangue and McMullen (2013) from a churchyard in Shenandoah County; a large tree there "may have been planted," but had apparently produced several offspring nearby.

***Aesculus hippocastanum* L.** Horse-chestnut. Reported by Massey (1961) as "a cultigen barely escaping." This European tree is (or was) frequently cultivated in Virginia, but we have no evidence of it as an escape.

***Aesculus parviflora* Walt.** Bottlebrush Buckeye. Reported by John Hayden as a local escape near plantings in Hanover County. Native to SC, GA, and AL, cultivated and rarely spreading or escaped northward.

HYDRANGEACEAE

***Hydrangea paniculata* Sieb.** Panicked Hydrangea. Noted by A.M. Harvill as a waif after publication of Atlas Ed. III. The basis for this report is not known. This old-fashioned garden shrub is frequently cultivated in Virginia, but not known to escape.

***Hydrangea quercifolia* Bartram.** Oak-leaf Hydrangea. Reported as escaped in the City of Richmond and Arlington County. However, given the urban settings, the true establishment of this species seems questionable. In years of growing and observing this species in various places, some layering and suckering in situ is the only reproduction that has been observed. Further study is warranted.

HYPERICACEAE

***Hypericum calycinum* L.** Aaron's-beard. Reported by Robert Wright as spreading and escaped from plantings along a school driveway in suburban Richmond. This is the first record from Virginia, and more evidence of establishment is needed. However, this Eurasian species is potentially invasive and reported to be naturalized in the Pacific Northwest, and in Knox Co., Tennessee.

JUGLANDACEAE

***Carya laciniosa* (Michx.f.) G. Don.** Big Shellbark Hickory. Although Flora of North America (Vol. 3: 422, 1997) and Kartesz (2014) map this species in both northern and southwestern Virginia, no indigenous specimens have been seen by us. Also reported by Massey (1961), and mapped in Atlas eds. I, II, and III based on specimens from cultivated trees. Reported from the Potomac River valley in both Maryland (rare) and West Virginia (infrequent). Primary native range is the Midwestern U.S.

LAMIACEAE

***Dracocephalum parviflorum* Nuttall.** American Dragon's-head. Recently collected by Robert Wright from disturbed ground among recent nursery plantings at a hotel on I-95 in Prince William County. Only a single specimen was found, and until additional documentation emerges, the species must be considered a waif in Virginia. Native of western North America; scattered as a weed in cultivated and waste ground in the east.

***Lamium album* L. ssp. *album*.** White Deadnettle. Reported by Massey (1961) as a "wayside weed," with no specific localities given. This formed the basis for Virginia attribution by Kartesz (1999). We know of no documentation of this species for Virginia. A Eurasian native, it was introduced early to North America as a culinary, medicinal, and ornamental plant, and is locally naturalized in some northern areas.

***Lycopus amplexans* Raf.** Clasping Water Horehound. Reported by Massey (1961) from Virginia Beach City, and consequently mapped for Virginia by Kartesz (1999, 2014). This is a plausible report, but supporting vouchers are lacking. The species ranges from NY to Louisiana on the Coastal Plain, apparently "skipping" Virginia and much of the Mid-Atlantic embayed area.

***Pycnanthemum albescens* Torr. & Gray.** White-leaved Mountain-mint. Reported for Virginia from "near Margarettsville, NC, low, sandy ground" by A.A. Heller in Bull. Torr. Bot. Club 21:25 (1894). This species is native to the south-central U.S. and the record seems phytogeographically improbable; it is more likely a form of *Pycnanthemum pycnanthemoides* (Leavenw.) Fern.

***Pycnanthemum montanum* Michx.** Appalachian Mountain-mint. Although reported by Massey (1961) and mapped in southwestern Virginia through all three hard-copy editions of the Atlas, solid evidence of this species in Virginia is lacking; also mapped for Virginia by Kartesz (1999), based on these earlier sources. All specimens that have been examined have turned out to be misidentifications, primarily of *Pycnanthemum beadleii* (Small) Fern. A Southern Appalachian endemic, *P. montanum* does closely approach our border in North Carolina and Tennessee, and should still be sought in the southwestern mountains.

***Satureja hortensis* L.** Summer Savory. Reported by Massey (1961) from "waste places, escaping from cultivation," with no specific localities given. We have seen no specimens or other evidence that this old-fashioned garden herb escapes cultivation.

***Scutellaria arguta* Buckley.** Appalachian Skullcap. Reported by Massey (1961) from Giles and Roanoke counties, and subsequently by Kartesz (1999). Supporting specimens for Massey's records have not been found. Considered a synonym of *Scutellaria ovata* Hill var. *rugosa* (A. Wood) Fern. by Weakley et al. (2023); see Comments under map of that taxon.

***Scutellaria australis* (Fassett) Epling.** Southern Skullcap. Reported by Weakley (2012). See Comments under map of *Scutellaria leonardii* Epling.

***Stachys arvensis* (L.) L.** Staggerweed. Reported by Gleason & Cronquist (1991) for Virginia. Specimens have not been seen. Native of Eurasia and northern Africa.

***Stachys clingmanii* Small.** Clingman's Hedge-nettle. Reported in error by Fernald in *Rhodora* 45: 464-465 (1943) and Gray's Manual, eighth ed. (Fernald 1950), based on misapplication of the name to *Stachys matthewsii* G.P. Fleming, J.B. Nelson, and J.F. Townsend. This error was repeated by Massey (1961) and Kartesz (1999). As now understood, *Stachys clingmanii* is a narrow Southern Appalachian endemic of southwestern North Carolina and southeastern Tennessee, mostly at high elevations; it is allegedly disjunct to southern Indiana and southern Illinois, but the plants in that area may represent another cryptic species.

***Stachys nuttallii* Shuttlew. ex Benth.** Nuttall's Hedge-nettle. Reported by Allard & Leonard (1943) based on misapplication of the name to *Stachys eplingii* J.B. Nelson. Reported by Fernald (1938, *Rhodora* 40: 455; 1941, *Rhodora* 43: 638) based on misapplication of the name to *Stachys matthewsii* G.P. Fleming, J.B. Nelson, and J.F. Townsend; and reported by Kartesz (1999) based on misapplication of the name to *Stachys cordata* Riddell. As currently understood, *Stachys nuttallii* is a fairly narrow southeastern endemic of Kentucky, Tennessee, Georgia, Alabama, and South Carolina.

***Thymus citriodorus* (Pers.) Schreb.** Lemon Thyme. Reported by A.M. Harvill as a waif in Rockingham and Shenandoah counties after the publication of Atlas Ed. III. Kartesz (2014) reports no introductions of this

extensively cultivated sub-shrub in North America, and we have no evidence that it escapes cultivation in Virginia.

LAURACEAE

***Lindera subcoriacea* B.E. Wofford.** Bog Spicebush. Reported for southeastern Virginia by Flora of North America (Vol. 3: 28, 1997), Kartesz (1999), Weakley (2012), and Weakley et al. (2023). See Comments under map of *Lindera benzoin* (L.) Blume.

LENTIBULACEAE

***Utricularia cornuta* Michx.** Horned Bladderwort. The Virginia record from Accomack County mapped in Atlas eds. II and III has been redetermined as *Utricularia juncea* Vahl. This species is not presently known from Virginia but might be expected since it occurs in states to both the north and south.

***Utricularia resupinata* B.D. Greene ex Bigel.** Northeastern Bladderwort. Reported by Massey (1961) based on the assumption of "Virginia in range." While this is technically true, no supporting vouchers have been found. The species is widespread in eastern North America., south into Central America., but apparently "skips" Virginia.

LINACEAE

***Linum lewisii* Pursh. var. *lewisii*.** Prairie Flax. Reported by Massey (1961), the basis for which is unknown. However, this species is a Midwestern native that is remarkably disjunct to calcareous glades and barrens in several counties of West Virginia bordering Virginia, so its possible occurrence here is not implausible.

***Linum perenne* L.** Perennial Flax. Mapped for Montgomery County by Kartesz (2014); collected twice in the 1960's, on a roadside in Rockingham Co. and at an old home site in Wythe Co. A native of Europe introduced in most of northeastern North America.

LINDERNIACEAE

***Lindernia procumbens* (Krock.) Philcox.** A specimen in the D.C. Herbarium at US was collected by F.R. Fosberg in Arlington County, October 8, 1939. It is one of two records of this European species in North America (Kartesz 2014), and needs verification.

LOGANACEAE

***Spigelia marilandica* (L.) L.** Pinkroot. This southeastern species was reported from a sight record along the Clinch River in Scott County. Relatively thorough searches in the right season were undertaken at this locality, but the plant was not found. *Spigelia marilandica* occurs within one km of the Virginia border in Hancock County, Tennessee and within about 10 km in Claiborne County, Tennessee, so its occurrence in the state is certainly plausible.

MALVACEAE

***Abelmoschus esculentus* (L.) Moench.** Okra. Reported by Massey (1961) from "garden dumps in eastern counties," and later by Kartesz (1999). Commonly cultivated in vegetable gardens but not known to truly escape.

***Gossypium hirsutum* L.** Cotton. Extensively cultivated in sandy soils of southeastern Virginia, rarely spontaneous in situ but not known to escape.

***Malva pusilla* Smith** [syn. – *Malva rotundifolia* L.]. Dwarf Mallow. Attributed to Bath and Fauquier Counties (as *M. rotundifolia*) in hard-copy editions of the Atlas, and consequently Kartesz (1999), but documentary specimens are lacking; these records are probably erroneous.

***Tilia americana* L. var. *caroliniana* (P. Mill.) Castiglioni** [*Tilia floridana* Small]. Carolina Basswood. Reported by Fernald (Rhodora 43: 604-605 (1941)) from "Surry Co.: rich woods on fossiliferous sandy slopes of gullies near Claremont Wharf, no. 7897." This was later repeated in Gray's Manual, eighth ed. (Fernald 1950) and Massey (1961). As currently understood, the southeastern var. *caroliniana* ranges north only to North Carolina on the Atlantic slope. While Fernald's cited specimen may be worthy of further investigation, the determination is likely to be an error resulting from older interpretations of *Tilia* and the extreme variability of the genus in our area. Fernald's thoughts on the situation certainly suggest this might be the case: "Tilia, as it occurs along the lower James, is as baffling as elsewhere. I find myself incapable of applying with satisfaction the keys and descriptions of Sargent's revision of the American species But, judging by specimens so identified, our no. 7897 seems to be *T. floridana* Near the station for 7897 there are handsome trees with the leaves heavily white-felted beneath when mature, our no. 8365, which I have already reported as *T. heterophylla* Vent."

***Tilia cordata* P. Mill.** Small-leaved Linden. Infrequently cultivated and reported as a rare escape in several northeastern U.S. states. A solitary tree and a site with seedlings and saplings, both apparently occurring in the absence of planted specimens, were reported by Wright et al. (2023) from urban areas in northern Virginia (Arlington and Fairfax counties). Information about the reproduction, persistence, and overall distribution of this species are currently too sketchy to justify inclusion in the mapped flora.

MAYACACEAE

***Mayaca fluviatilis* Aublet.** Bogmoss. Reported by Massey (1961), based on Small (1933); mapped for Virginia with uncertainty by Kartesz (1999), based on Massey's report. The basis for Small's attribution is unknown and seems highly doubtful. The species ranges from southeastern North Carolina to Texas on the Coastal Plain, and south into Tropical America.

MENISPERMACEAE

***Calycocarpum lyonii* (Pursh) A. Gray.** Cupseed. Collected by Robert Wright in Chesterfield County: escaping into hedgerow from planting, not yet uncontrolled. More evidence of establishment is needed. Native of the southeastern and south-central U.S., evidently planted outside its native range.

MENYANTHACEAE

***Nymphoides cordata* (Ell.) Fern.** Little Floating Heart. Reported by Massey (1961), stating "Virginia in range." The species ranges interruptedly on the Coastal Plain from Newfoundland to Louisiana, but apparently "skips" Virginia.

ONAGRACEAE

***Epilobium densum* Raf.** [syn. = *Epilobium strictum* Muhl. ex. Spreng]. Downy Willow-herb. This species was carried through three hard-copy editions of the Atlas as occurring in Arlington County; as a result, it was also mapped by Kartesz (1999). However, no basis can be found for its inclusion in the Virginia flora. In the absence of a specimen or valid report, it is now considered an error. The species is native to northeastern North America but is rare south of New England and the Great Lakes region.

***Ludwigia repens* Forster.** Creeping Seedbox. Records from Frederick and Greensville counties in the waif lists of Atlas eds. II and III have proven to be based on misidentifications; the attribution of this species to Virginia by Kartesz (1999) is based on the erroneous Atlas records. The species northern range limit in our area is east-central North Carolina.

OROBANCHACEAE

***Agalinis linifolia* (Nutt.) Britt.** Flax-leaf False Foxglove. Reported by Massey (1961) from the Coastal Plain, based on an assumption of “Virginia in range.” The report was repeated with uncertainty by Kartesz (1999). This species is another Embayed Region “skipper,” with a disjunction between Delaware and Maryland and a primary range from southeastern North Carolina to Louisiana.

***Agalinis paupercula* (Gray) Britt. var. *paupercula*.** Small-flower False Foxglove. This putative long-range northern disjunct was mapped in Washington County in ed. III of the Atlas. However, the supporting specimen (at NCU) was recently re-examined and found to be depauperate, immature, and inadequate for a positive identification to species. In addition, recent searches of the site have found only *Agalinis purpurea* (L.) Pennell. The attribution of this species to Virginia by Kartesz (1999) is based on the Atlas record and can be discounted.

***Aureolaria pectinata* (Nutt.) Pennell.** Southern Oak-leech. Kartesz (1999) mapped this species in both southeastern and southwestern Virginia, citing Uttal and Mitchell in *Castanea* 37: 112 (1972), who considered this name synonymous with vars. of *Aureolaria pedicularia* (L.) Raf. The only Virginia herbarium specimens so labeled, from Powhatan County, are equivocal and incomplete. Confusion between this species and *Aureolaria pedicularia* is exacerbated by the considerable variation in glandularity in both species.

OXALIDACEAE

***Oxalis macrantha* (Trel.) Small** [syn. – *Oxalis priceae* Small]. This name was recently misapplied in the Digital Atlas to the species now correctly mapped as *O. colorea* (Small) Fedde.

PAPAVERACEAE

***Papaver argemone* L.** Prickly Poppy. Reported from Virginia by Kartesz (1999, 2014) and later by Weakley (2012), but “probably only from cultivation.” *Flora of North America* (Vol. 3: 325, 1997) also mentions that Virginia collections are known, but lack specific locality data. Among Virginia herbaria, evidence that this species is escaped or established in the state is lacking. Native of Eurasia.

PLANTAGINACEAE

***Bacopa repens* (Sw.) Wettst.** Creeping Water-hyssop, South American Water-hyssop. Mapped for Virginia by Kartesz (2014), the documentation unknown. Native of Tropical America, sparingly introduced in the southeastern Coastal Plain.

***Gratiola lutea* Raf.** [syn – *Gratiola aurea* Pursh]. Yellow Hedge-hyssop. Reported by Massey (1961) from Arlington County, and repeated with uncertainty by Kartesz (1999). The basis for this record is unknown and the locality seems very doubtful. The species ranges on the Coastal Plain from Newfoundland to Alabama, but “skips” Virginia and much of the Mid-Atlantic embayed area; it is disjunct to the Great Lakes region.

***Kickxia spuria* (L.) Dumortier.** Round-leaved Fluellen. Reported in error by Massey (1961) from Amelia County, and subsequently by Kartesz (1999). This record was based on a misidentified specimen of *Kickxia elatine* (L.) Dumort.

***Plantago sparsiflora* Michx.** Pineland Plantain. Reported in error by Klotz (1986) from Accomack County, and subsequently listed as a waif in Ed. III of the Atlas and attributed to Virginia by Kartesz (1999). The specimens were misidentified.

***Veronica beccabunga* L.** European Brooklime. Weakley et al. (2023) reports this from the Virginia mountains. Reported by Kartesz from Frederick Co., the source cited as Weakley (1996-2000) but unknown to us. Two old

specimens from Smyth Co. are referable to *V. americana*. Another from Floyd Co. at FARM is poor and equivocal. At this point, the species has to be considered unverified in Virginia. Native of Europe, naturalized in ne. North America, occurring south to the mountains of West Virginia.

***Veronica filiformis* J.E. Smith.** Creeping Speedwell. Mapped in the Virginia mountains by Weakley et al. (2023) but not listed for the state in the distribution field. There are several specimens on SERNEC, three of them clearly misidentified, the others needing confirmation. Needs verification before mapping. Native of Eurasia, widely naturalized in ne. and nw. North America.

POLYGALACEAE

***Polygala brevifolia* Nutt.** Shortleaf Milkwort. For many years, this species has been mapped by the Atlas and Digital Atlas in Accomack County, and duly repeated by Kartesz (1999). The basis for this record, which first appeared in ed. II of the Atlas (1986), is unknown. Despite extensive searches, no supporting voucher has been located and the species must now be considered an unverified taxon in Virginia.

***Polygala cymosa* Walt.** Tall Pinebarren Milkwort. Reported by Massey (1961) from "Eastern Virginia," citing the "Gray's Manual Range." The primary range is from eastern North Carolina to Mississippi on the Coastal Plain, with a northward disjunction in Delaware, where it is reported as extirpated (McAvoy and Bennett 2001).

POLYGONACEAE

***Fallopia dumetorum* (L.) Holub.** Mapped for Virginia by Flora of North America (Vol. 5: 546, 2005), the documentation unknown. See Comments under map of *Fallopia scandens* (L.) Holub.

***Persicaria careyi* (Olney) Greene.** Listed in an addendum by Weakley et al. (2012, 1st printing) as a recent addition to the known flora of Virginia, based on a misidentified specimen of *Persicaria extremiorientalis*. However, FNA maps *P. careyi* in Virginia, the basis for which is unknown. Until a bona fide specimen is located, this must be considered an unverified taxon.

***Rheum rhabarbarum* L.** Garden Rhubarb. Persists in gardens, but is not known to escape.

***Rumex patienta* L.** Patience Dock. Reported by Egler in Checklist of the Ferns and Flowering Plants of Seashore State Park, Cape Henry, Virginia (New York State College of Forestry, 1942), providing the basis for its inclusion in Massey (1961), Kartesz (1999), and presumably Flora of North America (Vol. 5: 520-521, 2005). However, in a footnote in Rhodora 44: 342 (1942), Fernald states that "Egler's material belongs to the almost cosmopolitan weed of disturbed soils, *R. crispus*." *Rumex patienta* is native to Eurasia and widely introduced across the northern U.S. and southern Canada.

PRIMULACEAE

***Lysimachia maritima* (L.) Galasso** [syn. – *Glaux maritima* L.]. Sea-milkwort. Reported by Massey (1961) based on the range given in Gray's Manual, eighth ed. (Fernald 1950). Later mapped in Virginia by Kartesz (1999), based on Massey's report, and by Flora of North America (Vol. 8: 314, 2009), presumably based on Kartesz. A circumboreal species of saline coastal habitats, perhaps only introduced in our area, if present.

RANUNCULACEAE

***Coptis trifolia* (L.) Salisb.** Goldthread, Goldenroot. Listed by Massey (1961), who says Virginia is in the range. However, there has never been any evidence of this species in the state. Native of northern North America, *Coptis* does occur in the High Alleghenies of West Virginia and is disjunct to a single site in North Carolina.

***Delphinium carolinianum* Walt. ssp. *carolinianum*.** Prairie Larkspur. Reported by Fernald (1950) as ranging “n. to Virginia.” Later reported on this basis by Massey (1961). The basis for Fernald’s statement is unknown, as this taxon’s primary range is the central and south-central U.S., with scattered occurrences eastward only to Tennessee, Georgia and South Carolina.

***Thalictrum hepaticum* Greene.** Appalachian Tall Meadowrue. A controversial, problematic taxon that has been variously treated as a variety or form of *T. pubescens* or *T. amphibolum*. Most references do not recognize it, but Weakley et al. (2023) accept it as a provisional taxon to draw attention to it. It appears that the only Virginia specimens (Giles and Pittsylvania cos.) to which the name has been applied are at the Mecklenburg County Park and Recreation Herbarium, and were annotated in 2013 by an unknown person whose initials are hard to decipher. This taxon clearly requires further scrutiny before we can accept and map it.

RHAMNACEAE

***Ceanothus herbaceus* Raf.** Prairie Redroot. Rafinesque described this species from "near the falls of the Potowmack, between the rocks." The holotype not extant, Coile (1988) chose a neotype, collected by Sheldon in 1881 from "Arlington County, Virginia, Chain Bridge, rocky river bottoms, Potomac River." However, Bartgis, Fleming, & Wiegand (1997) demonstrate that the "rocky river bottom" habitat of this species near Chain Bridge does not occur on the Virginia side of the river, and is located only in the District of Columbia. Attribution to Virginia by Kartesz (1999) was apparently based on this misinformation. A species of the Midwest, *C. herbaceus* is also remarkably disjunct on limestone barrens in Pendleton County, West Virginia.

***Hovenia dulcis* Thunb.** Japanese Raisin-tree. Reported by Steury (2011) from Fairfax County, a few seedlings escaped. More convincing evidence of establishment is needed. Occasionally cultivated native of China.

ROSACEAE

***Crataegus ×collica* Ashe.** Hybrid Hill Hawthorn. Attributed to Virginia by Weakley et al. (2023) and FNA, but no specimens are known so it can't be mapped. A presumed hybrid of *Crataegus crus-galli* and *C. collina*.

***Malus ×zumi* (Matsum.) Rehd.** Zumi Crabapple. Noted as a waif in Albemarle County by A.M. Harvill subsequent to Atlas ed. III. Supporting specimens have not been found, and the tree is not known to escape cultivation in North America.

***Prunus armeniaca* L.** European Dwarf Cherry. Reported by Weakley (2012) for the Coastal Plain of Virginia; the only known documentation is a tree persisting from cultivation in James City Co. Native of China.

***Prunus fruticosa* Pall.** Mongolian Cherry. Noted as a waif in Prince George County by A.M. Harvill subsequent to Atlas ed. III. Supporting specimens have not been found, and the tree is not known to escape cultivation in our area. Native of Eurasia.

***Prunus glandulosa* Thunb.** Dwarf Flowering Almond. Collected by G.P. Fleming and D. Loomis from a cutover woodland in Sussex County, where it was persisting from cultivation with *Spiraea prunifolia* Sieb. & Zucc. and *Narcissus pseudonarcissus* L. However, the colony was not extensive and was likely persisting in situ. Therefore, more evidence of establishment is needed. This species has also been reported from West Virginia, North Carolina, and several states around the Great Lakes (Kartesz 2014).

***Prunus laurocerasus* L.** Cherry Laurel. Vouchered by Rod Simmons from two locations in the City of Alexandria and two in Arlington County; otherwise, this commonly cultivated shrub has not been reported to escape in Virginia. More evidence of establishment is needed. Reported by Kartesz (2014) as an escape on the west coast of the U.S.

***Prunus padus* L.** European Bird Cherry. Attributed to the Virginia Piedmont by Weakley et al. (2023). There are two fragmentary, uncertainly identified specimens (one possibly cultivated) on the SERNEC portal, definitely not enough evidence of identity and establishment to include this in Flora of Virginia or the Digital Atlas. Native of Europe, rarely escaped in northern North America.

***Pyracantha angustifolia* (Franchet) C.K. Schneider.** Narrowleaf Firethorn. Two trees reportedly escaped from a nursery to an adjacent roadside in suburban Richmond. More evidence of establishment is needed. Native of China; in North America, it is otherwise reported as an escape only in Georgia and California.

***Pyrus elaeagrifolia* Pallas.** [syn – *Pyrus elaeagnifolia* Pallas]. Oleaster-leaved Pear. A specimen from “near wooded stream” in Pocahontas State Park (Chesterfield County, Kiltz 1970 at VPI) is vegetative and not positively identified. There are no other records of escapes in North America. Native of Albania, Greece, Romania, Turkey, and Ukraine.

***Rosa laevigata* Michx.** Cherokee Rose. Mapped for Virginia by Kartesz (2014), the documentation unknown. Native of China, well established in the southeast from South Carolina to eastern Texas.

***Rosa xodorata* (Andrews) Sweet.** Tea Rose. Noted as a waif in Lancaster County by A.M. Harvill subsequent to Atlas ed. III. Supporting specimens have not been located, and it seems very doubtful that this hybrid rose is even adventive in Virginia.

***Rubus illecebrosus* Focke.** Strawberry Raspberry. Mapped in Floyd County by Kartesz (2014), based on Massey’s (1961) report of the species “escaped from cultivation;” given that the locality is in the town of Floyd, we consider that unlikely. Native of Japan, only a scattered introduction in the eastern U.S.

***Sorbaria sorbifolia* (L.) A. Br.** False Spiraea. Reported by Massey (1961), but apparently based on cultivated plants only, and subsequently mapped for Virginia by Kartesz (1999). There is no evidence of this species outside of cultivation in Virginia. Native of Asia.

***Spiraea xbumalda* Burv.** Reported as a waif from Chesterfield and James city counties by A.M. Harvill subsequent to Atlas ed. III. However, we have no evidence of this hybrid outside of cultivation.

***Spiraea cantoniensis* Louieriro.** Reeves’ Meadowsweet. Mapped in Rappahannock County by Kartesz (2015) and mapped in the Virginia mountains by Weakley et al. (2015), probably based on the Kartesz attribution. The supporting specimen was collected along a roadside at an old home site on the Thornton River, Shenandoah National Park, where it was likely just persisting from cultivation. Native of Asia, reported as a scattered escape in North America, primarily in the Gulf Coast states.

RUBIACEAE

***Houstonia lanceolata* (Poir.) Britt.** [syn. – *H. purpurea* L. var. *calycosa* Gray]. Midwestern Summer Bluets. Reported by Massey (1961) and subsequently by Kartesz (1999). See Comments under map of *Houstonia purpurea* L.

RUTACEAE

***Skimmia japonica* Thunb.** Japanese Skimmia. This Asiatic shrub has been reported without vouchers as an escape in Fairfax County, but must be regarded as a doubtfully established adventive until proven otherwise. The Arlington County collection reported by Steury (Banisteria 37, 2011) was based on a misidentified specimen of *Prunus laurocerasus* L.

SAXIFRAGACEAE

***Saxifraga stolonifera* Curtis.** Midwestern Summer Bluets. Reported by Wright et al. (2023) as an apparent escape along the James River near Richmond. Also reported by Nelson DeBarros from a trailside in a Fairfax County park. Both populations are small, and there are questions about whether the Richmond population could be a deliberate introduction. The only other eastern U.S. report is from western North Carolina. This species is an attractive, frequently cultivated ornamental that rarely spreads or escapes. Further evidence of establishment is needed.

SCROPHULARIACEAE

***Linaria supina* (L.) Chaz. ssp. *supina*.** Prostrate Toadflax. Reported as a waif in Chesapeake City by A.M. Harvill subsequent to Atlas ed. III. The documentation for this unknown. The species is native to Europe and a very rare introduction in North America, reported only from Delaware, Florida, New Jersey, New York, and Pennsylvania in the east.

SOLANACEAE

***Alkekengi officinarum* Moench.** [syn. = *Physalis alkakengi* L.]. Chinese-lantern Plant. Vouchered by Rod Simmons from a cemetery in the City of Alexandria. This old-fashioned garden plant often persists and slowly spreads *in situ*, but more evidence that it establishes from escape is needed. Also reported for Virginia by Kartesz (2014).

***Capsicum annuum* L. var. *annuum*.** Bell Pepper, Red Pepper, Chile, Cayenne. Mapped for Virginia by Kartesz (1999). Many cultivated forms of this common garden vegetable are grown, but neither they nor reverted wild forms are known as escapes in Virginia.

***Datura innoxia* J.S. Miller.** Reported for Virginia by Weakley (2012). Any records of this Mexican species were probably included in those for *D. wrightii* Regel, from which it may not be distinct. See Comments under map of *Datura wrightii*.

***Nicotiana alata* Link & Otto.** Jasmine Tobacco. Collected by G.P. Fleming from an old house site in Albemarle County, persisting/spreading from cultivation long ago, but not clearly escaped.

***Nicotiana rustica* L.** Wild Tobacco. Mapped for Virginia by Kartesz (1999). A Peruvian native, formerly cultivated by native Americans in the southeast, but now extinct in our area. Because this was the tobacco under cultivation by Indians at the time of first contact with Europeans, it was exported to Europe and cultivated there; specimens may exist in out-of-country herbaria, but they almost certainly do not represent escapes or naturalized plants from Virginia.

***Nicotiana tabacum* L.** Tobacco. Mapped for Virginia by Kartesz (1999, 2014). Until recently, this native of Tropical America was a major commercial crop in Virginia, rarely persistent *in situ* after cultivation.

***Physalis peruviana* L.** Cape Gooseberry. Reported as a waif from Arlington Co. Native of South America, rarely escaped or persistent in our area.

***Solanum nigrescens* Mart. & Gal.** Slender Nightshade. Reported as a waif in Goochland County by A.M. Harvill subsequent to Atlas ed. III. There are varying interpretations of this name in the literature and among floristic databases; the name is accepted by Tropicos and represents a Mexican species. According to Weakley et al. (2023) and USDA Plants, it is introduced in the southeast, north to North Carolina. Its presence in Virginia seems doubtful and we suspect the report is based on an error.

TAMARICACEAE

***Tamarix chinensis* A. DC.** Chinese Tamarisk. Mapped for Virginia by Kartesz (2014) and reported for the Virginia Coastal Plain by Weakley et al. (2023). Not documented as an escape; the only specimens known to us were collected from cultivated trees. Native of Asia; scattered as an introduction throughout the U.S. but widespread and invasive in the western U.S.

***Tamarix parviflora* A. DC.** Small-flowered Tamarisk. Mapped for Virginia by Kartesz (2014) and reported for the Virginia Coastal Plain by Weakley et al. (2023). Not documented as an escape; the only specimens known to us were collected from cultivated trees. Native of Europe; scattered as an introduction throughout the U.S. but appears most widespread and established in the far West.

THEACEAE

***Gordonia lasianthus* (L.) Ellis.** Loblolly Bay, Gordonia. A sight report from the lower Nottoway River in Southampton County has led to repeated searches but the species has not been found. *Gordonia lasianthus* is also persisting from cultivation at an old home site on the Naval Station at Northwest in Chesapeake City. This southeastern Coastal Plain endemic is a characteristic constituent of pocosins in the Carolinas, and reaches its known northern limit within a few km of the Virginia line in the Dismal Swamp region of northeastern North Carolina.

ULMACEAE

***Ulmus thomasi* Sargent.** Rock Elm. Reported by Massey (1961) from Smyth County. This report is probably based on a misidentification, as a supporting specimen has never been located. Additionally, the primary range of this tree is west of the Appalachians, although it occurs fairly close to our border in southeastern West Virginia. Limestone areas in the Clinch Valley or Cumberland Mountains of far southwestern Virginia seem to be the most likely habitats where an isolated population of this elm could potentially occur.

URTICACEAE

***Boehmeria nivea* (L.) Gaud.** Mapped for Virginia by Kartesz (2014) and Flora of North America (Vol. 3: 413, 1997), the documentation unknown. The one known Virginia herbarium specimen that was labeled as this proved to be a misidentified specimen of *B. cylindrica* (L.) Sw. Native of Asia; most reports of this species in North America are from the Gulf Coastal states.

VERBENACEAE

***Verbena incompta* P.W. Michael.** Purpletop Vervain. Reported as a waif from Newport News City. Closely related to and often confused with *Verbena bonariensis* L.

***Verbena carnea* Medik.** [syn – *Stylodon carneus* (Medik.) Moldenke]. Carolina Vervain. Fernald (1950) reported this southeastern species as ranging "north to e. Va." On this basis, it was later reported by Massey (1961) and Kartesz (1999, 2014). Documentation for Fernald's report is unknown, but the potential occurrence of this species in sandhills of southeastern Virginia is not implausible. The known range is from eastern North Carolina to eastern Texas, primarily on the Coastal Plain.

***Verbena stricta* Vent.** Hoary Vervain. Reported as a sight record from Sussex County; voucher needed. Native of the Midwest, with scattered introduced populations eastward.

VIBURNACEAE

***Viburnum edule* (Michx.) Raf.** Squashberry. Sight record of this species growing without cultivation in Warren County; no voucher. Native of far northern North America and uncertainly cultivated in our area; quite possibly an error.

***Viburnum lantana* L.** Wayfaring Tree. Reported by Steury (2011) as "escaped" in Fairfax County; a single shrub; more evidence of establishment needed. Native of Eurasia, much cultivated but mostly introduced north of Virginia in North America.

***Viburnum ×rhytidophylloides* Sur.** This much cultivated hybrid was reported by Steury (2011), "a few plants escaping to or persisting in" forest near plantings; more evidence of establishment from escape is needed. Also reported by Simmons (pers. comm.) from northern Virginia.

VIOLACEAE

***Viola nephrophylla* Greene.** Northern Bog Violet. This species was discovered by Dr. Harvey Ballard at the Mountain Lake Biological Station in 2013. The plants occurred in a fine fescue-dominated, weedy, lawn-like area beside the main office, along with several other species of *Viola*. Apparent hybrids with *V. cucullata* were also present. Due to the calciphilic habitat preferences of this species and the lack of such natural substrates on the station grounds, this population may have been introduced by grounds maintenance and equipment or the application of limestone gravel to the immediately adjacent road. The documented range of the species is far north and west of Virginia, approaching only as close as New York, Indiana, and Illinois.

***Viola villosa* Walt.** Southern Woolly Violet. Reported by Massey (1961) from several Piedmont and mountain counties. No solid evidence of this southeastern species has been seen; however, its occurrence in Virginia is certainly plausible.

MONOCOTS

ACORACEAE

***Acorus americanus* (Raf.) Raf.** American Sweet Flag. Flora of North America (Vol. 22: 126, 2000) includes Virginia in the range of this species, which is native to northeastern North America; both FNA and Kartesz (1999, 2014) cite a Ph.D. dissertation: Thompson (1995). However, no definitive specimens of this taxon have been found in Virginia herbaria, and the documentation for the FNA and Kartesz attributions needs assessment.

ALLIACEAE

***Allium burdickii* (Hanes) A.G. Jones.** [syn – *A. tricoccum* var. *burdickii* Hanes]. Attributed to Virginia by Flora of North America (Vol. 26: 234, 2002) and Kartesz (1999); Kartesz cites "1979 Systematic Botany." See comments under map of *Allium tricoccum* Ait. Native to the Midwest and northern U.S.

***Allium cepa* L.** Garden Onion. Reported as an escape in Chesterfield County but more convincing evidence that this species has established from escape is needed. Native of central Asia; reported as a scattered introduction in eastern North America.

***Allium hollandicum* R.M. Fritsch.** Persian Onion. Reported by Robert Wright as a local escape in Chesterfield County but more evidence of establishment is needed. Native of Iran and Kyrgyzstan. The only North American state that claims it as an introduction is Minnesota.

***Allium neapolitanum* Cirillo.** White Garlic. Reported as a waif by Weakley et al. (2012); the basis for this is unknown. Native of Europe; in the U.S., reported as an introduction mostly in the Gulf Coast states and California.

***Allium oleraceum* L.** Field Garlic. Mapped for Virginia by Kartesz (1999, 2014), based on Fernald (1950); vouchers of established populations of this species have not been found in Virginia herbaria. Native of Europe, a scattered introduction in the northeastern United States.

***Allium roseum* L.** Rosy Garlic. Reported as an escape in Henrico County but more convincing evidence that this species has established from escape is needed. Native of Eurasia.

***Allium sativum* L.** Common Garlic. Reported by Massey (1961) as a "weed of lawns, fields, and waysides," with no specific localities given. Commonly cultivated and occasionally persistent in situ or in compost heaps, but not known by us to truly escape. Native of Eurasia.

***Allium schoenoprasum* L.** Garden Chives. Occasionally persistent or spontaneous in situ, but not known to escape. Native of Eurasia; according to Flora of North America (Vol. 26: 240, 2002), it is also native to parts of North America.

AMARYLLIDACEAE

***Lycoris radiata* (L'Hér.) Herbert var. *radiata*.** Surprise Lily, Hurricane Lily. Collected by G.P. Fleming from a forested site in Northampton County, likely in the vicinity of an old home site now totally overgrown. Other colonies have been observed around the state in semi-natural areas, but always near some current or past human habitation. More evidence that this very attractive species is capable of naturalizing away from old plantings is needed.

***Lycoris squamigera* Maxim.** Magic Lily. Frequently cultivated and sometimes persistent or weakly spreading in situ, but not known to definitely escape.

***Sternbergia lutea* (L.) Ker-Gawl. ex Spreng.** Fall Dafodil. A single 1980 collection from a stream bed in James City County was the basis for previous mapping of the species in the Digital Atlas. This is a yellow-flowered, crocus-like plant that blooms in the fall and is native to the Mediterranean region. It is frequently cultivated, but the record from James City Co. is the only North American record in Kartesz (BONAP North American Plant Atlas, 2015). Although not from a cultivated plant, the Virginia specimen was likely a chance introduction from a discarded or flood-deposited bulb. It has never been collected again in the four decades since and must now be considered a waif.

ASPARAGACEAE

***Asparagus asparagoides* (L.) Druce.** Bridal Creeper, Smilax Asparagus. Collected as a waif on the north shore of the James River, City of Richmond. Native to Africa and sometimes cultivated as an ornamental, it has been reported as an established escape in North America only in California (Kartesz, BONAP Plant Atlas 2015).

CANNACEAE

***Canna flaccida* Salisb.** Golden Canna, Yellow Canna. Reported by Fernald in Rhodora 39: 402 (1937) from a garden dump in Isle of Wight County; mapped for Virginia by Kartesz (2014). More evidence is needed that this species is established from escape. Native on the Coastal Plain from southeastern South Carolina to Texas and south into Central America.

***Canna indica* L.** Indian-shot. "Two slender purplish plants naturalized at border of swampy woods near Pungo" (City of Virginia Beach) reported by Fernald in Rhodora 49: 134 (1947) and cited by Kartesz (1999, 2014). It

seems doubtful that these plants would have remained "naturalized" through the winter, even in Virginia Beach. A much cultivated but frost-tender native of Tropical America.

***Canna ×generalis* L.H. Bailey.** Common Garden Canna. Mapped for Virginia by Kartesz (1999, 2014). This is the hybrid *Canna flaccida* × *indica*, frequently cultivated in southeastern Virginia but not long-persistent because of sensitivity to frost and freezing.

COMMELINACEAE

***Murdannia nudiflora* (L.) Brennan.** Reported by Weakley et al. (2012) as an unverified taxon; a weed of turfgrass that has apparently been found in eastern Virginia, but is more common in states to the south. The status of this species is unclear. Native of Asia.

CYPERACEAE

***Carex chapmanii* Steud.** Mapped for Greensville County in all three hard-copy editions of the Atlas; reported by Kartesz (1999) based on the Atlas. This erroneous attribution was based on a misidentification.

***Carex picta* Steud.** Reported by Massey (1961), who merely says Virginia is in the Gray's Manual range, and repeated by Kartesz (1999). There is no known evidence of this species in the state; native to the south-central U.S.

***Carex tenera* Dewey.** Mapped from several counties in all three hard-copy editions of the Atlas; also included in the Flora of North America (Vol. 23: 371, 2002) range and Kartesz (1999). However, application of this name to Virginia material has been a source of confusion for some time. All specimens that have been checked were misidentified, and others that could not be located are considered phytogeographically implausible. *Carex tenera* should be sought in floodplain forests along the Potomac River since it has been reported from Maryland in such habitats.

***Carex verrucosa* Muhl.** Reported by Erlanson (1924) and Fernald (*Rhodora* 41, 1939) from Greensville, Henrico, and Southampton counties based on misidentified specimens of *Carex glaucescens* Ell. or *C. jorii* Bailey. Kartesz (1999) cites Fernald (1939). Native from southeastern North Carolina to Texas.

***Cyperus brevifolius* (Rottb.) Endl. ex Hassk.** Reported by Fernald in *Rhodora* 42: 419 (1940) and later in Gray's Manual, eighth ed. (Fernald 1950) and by Massey (1961), based on misidentifications of *Cyperus brevifolioides* Thieret & Delahoussaye. The attribution to Virginia by Kartesz (1999) is based on Massey (1961). This pantropical weed extends north to northeastern North Carolina, so it might be expected in southeastern Virginia.

***Eleocharis ovata* (Roth) Roem. & Schult.** Flora of North America (Vol. 23: 103, 2002) maps this species in Virginia, but the basis for the attribution is not known to us. The native range includes northeastern North America and scattered areas in western North America.

***Fimbristylis dichotoma* (L.) Vahl.** Forked Fimbry. Attributed to the Virginia Coastal Plain and Piedmont by Weakley et al. (2023). There doesn't appear to be any solid evidence of this species, as currently circumscribed, in the state. Specimens on SERNEC bearing this name are all referable to *F. annua*, which was included in a broader concept of *F. dichotoma* in Radford, Ahles, and Bell (1968). Weakley et al. (2023) consider *F. dichotoma* (sensu stricto) probably native to Asia and introduced in Tropical America and the Southeastern U.S.

***Rhynchospora galeana* Naczi, W. Knapp, & G. Moore** [syn – *R. breviseta* (Gale) Channell]. Attributed to Virginia in Flora of North America (Vol. 23: 218, 2002). The source of this record is unknown and is not reported in the literature. The native range is southeastern North Carolina to Mississippi.

***Rhynchospora inundata* (Oakes) Fern.** Reported by Stalter & Lamont for Accomack County in Bull. Torr. Bot. Club 117:55 (1990), mapped in ed. III of the Atlas, and repeated by Kartesz (1999). This report was based on a misidentified specimen of *Rhynchospora corniculata* (Lam.) Gray. Flora of North America (Vol. 23: 208, 2002) also includes Virginia in the range; the basis for this is unknown, unless it is the earlier report. Native from eastern MA to eastern Texas on the Coastal Plain, but rare to absent in the Mid-Atlantic embayed region.

***Scirpus longii* Fern.** Long's Bulrush. Reported by Massey (1961) with no specific locality information. Evidence of this species in or near Virginia is completely lacking; it is native to northeastern North America, south to New Jersey.

***Scleria reticularis* Michx.** Reported by Kartesz (1999) and Flora of North America (Vol. 23: 251, 2002). See Comments under map of *Scleria muehlenbergii* Steud.

ERIOCAULACEAE

***Eriocaulon compressum* Lam.** Mapped in error for Arlington County in all three hard-copy editions of the Atlas, and repeated by Kartesz (1999). Native from New Jersey to eastern Texas, mostly on the Coastal Plain, but rare to absent in the Mid-Atlantic embayed region.

HEMEROCALLIDACEAE

***Hemerocallis lilioasphodelus* L.** Yellow Day-lily. Reported from sight records as an escape in northern Virginia. Much less common than the widespread *H. fulva* (L.) L. Frequently cultivated native of Asia.

HOSTACEAE

***Hosta plantaginea* (Lam.) Aschers.** Fragrant Plantain-lily. Reported by Massey (1961) as an escape without specific locality information; also reported from sight records as an escape in northern Virginia; vouchers from established populations are needed for verification. Unlike its congener, *H. ventricosa* (Salisb.) Stearn, this species does not seem to be naturalizing in urban forests and floodplains.

HYACINTHACEAE

***Chionodoxa luciliae* Boiss.** (syn. = *Scilla luciliaea* [Boiss.] Speta). Glory-of-the-snow. Persistent where planted and reported to be escaped from residential plantings into disturbed floodplain forest along the James River in Richmond. Native of Turkey, reported as adventive in several northeastern states. It remains to be seen whether it will become more widely established in Virginia.

IRIDACEAE

***Crocus tommasinianus* Herbert.** Woodland Crocus. Commonly cultivated and spreading from plantings. Reported from Fairfax Co. Perhaps more widespread because of confusion with *Crocus vernus*, and a possible candidate for mapping pending further investigations. Native of eastern Europe, reported to be naturalized in Delaware.

***Crocus vernus* (L.) Hill.** Dutch Crocus. Frequently persisting around long-abandoned home sites. Reported by Steury (2011) as escaped along a trail in Fairfax County, but more convincing evidence that this species has established from escape is needed. Native of Europe, much cultivated and reported as an introduction in scattered areas of the U.S.

***Gladiolus xgandavensis* Van Houtte.** Gladiolus. Mapped in Atlas ed. II and moved to waif list in ed. III from Chesterfield, Gloucester, Lancaster, Montgomery, Southampton, and Washington counties. This commonly

cultivated, ornamental hybrid can spread vegetatively and persist for years at abandoned home sites and cemeteries, but evidence that it is an established escape is lacking.

***Sisyrinchium montanum* Greene.** See Comments under map of *Sisyrinchium mucronatum* Michx.

JUNCACEAE

***Juncus gymnocarpus* Coville.** Seep Rush. Reported by Massey (1961) based on the range given in Gray's Manual, eighth ed. (Fernald 1950). There has never been any documentation of this very localized species in Virginia. Native to isolated areas of the southeastern U.S. from Alabama and Mississippi to Pennsylvania.

***Juncus interior* Wieg.** Inland Rush. Mapped for Virginia by Kartesz (1999), based on an unspecified "personal communication." Native of central North America.

ORCHIDACEAE

***Neottia cordata* (L.) L.C. Rich.** [syn. = *Listera cordata* (L.) R. Brown var. *cordata*]. Heartleaf Twayblade. Reported by Massey (1961) from "moist woods and bogs" in Giles County; duly repeated by Kartesz (1999). We know of no vouchers or any other reports of this circumboreal species from Virginia. Its range covers much of northern North America, south in the Appalachians to West Virginia (in several counties bordering Virginia) and disjunct (historically) to North Carolina. Therefore its potential occurrence here cannot be ruled out.

***Platanthera integrilabia* (Correll) Luer.** White Fringeless Orchid. Lloyd Carr (in *Castanea* 30:135, 1965) lists "Habenaria blephariglottis var. *integriloba*" from Blackwater, Lee County, July 9, 1942. No specimen has been located, and just what this refers to is may be open to question, but *H. blephariglottis* var. *integrilabia* is an old synonym for *Platanthera integrilabia*. Phytogeographically, *P. integrilabia* is plausible in Lee County, as the species is broadly endemic to the Cumberland Plateau, extending slightly into adjacent regions. The distribution mapped by Kartesz (2014) comes close to Lee County in Kentucky and eastern Tennessee.

***Platanthera nivea* (Nutt.) Luer.** Snowy Orchid. Reported by Massey (1961) based on a range assumption, and later repeated by Kartesz (1999). This orchid is a southeastern Coastal Plain endemic that ranges from southern New Jersey and Delaware to Texas, but skips Virginia and the Mid-Atlantic embayed area; along with other Coastal Plain species, it is disjunct to Coffee County, Tennessee. It is now historical in much of the northern part of its range.

***Spiranthes longilabris* Lindl.** Giant Spiral Ladies'-tresses. Mapped for Virginia by Flora of North America (Vol. 26: 535, 2002); Massey (1953, 1961) cited a record from Norfolk County (City of Chesapeake), "wet grassy pine woods and coastal prairies" by Correll (1950). Efforts to find a supporting specimen at the Gray Herbarium and elsewhere have so far been unsuccessful. Native from southeastern North Carolina to eastern Texas on the Coastal Plain.

POACEAE

***Agrostis mertensii* Trin.** Actic Bentgrass. Reported by Massey (1961) and mapped (as *A. borealis* Hartm.) in Ed. I of the Atlas and by Kartesz (1999). This record from the high-elevation bald on Whitetop Mountain (Grayson County) was based on a misidentified specimen. More recently, Kartesz (2014) mapped this species in Albemarle and Nelson counties; the basis for this is unknown.

***Aristida basiramea* Engelm. & Vasey.** Mapped for Virginia by Flora of North America (Vol. 25: 326, 2003); the online manual of North American Grasses maps it in Frederick County. The source of these records is not known. Specimens on SERNEC are referable to *Aristida curtissii* (A. Gray ex S. Wats. & Coult.) Nash. Native of northern and central North America, with scattered, introduced populations elsewhere.

***Aristida palustris* (Chapman) Vasey.** Long-leaf Three-awn-grass. Reported for Virginia by Hitchcock and Chase (1951) and Radford et al. (1968), but we are not aware of any documentation. Native from southeastern North Carolina to Texas, and disjunct to the Cumberland Plateau in Kentucky.

***Avena fatua* L.** Wild Oats. Reported by Massey (1961) from "fields and wayside" in Montgomery County; subsequently mapped in Virginia by Kartesz (1999, 2014) based on this report. We have not seen any Virginia specimens of this taxon. Native of Eurasia; widely introduced in North America, except for the southeastern U.S.

***Axonopus compressus* (Swartz) Beauv.** Southern Carpet Grass. Reported for Virginia by Hitchcock and Chase (1951), the documentation unknown. Often used as a lawn grass in the deep South; probably introduced from Tropical America.

***Bromus arvensis* L.** Originally reported by Fernald in *Rhodora* 44: 379 (1942) from Isle of Wight County, and by Massey (1961) from both Isle of Wight and Roanoke counties. Kartesz (1999) mapped the species for Virginia based on Massey, but in Kartesz (2014) it is mapped throughout the state owing to the subsuming of the similar *Bromus japonicus* Thunb. ex Murr. into a broader concept of *B. arvensis*. The precedent for such lumping is not known to us, as all other nomenclatural resources consulted maintain the two as separate species. Nevertheless, other than Fernald's report, we can find no other attribution of *B. arvensis* to Virginia, nor have any specimens ever been seen; pending further investigation, we are treating it as unverified in Virginia. *Bromus arvensis* is native to Europe, and only widely scattered as an introduction in North America, according to *Flora of North America* (Vol. 24: 228, 2007).

***Bromus madritensis* L.** Massey (1961) reported this as an ornamental grass escaping locally, but specimens have not been seen. Native of Europe; in North America mostly introduced in the far western U.S.

***Cenchrus echinatus* L.** Mapped for Virginia by *Flora of North America* (Vol. 25: 531, 2003), and mapped in Rockbridge County by Kartesz (2014); the source or sources of these attributions is not known. Apparently native in the southern U.S. from North Carolina to California, south into Tropical America.

***Chloris gayana* Kunth.** Reported by Massey (1961) as planted and sometimes escaped. No specimens or evidence of this have been seen. Native of Africa; sparsely introduced in the southeastern and southwestern U.S.

***Chloris ventricosa* R. Br.** Reported for Virginia by Hitchcock and Chase (1951) and Massey (1961), but no documentation of this species has ever been seen. Native of Australia; Kartesz (2014) reports it only from South Carolina in North America.

***Cynosurus cristatus* L.** Crested Dogtail. Reported by Massey (1961) from Arlington County and "waste places of the Coastal Plain." No specimens have been seen. Native of Eurasia, introduced in most of northeastern North America north of Virginia.

***Danthonia epilis* Scribn.** Bog Oat-grass. Reported for Virginia by Hitchcock and Chase (1951). No unequivocal specimens of this taxonomically problematic species have been seen. Reported by Weakley (2012) to occur in Coastal Plain bogs from New Jersey to South Carolina; mountain bogs in North Carolina and Georgia; and Cumberland Plateau seeps in Tennessee and Alabama.

***Digitaria bicornis* (Lam.) Roem. & Schult.** Mapped for southeastern Virginia by *Flora of North America* (Vol. 25: 380, 2003), the source of the record not known. This pantropical weed is perhaps to be expected in Virginia, as it is widely introduced in the southeastern U.S. to the south and west of our area.

***Echinochloa crus-gavonis* (Kunth) Schultes.** Cockspur Grass. Reported by Fernald in *Rhodora* 43: 535 (1941) from tidal freshwater marshes along the Mattaponi River in King and Queen and King William counties. Also

mapped for Virginia by Flora of North America (Vol. 25: 398, 2003) based on Fernald's literature citation. However, Fernald did not include this species in Gray's Manual, eighth ed. (Fernald 1950), suggesting (like several other similar situations) that the earlier report was based on misidentifications. Further investigation is needed. This species is a cosmopolitan weed; in North America, mostly reported from the south-central, southwestern, and western U.S.

***Eleusine tristachya* (Lam.) Lam.** Reported and mapped for Virginia by Kartesz (1999) based on Hilu in Madrono 27:177-178 (1980). Three herbaria (CA, K, and MO) are mentioned in the journal article, but a recent check by all three institutions found no Virginia specimens of *Eleusine tristachya*. This grass is native to South America and widely scattered as an introduction in North America.

***Erianthus brevibarbis* Michx.** Short-bearded Plumegrass. See Comments under map of *E. coarctatus* Fernald.

***Festuca heterophylla* Lam.** Reported by Massey (1961) and Kartesz (1999), and mapped in Clarke and Frederick counties by Flora of North America (Vol. 24: 420, 2007), but no specimens have been seen. Native of Eurasia; formerly used as a turf grass and reported to occasionally persist in old yards.

***Glyceria arkansana* A.S. Hitchc.** [syn. = *Glyceria septentrionalis* A.S. Hitchc. var. *arkansana* (Fern.) Steyererm. & Kucera]. Reported by Fernald in Rhodora 40: 385-386 (1938), Rhodora 42: 410 (1940), and Gray's Manual, eighth ed. (Fernald 1950) and repeated by Massey (1961) and Kartesz (1999, 2014). See Comments under map of *Glyceria septentrionalis*.

***Koeleria macrantha* (Ledeb.) J.A. Schultes.** [syn. – *K. pyramidata* Lam.]. Reported as a waif by Weakley, Ludwig & Townsend (2012); the basis for this report is not known. Native of central and western North America, rarely introduced eastward.

***Moorochloa eruciformis* (Sm.) Veldkamp** [syn – *Brachiaria eruciformis* (J.E. Smith) Griseb.]. Sweet Signal Grass. Contr. US Nat. Herb. 1920 reports it as “cultivated in grass garden of the U.S. Department of Agriculture, and at Arlington, Virginia.” This is the basis for the Virginia attribution by Kartesz (1999, 2014). No evidence of escape. Native of Eurasia and Africa, often cultivated for forage, rarely established in North America.

***Oryza sativa* L.** Rice. Reported for Virginia by Hitchcock and Chase (1951), and repeated by Kartesz (1999), but doubtfully present in the state. Native of Asia; a sporadic introduction in the deep South and California.

***Phalaris aquatica* L.** Bulbous Canary Grass. Mapped for Virginia by Kartesz (1999), citing the 1961 Iowa State Journal of Science; the basis for this is not known. Native of Europe; a scattered introduction in North America.

***Poa arachnifera* Torr.** Texas Bluegrass. Reported by Massey (1961) from Amelia County, “from fields and pastures, sometimes planted.” This is a plausible record, but no supporting vouchers have been found. The species is native to the south-central U.S., with scattered introductions in the Southeast.

***Poa wolfii* Scribn.** Mapped erroneously in Clarke and Rockingham counties in eds. II and III of the Atlas, and repeated by Kartesz (1999); the records were based on misidentified specimens. Native to the central and upper Midwest.

***Polypogon viridis* (Gouan) Breistr.** Water Bentgrass. Mapped for Virginia by Kartesz (1999, 2014), based on Hitchcock and Chase (1951); the documentation is apparently a single 1921 specimen at MICH from ballast in Newport News. Native of Eurasia; rarely introduced in the eastern U.S., well established in the southwestern U.S.

***Sorghum bicolor* L.** Sorghum, Milo. Much cultivated grain, especially in southeastern Virginia; mapped as a waif in eds. II and III of the Atlas, and repeated by Kartesz (1999, 2014). While collected in quite a few counties,

this taxon is rarely spontaneous and doubtfully ever escapes from the vicinity of plantings. Various hybrid cultivars and back-crosses are also involved.

***Sporobolus cryptandrus* (Torr.) Gray.** Sand Dropseed. Reported by Massey (1961), citing the Gray's Manual range, and repeated by Kartesz (1999). There is no evidence of this central and western North American grass in Virginia.

***Sporobolus virginicus* (L.) Kunth.** Reported by Massey (1961), citing the Gray's Manual range, which is erroneous. Subsequently mapped by Kartesz (1999), citing Massey. Despite the specific epithet, there has never been any evidence of this species in Virginia. Native along the coast from southeastern North Carolina to Texas, south into South America, and in other tropical regions.

***Zoysia japonica* Steud.** Japanese Lawn Grass, Zoysia. Reported by Massey (1961) from Richmond County, and mapped by Kartesz (2014) for Virginia. Native of Japan, cultivated as a lawn grass but never escaping here, as far as we know.

***Zoysia matrella* (L.) Merrill.** Manila Temple-grass. Reported by Massey (1961) from lawns in New Kent and Richmond counties. There is no known documentation for these reports, nor any evidence that this species has escaped or established on its own in Virginia. Native of the Phillipines, with scattered introductions reported from the southeastern U.S., north to Pennsylvania.

***Zoysia pacifica* (Goudsw.) M. Hotta & Kuroki.** Korean Velvetgrass. Reported by Massey (1961) with no specific locality information. No documentation, nor any evidence that this species is anything other than a planted lawn grass in Virginia, is known. Native of Asia, reported as an introduction in Florida and California.

PONTEDERIACEAE

***Heteranthera limosa* (Swartz) Willd.** Attributed to Virginia by Small (1933) but no documentation has ever been found. Native to the central U.S., south into South America.

POTAMOGETONACEAE

***Potamogeton gramineus* L.** Variable Pondweed. Attributed to the Virginia Coastal Plain and reported uncertainly from Fairfax County by Weakley et al. (2023) and Kartesz (2015). The basis for these reports is apparently a specimen at US from the north side of Belmont Bay, Uhler 1728, July 18, 1931. This specimen was annotated to *P. illinoensis* by R.R. Haynes in 2000. There are images of specimens labelled *P. gramineus* from Stafford and Frederick cos. on the SERNEC Portal, but both appear to be misidentified. While the occurrence of this northern pondweed in northern Virginia is plausible, currently it must be considered unverified.

RUSACEAE

***Danae racemosa* (L.) Moench.** Alexander's Laurel. Reported as an escape in mesic forest at Eastover, Surry County; sight record only, specimens needed. More recently, fruiting specimens were collected on a disturbed, wooded slope near the James River in Goochland County; they perhaps originated from prunings off of cultivated shrubs that were discarded in the forest. If additional populations are found, this should be mapped.

SMILACACEAE

***Smilax biltmoreana* (Small) J.B. Norton ex Pennell.** Biltmore Carrion-flower. Mapped for Virginia by Flora of North America (Vol. 26: 471, 2002), the source of the record unknown to us. Native to the Blue Ridge Escarpment region in North Carolina, South Carolina, and Georgia, disjunct southward.

***Smilax lasioneura* Hook.** Midwestern Carrion-flower. Reported by Fernald (as *S. hispida* var. *lasioneura*) in *Rhodora* 37:399 (1935): Virginia Beach, rich woods, Great Neck, Fernald & Griscom #4357. The presence of this species in the southeastern Virginia Coastal Plain is phytogeographically very improbable. It was later excluded from Gray's Manual, eighth ed. (Fernald 1950) and we assume it was a mistake. Native primarily to the upper Midwest, with disjunct occurrences eastward.

***Smilax smallii* Morong.** Jackson-briar. Reported (as *Smilax lanceolata*) in 1942 by Frank Egler in Checklist of the Ferns and Flowering Plants of Seashore State Park, Cape Henry, Virginia (Egler & Ryan #40-391), and mapped in Virginia Beach City through three hard-copy editions of the Atlas and by Kartesz (1999). Recently, the voucher specimen (at NA) was redetermined to be *Smilax walteri* Pursh by Robert Wright. However, *Flora of North America* (Vol. 26: 477, 2002) maps this species throughout eastern Virginia into Maryland and Delaware, which is baffling. There are sight records of *S. smallii* from adjacent North Carolina in the Roanoke River watershed, so it is possible that the species could yet be discovered in Virginia. It is native to much of the southeastern U.S.

TYPHACEAE

***Sparganium androcladum* (Englem.) Morong.** Native to northeastern and north-central North America, but not definitely known from Virginia at the southern edge of its range. Beal included two Virginia records in *Brittonia* 12:176-181 (1960) neither of which could be confirmed by the *Flora of North America* (Vol. 22: 274, 2000) author. A Prince William County specimen (VPI) is inconclusive; the basis for Virginia Beach is probably two specimens cited by Fernald in *Rhodora* 38: 383 (1936). Attributions by Massey (1961), Kartesz (1999), and Atlas eds. I, II, and III are based on the earlier reports. We believe there was considerable past confusion between this species and *S. americanum* Nutt., and that Virginia specimens bearing the name *S. androcladum* are likely misidentified and need critical evaluation. Until definite vouchers are found, we consider this species unverified.

XYRIDACEAE

***Xyris smalliana* Nash.** Small's Yellow-eyed-grass. Reported by Massey (1961) for York County and consequently mapped for Virginia by Kartesz (1999). No specimens in Virginia herbaria; Kral, in *Flora of North America* (Vol. 22: 274, 2000), also reports that no specimens were seen for Virginia, but that this species is to be "expected." Native from Maine to Texas, primarily on the Coastal Plain, but evidently rare to absent in the Mid-Atlantic embayed region.

LITERATURE CITED

- Allard, H.A. and E.C. Leonard. 1943. The vegetation and floristics of Bull Run Mountain, Virginia. *Castanea* 8: 1-64.
- Bartgis, R.L., G.P. Fleming, and R. Wiegand. 1997. The prairie-redroot (*Ceanothus herbaceus* Raf.) in the mid-Atlantic United States. *Castanea* 62: 127-128.
- Benson, L. 1982. The cacti of the United States and Canada. Stanford Univ. Press, Stanford, California.
- Coile, N.C. 1988. Taxonomic studies on the deciduous species of *Ceanothus* L. (Rhamnaceae). Ph.D. dissertation, Univ. of Georgia, Athens.
- Correll, D.S. 1950. Native orchids of North America north of Mexico. Chronica Botanica Company.

- Gleason, H.A., and A. Cronquist. 1991. Manual of vascular plants of northeastern United States and adjacent Canada, second edition. New York Botanical Garden, Bronx, NY.
- Domangue, B.E. and C.K. McMullen. 2013. Floristic survey of the vascular plants of Shenandoah County, Virginia. *Castanea* 78: 312-322.
- Erlanson, E.W. 1924. The flora of the Peninsula of Virginia. *Pap. Mich. Acad. Sci. Arts. Lett.* 4.
- Fernald, M.L. 1950. Gray's manual of botany, eighth (centennial) edition. Corrected printing, 1970. D. Van Nostrand Co., New York, N.Y.
- Govaerts, R., D.G. Frodin, and A. Radcliffe-Smith. 2000. World checklist and bibliography of Euphorbiaceae (with Pandaceae). Volumes 1-4. Royal Botanic Gardens, Kew, England.
- Hitchcock, A.S. and A. Chase. 1951. Manual of the grasses of the United States, second edition. U.S. Dept. of Agriculture Miscellaneous Publication No. 200, U.S. Government Printing Office, Washington, D.C.
- Isely, D. 1990. Leguminosae (Fabaceae), volume 3, part 2, Vascular flora of the southeastern United States. University of North Carolina Press, Chapel Hill, NC.
- Kartesz, J.T. 1999. A synonymized checklist and atlas with biological attributes for the vascular flora of the United States, Canada, and Greenland. First Edition. In: Kartesz, J.T., and C.A. Meacham. Synthesis of the North American flora, version 1.0. North Carolina Botanical Garden, Chapel Hill, NC.
- Kartesz, J.T., The Biota of North America Program (BONAP). 2015. *North American Plant Atlas* (<http://www.bonap.org/MapSwitchboard.html>). Chapel Hill, N.C. [maps generated from Kartesz, J.T. 2015. Floristic Synthesis of North America, Version 1.0. Biota of North America Program (BONAP). (in press)].
- Klotz, L.H. 1986. The vascular flora of Wallops Island and Wallops Mainland, Virginia. *Castanea* 51(4): 306-326.
- Kral, R.. 1983. A report on some rare, threatened, or endangered forest-related vascular plants of the South. Vol. I and II. USDA Forest Service Tech. Publ. R8-TP2. Atlanta, GA.
- Lellinger, D.B. 1985. A field manual of the ferns and fern allies of the United States and Canada. Smithsonian Institution Press, Washington, D.C.
- Massey, A.B. 1953. Orchids in Virginia. *Castanea* 18:107-115.
- Massey, A. B. 1961. Virginia flora: An annotated catalog of plant taxa recorded as occurring in Virginia. Va. Agri. Expt. Sta. Tech. Bul. 155. 258 pp.
- Maguire, B. 1950. Studies in the Caryophyllaceae – IV. a synopsis of the North American species of the subfamily Silenoideae. *Rhodora* 52: 233-245.
- McAvoy, W.A. and K.A. Bennett. 2001. The flora of Delaware: an annotated checklist. Document No. 40-05/01/01/01. Delaware Dept. of Natural Resources and Environmental Control, Dover.
- McVaugh, R. 1936. Studies in the taxonomy and distribution of the eastern North American species of *Lobelia*. *Rhodora* 38: 241-263, 276-298, 305-329.
- Merriman, P.R. and M.S. Lynn. 1930. Flora of Richmond and Vicinity (exclusive of grasses, sedges and trees). Virginia Academy of Science, Committee on Virginia Flora, Richmond.

Radford, A.E., H.E. Ahles, and C.R. Bell. 1968. *Manual of the vascular flora of the Carolinas*. University of North Carolina Press, Chapel Hill, N.C. 1183 pp.

Shetler, S.G. and S.S. Orli. 2000. Annotated checklist of the vascular plants of the Washington-Baltimore area. Part I: ferns, fern allies, gymnosperms, and dicotyledons. Dept. of Botany, National Museum of Natural History, Smithsonian Institution, Washington, DC.

Simmons, R.H., W.C. Taylor, M.E. Farrah, J.S. Graham, and J.P. Fulton. 2020. Noteworthy collections: Maryland and Virginia. *Castanea* 85(2): 277-284.

Small, J.K. 1933. *Manual of the southeastern flora, being descriptions of the seed plants growing naturally in Florida, Alabama, Mississippi, eastern Louisiana, Tennessee, North Carolina, South Carolina, and Georgia*. University of North Carolina Press, Chapel Hill, N.C.

Sorrie, B.A. 2022. *Doellingeria sericocarpoides* (Asteraceae) revisited. Pp. 378-382. In Weakley, A.S., D.B. Poindexter, B.A. Sorrie, E.A. Ungberg, S.G. Ward, J.W. Horn, W.M. Knapp, and S.P. Grund. 2022. *Studies in the vascular flora of the southeastern United States*. VIII. *J. Bot. Res. Inst. Texas* 16(2): 377-418.

Steury, B.W. 2011. Additions to the vascular flora of the George Washington Memorial Parkway, Virginia, Maryland, and the District of Columbia. *Banisteria* 37: 3-20.

Strausbaugh, P.D., and E.L. Core. 1978. *Flora of West Virginia, second edition*. Seneca Books, Grantsville, West Virginia.

Thompson, S.A. 1995. *Systematics and biology of the Araceae and Acoraceae of temperate North America*. Ph.D. Dissertation, University of Illinois at Urbana-Champaign.

Weakley, A.S. 2012. *Flora of the Southern and Mid-Atlantic States*. Working Draft of 28 September 2012. University of North Carolina Herbarium, Chapel Hill.

Weakley, A.S. 2020. *Flora of the Southeastern United States*. Edition of 20 October 2020. University of North Carolina Herbarium, Chapel Hill.

Weakley, A.S., and Southeastern Flora Team. 2023. *Flora of the southeastern United States*. University of North Carolina Herbarium, North Carolina Botanical Garden, Chapel Hill, U.S.A.

Weakley, A.S., J.C. Ludwig, and J.F. Townsend. 2012. *Flora of Virginia*. Bland Crowder, ed. Foundation of the Flora of Virginia Project Inc., Richmond. Fort Worth: Botanical Research Institute of Texas Press.

Weakley, A.S., J.C. Ludwig, J.F. Townsend, and G.P. Fleming. 2020. *Flora of Virginia*. With significant additions and updates. Bland Crowder, ed. Mobile app. Foundation of the Flora of Virginia Project, Inc., Richmond and High Country Apps, Bozeman, Montana.

Wright, R.A.S., R.H. Simmons, J.M. Parrish, and M. Ellis. 2023. Noteworthy collections: Maryland and Virginia. *Castanea* 88(1): 61-78.