Biodiversity of the Potomac River Valley
(work-in-progress, draft of 11 April 2013)

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Table of Contents

Goals

Increase our nature and scientific literacy in view of Earth Stewardship.
Learn about local biodiversity.
Learn about local plant communities.
Pool our knowledge and update this list as a group.

This document

I started this document in 2009 for my Forest Ecology class, and hope to update it over the years. This is primarily an annotated list of local biota. I include more detailed information for selected taxon in Table 5. For full information you should consult reference books and scientific papers, some of which I list in the References.

Please give me corrections, additions, suggestions, etc.

A wonderful introduction to the biota of the U.S. Mid-Atlantic Region is

Alden, P., B. Cassie, J. D. W. Kahl, E. A. Oches, H. Zirlin, and W. B. Zomlefer. 2007. National Audubon Society. Field Guide to the Mid-Atlantic States. Alfred A. Knopf, New York, NY. 448 pp.

Background

How do many biologists now classify life from large through small taxonomic groups (= taxa)?

(domain, phylum, class, order, family, genus, species, subspecies (variety and forma in plants) and categories between the larger categories)

Table 1. Some Large Divisions of Life on Earth.

Taxon	English name	Approximate number of species	Examples	
Domain Archaea	Archaeans	hundreds	Methanogens	
Domain Bacteria	Bacteria	millions	Human Gut Bacteria, Staphlococci, Streptococci	
Domain Eukarya	Eucaryans	millions		
Kingdom Animalia	Animals	milllions	Metazoans, Sponges, Flatworms, Roundworms, Arthropods, Echinoderms, Urochordates, Hemichordates, Cephalochordates, Chordates	
Kingdom Fungi	Fungi	thousands	Asocomycetes, Basidiomycetes	
Kingdom Plantae	Plants	thousands	Mosses, Horsetails, Clubmosses, Ferns, Gymnosperms, Angiosperms	
Kingdom Protozoa, sensu lato	Protozoans	thousands	Algae, Euglenoids, Plasmodia, Trypanosomes	

Note: There are likely over 20,000 species in the the Washington, D.C., Area. Due to time and space limitations, I include only some of these fascinating taxa below, emphasizing the Potomac Valley Area. Species counts are from Brown and Brown 1972, 1984, and other sources.

Disclaimers, Etc.

The list in Table 2 is a conglomeration from bioblitz lists, lists from my forest ecology course, and other lists. The list is far from complete. I have not included all known nonscientific names and scientific names of listed organisms. Further, this list is obviously very incomplete. I include full names of some of the taxon authors for fun. I have not yet had a chance to italicize all genus, species, and variety names.

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Organism Consumption. I am not responsible for anyone who consumes anything on field trips organized by me.

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Antianthropocentrism and Demystifying Organism Names — Plants

People have given organisms many names, both proper names (nonscientific names) in Chinese, English, French, German, Indian, Japanese, Russian, and so forth as well as scientific names. These thousands of names and rules of English and binomial nomenclature confuse many of us. At Georgetown University, students learn some classical biology in my ecology courses when I present a learning module called "Demystifying Organism Names." Some students are surprised that there are rules of binomial nomenclature and the rules differ among taxonomic groups as well as some other facts about organism names. I'll say just a little about plant names here.

For example, a plant that I usually call Pawpaw or *Asimina triloba* is also called the Common Pawpaw, Custard-apple (in Central USA), Hoosier-banana (Ohio), Michigan-banana (Michigan), Poor Man's-banana (by underpaid professors), and West-Virginia-banana (West Virginia). It likely has some Native American names as well. The Pawpaw's full scientific name is *Asimina triloba* (Linnaeus) Dunal, 1817. "*Asimina*" is its generic name, and "*triloba*" is its specific epithet. Why are human names attached to this plant's scientific name? Carolus Linnaeus, the father of binomial nomenclature, originally named this plant. In 1817, Felix Michel Dunal (French biologist, 1789–1856) published his work that reclassified Pawpaw into is current genus (*Asimina*). By botanical taxonomic convention, the first author to name this plant (Linnaeus) went into parentheses.

You might have noticed that I wrote Common Pawpaw, Custard-apple, Hoosier-banana, Michigan-banana, Poor Man's-banana, and West-Virginia-banana instead of common pawpaw, custard apple, and Hoosier banana, Michigan banana, poor man's banana, and West Virginia banana, respectively. Why the capitalized names? Some biologists including myself consider the so called common names of plants, in truth, to be proper English nonscientific names (that is, proper nouns). Each of the above English names stands for a total species — the Pawpaw. Why the hyphens? Well, I'm an admitted hyphenist and a commaist for enhanced-communcation reasons. Regarding the hyphens, I follow the lead of some prominent botanists (e.g., Stanwyn G. Shetler) who evidently think we should use nonscientific names that indicate true botanical taxonomy of plants (Shetler and Orli 2001, 2002; Barrows 2011). Pawpaw is in the Custard-apple Family (Annonaceae), not the Rose Family (which includes apple species) or the Banana Family (which includes the Bananas, and Birds-of-Paradise, and Traveler's-palms). Therefore, we should indicate that Pawpaw is not an apple or a banana through hyphenation or joining words. For example, we could write "Custard-apple" or "Custardapple." Further, I use a proper noun such as "Bananas," as a synonym for the genus *Musa* which includes all Banana species of the world. If all of these names and rules are driving you bananas and bandanas, you are likely not alone!

Finally, I respectfully consider the use of proper nouns for organism names to be a means of paying homage to biodiversity and a conceptual move away from too much rampant, and even destructive, anthropocentrism that we constantly perceive around us. Why should we make the name of just one individual of one of the millions of species on Earth such as Roger Tory Peterson a proper noun, yet not capitalize the name of entire species?

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Table 1. Selected organisms of TRP. If it is sunny, you might see some of the insects listed below in flight (bees, butterflies, and wasps). Many of the plants listed below flower in late winter and early spring.

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Domain Archaea, Archaeans (WDCA, possibly 100 spp.)

Clade Euryarhaeota (Greek *eurys*, broad in reference to the broad habitat range of this clade. All methanogen species are in this clade.)

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extreme thermophiles (some species)

☐ methanogen species
☐ animal-gut methanogen species
☐ marsh methanogen species

☐ sewage-treatment-plant methanogen species
☐ swamp methanogen species

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☐ non-extremophiles (many spp.)

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Clade Crenarchoaeota (Greek? *Cren*, spring of water)

☐ extreme thermophiles (many spp.)
☐ non-extremophiles (many spp.)

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Clade Korarachaeota (tiny archaens with only 500,000 base pairs in their genomes, in Icelandic hydrothermal vents)

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Clade Nanoarchaeota (Greek nanos, dwarf, at least 4 species based on DNA analysis)

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Domain Bacteria, Bacteria (WDCA, about 10,000 spp.)

As a group, Bacteria are commensals, decomposers, food material of other organisms, mutualists, parasites, pathogens, predators, prey, and scavengers.

Humans each carry about 4000 bacterial species, and there is bacterial succession throughout a person's life. Bacteria perform all ecosystem functions, except for producing major ecosystem architecture, pollination, seed dispersal, and perhaps other things.

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Phylum Actinobactria
Propionibacteriaceae
☐ *Propionobacteria* acnes (Gilchrist 1900) Douglas & Gunter 1946 (on human skin, in human gastro-intestinal tracts, genome sequenced)
☐ *Propionibacterium propionicus* (in human mouths)
☐ *Propionobacterium* sp., Human body-odor Bacterium

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Group Proteobacteria

Subgroup Alpha Proteobactia
Subgroup Beta Proteobacteria
Subgroup Gamma Proteobacteria
Subgroup Delta Proteobacteria
Subgroup Epsilon Proteobacteria

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Group Chlamydias
Group Cyanobacteria
Group Gram-positive bacteria

Group Spirochetes

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Group Proteobacteria (All are gram-negative.)

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Subgroup Alpha Proteobactia

☐ *Agrobacterium* spp. (Plant-tumor-producing bacteria)
☐ *Rhizobium* spp. (Legume symbionts, nitrogen-fixing bacteria)

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Subgroup Beta Proteobacteria

☐ *Nitrosomonas* spp. (Soil bacteria that oxidize ammonium and produce nitrite as a waste product.)

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Subgroup Gamma Proteobacteria

☐ *Chromatium* spp. (Sulfur Bacteria which obtain energy by oxidizing Hydrogen Sulfide and produce Sulfur as a waste product.)
☐ *Escherichia coli* (Migula 1895) Castellani and Chalmers 1919, Mammal-gut Bacterium, "E. coli"
☐ ☹ *Escherichia* coli O104:H4 (human pathological, even deadly form)
☐ *Legionella pneumophila* Brenner, Steigerwalt, & McDade, 1979; Legionnaires' Disease Bacterium (causative agent of legionellosis = Legionnaires' Disease)
☐ *Salmonella* sp., Food-poisoning Bacterium (causative agent)
☐ *Salmonella enterica enterica, serovar* Typhi,Typhoid Fever Bacterium
☐ *Vibrio cholerae* Pacini, 1854; Cholera Bacterium (causative agent)
Iron Bacterium (in this subgroup?)

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Subgroup Delta Proteobacteria

Slime-secreting Myxobacteria ("Slime-molds", including *Chondromyces crocatus*). Some people place Myxobacteria into Protozoa.)
☐ *Bdellovibrio* spp. (Consume other bacteria.)

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Subgroup Epsilon Proteobacteria (Most species are animal pathogens.)

☐ *Campylobactera* (causes blood poisoning and intestinal inflamation)
☐ *Helicobacter pylori* (Marshall et al. 1985) Goodwin et al., 1989; Human Stomach-ulcer Bacterium (causative agent)

Group Chlamydias

☐ *Chlamydia trachomatis* (the most common cause of human blindness worldwide and the causeof nongonococcal urethritis, the most common sexually transmitted disease in the USA)

Group Cyanobacteria (Photoautotrophs, possible source of the first chloroplast)

☐ *Anabaena* sp.
☐ *Oscillatoria* sp. (filmentous)

Group Gram-positive bacteria (A very large diverse group.)

Subgroup Acinomycetes (Greek myuks, fungus)

☐ *Bacillus anthracis* Cohn, 1872; Anthrax Bacterium (causative agent)
☐ *Clostridium botulinum* van Ermengem, 1896; Botulism Bacterium (causative agent)
☐ Leprosy Bacterium
☐ *Mycobacterium leprae* Hansen, 1874; Leprosy Bacterium
☐ *Mycobacterium lepromatosis*, Leprosy Bacterium
☐ Mycobacterium tuberculosis Zopf, 1883; Tuberculosis Bacterium
☐ *Staphlococcus* (33 spp.)
☐ *Staphylococcus aureus* Rosenbach, 1884 (on human skin and in human respiratory tracts, often disease-causing; Methicillin-resistant *Staphylococcus aureus* (MRSA), an important hospital pathogen)
☐ *Staphylococcus epidermidis* (Winslow & Winslow, 1908) Evans, 1916; Human Body-odor Bacterium
☐ *Streptomyces* (soil-dwelling bacteria, sources of many antibiotics including Streptomycin)
☐ Many free-living species, including many decomposers that produce geosmin ("earth odor'")

Subgroup Mycoplasma (tiny bacteria, without cell walls)

☐ *Mycoplasma genitalium* Tully et al., 1983 (only 517 genes, on ciliated epithelial cells of primate genital and respiratory tracts, can cause unpleasant symptoms in Humans)
☐ *Mycoplasma pneumoniae* Somerson et al., 1963; Human Walking-pneumonia Bacterium
☐ Many free-living soil spp.

Group Spirochetes

☐ Many free-living spp.
☐ *Borrelia burgdorferi* Johnson et al., 1984 emend. Baranton et al., 1992; Lyme Disease Bacterium (in Humans, Ixodes ticks, White-footed Mice, White-footed Deer)
☐ *Treponema pallidum* Schaudinn & Hoffmann, 1905, Syphilis Bacterium

Domain Eukarya, Eukaryans (WDCA, about 10,000 spp.)

Kingdom Animalia, Animalia (World, over 4,000,000 spp.; WDCA, about 7,000 spp.)
As a group, Animals are commensals, food material of other organisms, mutualists, parasites, pollinators, predators, prey, and scavengers.

Phylum Annelida, Annelids (Earthworms and kin)

Phylum Arthropoda, Arthropods (WDCA, about 5,000 spp.)

Lists: DMWP (Kjar and Barrows, 2004, some forest species), PI (Krombein 1963, wasps; Leonard 1966, aphids; Wirth and Grogan 1981, ceratopogonid midges; Erwin 1981, carabid beetles; Brown 2001, tortricid moths; Brown et al. 2008, Lepidoptera; Vann 2008, butterflies), WDCA (Clark 1932, butterflies)

Arachnida (Class), Arachnids

Barbara J. Abraham and her team found 45 species of arachnids during the 2006 Bioblitz (Evans 2008, 37). This includes spiders in 11 families

☐ *Argiope aurantia* (Black-and-yellow Garden Spider, Golden Garden Spider; Araneidae (AEA, 199) (GU, NB, WDCA)
☐ *Dermacentor variabilis* (American Dog Tick, Wood Tick; Ixodidae (AEA, 200) (FEF, PCSBF, WDCA)
☐ *Leiobunum* and other genera, Daddy-long-legs
☐ *Trombicula*, Chiggers (FZS)

Subphylum Atelocerata, Insects and Kin
Class Hexapoda, Hexapods
Subclass Insecta, Insects

Order Coleoptera, Beetles
☐ Coccinellidae, Ladybird Beetle Family

☐ ☹ *Harmonia axyridis* Pallas, 1773; Multicolored Asian Lady Beetle (native in Asia)

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Order Heteroptera, True Bugs
☐ Pentatomidae, Stink Bug Family
☐ ☹ *Halyomorpha halys* (Stål), Brown Marmorated Stink Bug

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Order Hymenoptera; Ants, Bees, and Wasps
☐ Bees
☐ Andrenidae, Miner Bee Family
☐ *Andrena*, Miner Bees (WDCA, c. 30 spp.)
☐ Apidae, Apid Bee Family
☐ *Apis* (World, 7 spp.; WDCA, 1 introduced sp.)
☐ ☹ *Apis mellifera* Linnaeus, 1758; Western Honey Bee (native in Africa, Asia, and Europe)
☐ *Bombus*, Bumble Bees (WDCA, c. 8 spp.)
☐ *Bombus bimaculatus* Cresson, 1863; Two-spotted Bumble Bee
☐ *Bombus impatiens* Cresson, 1863; Impatient Bumble Bee
☐ *Bombus pennsylvaticus* (American Bumble Bee, Apidae; AEA, 221)
☐ *Bombus* sp. (bumble bee, Apidae)
☐ *Bombus vagans* Smith, 1854; Half-black Bumble Bee, Wandering Bumble Bee
☐ *Nomada* (WDCA, c 30 spp., parasites of Andrena bees)
☐ *Xylocopa virginica virginica* Linnaeus, 1771; Giant Carpenter Bee, Eastern Carpenter Bee
☐ Halictidae, Sweat Bee Family (WDCA about 80 spp.)
☐ *Augochlora pura* Say, Gold-green Sweat Bee

☐ Formicidae, Ant Family
☐ *Campanotus*, Carpenter Ants (WDCA, c. 4 spp.)
☐ *Prenolepis imparis* (Say, 1836), False Honey Ant

☐ Vespidae, Vespid Wasp Family (WDCA, c. 30 spp.)
☐ *Dolichovespula maculata* (Linnaeus, 1763), Bald-faced-hornet (not a true hornet)
☐ *Polistes fuscatus* (Fabricius, 1793), Fuscate Paper Wasp
☐ *Vespula maculifrons* (Buysson, 1905), Eastern Yellowjacket

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Order Lepidoptera, Butterflies and Moths (WDCA, 104 butterfly spp., 100s of moth spp.)
☐ Lycaenidae, Gossamer-winged Butterfly Family
☐ *Celastrina ladon* (Cramer, 1780), Summer Azure
☐ *Celastrina neglecta* (Edward, 1862), Summer Azure
☐ Nymphalidae, Brush-footed Butterfly Family
☐ *Nymphalis antiopa* (Linnaeus) 1758, Mourning Cloak
☐ *Polygonia comma* (Harris) 1842; American Comma Butterfly (1770s), Comma, Hop Merchant
☐ *Polygonia intgerrogationis* (Fabricius, 1798), Question Mark
☐ *Vanessa atalanta rubria* (Fruhstorfer), Red Admiral, Red Admirable
☐ Papilionidae, Swallowtail Family (WDCA, 6 spp.)
☐ *Eurytides marcellus* (Cramer), 1777; Zebra Swallowtail
☐ *Papilio troilus* Linnaeus,1758; Spicebush Swallowtail
☐ *Papilio* (*Pterourus*) *glaucus* Linnaeus, 1758; Eastern Tiger Swallowtail
☐ Pieridae, Pierid Family (Orange-tips, Sulfers and Whites)
☐ *Anthocharis midea* (Hübner 1809), Falcate Orange Tip [falcate, curved]
☐ ☹ *Pieris rapae* (Linnaeus, 1758), Imported Cabbage Butterfly, Dancing White (native in Eurasia)
☐ *Colias philodice* Godart, 1819 (Clouded Sulphur; black-and-yellow adults; Pieridae)

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Phylum Chordata

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Class Amphibia, Amphibians (WDCA, c. 13 spp; DMWP, 13 spp)
(Frost et al., 2006, a major anatomical and nucleotide analysis of amphibian phylogeny.)

Order Anura, Frogs and Toads
☐ Bufonidae, Toad Family
☐ *Bufo americanus* Holbrook, 1836; Eastern American Toad; *Anaxyrus americanus* (Holbrook, 1835) (DMWP)
☐ *Bufo fowleri* (Hinckley, 1882); Woodhouse's Toad; *Anaxyrus fowleri* Hinckley, 1882; *Bufo woodhousei fowleri*, Fowler's Toad
☐ Hylidae; Tree Frogs, Chorus Frogs and Cricket Frogs
☐ *Hyla cinerea* (Schneider, 1799), Green Tree Frog (DMWP)
☐ *Hyla versicolor* LeConte, 1825; Eastern Gray Tree Frog (DMWP)
☐ *Pseudacris crucifer crucifer* (Wied-Neuwied, 1838), Northern Spring Peeper (DMWP)

Order Caudata, Salamanders
☐ *Plethodon cinereus* (Green), Red-back Salamander

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Class Aves (WCDA, c. 300 spp.)

(A taxon name with “iformes” is an order.)

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☐ Anseriformes, Ducks and Kin
☐ Anatidae, Duck Family
☐ *Anas platyrhynchos* Linnaeus, 1758; Mallard
☐ Columbiformes, Doves and Kin
☐ Columbidae, Dove Family
☐ ☹ *Columba livia* Gmelin, 1789; Domestic Pigeon (native to Eurasia)
☐ *Zenaida macroura* (Linnaeus, 1758), Mourning Dove
☐ Passeriformes, Crows and Kind
☐ *Archilochus colubris* Linnaeus, 1758; Ruby-throated Hummingbird
☐ *Bombycilla cedrorum* Vieillot, 1808, Cedar Waxwing
☐ Corvidae, Crow Family
☐ *Corvus brachyrhynchos* Brehm, 1822; American Crow
☐ *Corvus ossifragus* Wilson, 1812; Fish Crow
☐ Falconiformes, Falcons (including Eagles, Hawks, and Vultures)
☐ Falconidae, Hawk Family
☐ *Buteo jamaicensis* (Gmelin, 1788), Red-tailed Hawk
☐ *Cathartes aura* (Linnaeus, 1758), Turkey Vulture
☐ *Coragyps atratus* (Bechstein, 1793), American Black Vulture, Black Vulture
☐ Mimidae, Mockingbird Family
☐ *Mimus polyglottos* Linnaeus, 1758; Northern Mockingbird
☐ Passeridae, Finch Family
☐ ☹ *Passer domesticus* (Linnaeus, 1758), English Sparrow (House Sparrow) (native to Eurasia)
☐ Sturnidae, Mynah Bird Family
☐ ☹ *Sturnus vulgaris* Linnaeus, 1758; European Starling; Common Starling; Starling (native to Eurasia)
☐ Turdidae, Thrush Family
☐ *Turdus migratorius* (Linnaeus, 1766), American Robin, Robin

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Class Mammalia (WDCA, about 24 native spp. and 5 domestic spp.)

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Order Artiodactyla
☐ Bovidae, Cow Family
☐ *Bison bison* Hamilton Smith, 1827; American Bison, American Buffalo
☐ Cervidae, Deer Family
☐ *Cervus canadensis* Erxleben, 1777; American Elk, Elk, Wapiti (WDCA, extinct)
☐ *Odocoileus virginianus* Zimmermann, 1780; White-tailed Deer, Virginia Deer (38 ssp. in Central, North, and South America; DMWP, TRP)

Order Carnivora, Carnvores
☐ Canidae, Dog Family
☐ ☹ *Canis familiaris*; Domestic Dog (descendent of Eurasian Gray Wolf)
☐ *Canis latrans* Say, 1823; Coyote
☐ *Urocyon cinereoargenteus* (Schreber, 1775), Common Gray Fox, Gray Fox
☐ *Vulpes vulpes* Linnaeus, 1758; Red Fox (native to Eurasia and North America; DMWP)
☐ Felidae, Cat Family
☐ ☹ *Felis catus* (Linnaeus, 1758), Domestic Cat (native to Africa)
☐ Mephitidae
☐ *Mephitis mephitis* (Schreber, 1776), Striped Skunk (native to Canada, Mexico, U.S.; DMWP)
Mustelidae, Mink Family
☐ *Lutra canadensis* (Schreber, 1777), Northern River Otter (DMWP)
☐ Procyonidae, Racoon Family
☐ *Procyon lotor* Linnaeus, 1758; Common Raccoon (“pre-dog washer”) (DMWP)

Order Didelphimorphia Gill, 1972
☐ Didelphidae Gray, 1821; O’possum Famly
☐ *Didelphis virginiana* (Kerr, 1792),Virginia O’possum (DMWP, TRP)

Order Insectivora, Insectivores
☐ *Blarina brevicauda* Say, 1823; Short-tailed Shrew (Canada, U.S.; DMWP; venomous saliva)
☐ *Scalopus aquaticus* (Linnaeus, 1758), Common Mole; Eastern Mole (DMWP)

Order Lagomorpha, Hares and Rabbits
☐ Leporidae, Hare and Rabbit Family
☐ *Sylvilagus floridanus* (J. A. Allen, 1890), Eastern Cottontail (DMWP, TRP)

Order Primates, Primates
☐ Hominidae, Human Family
☐ *Homo sapiens sapiens* L., 1758; Human (*H. sapiens* originated in Africa.)

Order Rodentia, Rodents
☐ Cricetidae, Mouse Family

☐ *Peromyscus leucopus (*Rafinesque, 1818); White-footed Mouse; Wood Mouse (Canada, Mexico, U.S., DMWP; can carry hantaviruses dangerous ot Humans)
☐ *Peromyscus maniculatus* (Wagner, 1845), Deer Mouse (DMWP)
☐ Muridae, Mouse and Rat Family (World, c. 700 spp.)
☐ ☹ *Mus musculus* Linnaeus, 1758; House Mouse (native to Europe, used as laboratory mice)
Rattus (World, 64 spp.; DMWP)
☐ ☹ *Rattus norvegicus* (Berkenhout, 1769), Norway Rat (native to Europe; alien in the Americas; DMWP; used as laboratory rats)
☐ ☹ *Rattus rattus* Linnaeus, 1758; Black Rat (native to Europe; alien in the Americas; DMWP)
☐ Sciuridae, Squirrel Family
☐ *Glaucomys volans* (Linnaeus, 1758), Southern Flying Squirrel (DMWP)
☐ Marmota monax, Woodchuck (DMWP)
☐ *Sciurus carolinensis* Gmelin, 1788; Eastern Gray Squirrel (DMWP, GAP)
☐ *Tamias striatus* Linnaeus,1758; Eastern Chipmunk (DMWP, GAP)

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Class Reptilia (WDCA about 20 spp.; DMWP, 20 spp.; GU, about 5 spp.)

Turtles (WDCA, c. 8 spp.)
☐ *Terrapene carolina* (Linnaeus, 1758), Box Turtle

Lizards (WDCA, c. 3 spp.)
☐ *Sceloporus undulatus* (Bosc & Daudin, 1801), Eastern Fence Lizard
☐ *Scincella lateralis* Say, 1823; Ground Skink (DMWP)
☐ *Eumeces fasciatus* (Linnaeus, 1758); Five-lined Skink (DMWP)

Snakes (WDCA, c. 20 spp.)
☐ *Pantherophis obsoletus* (Say in James, 1823), Black Rat Snake; *Elaphe obsoleta* Stejneger & Barbour, 1917, Black Rat Snake; Black Snake; Pilot Black Snake; Western Rat Snake

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Phylum Mollusca, Molluscs (Clams, Oysters, Slugs, Snails, and kin)
Lists: DMWP (Johnston 2000): 35 species of freshwater molluscs; Potomac Gorge (Evans 2008, 2006 Bioblitz).

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Class Bivalvia: Order Veneroida
☐ ☹ *Corbicula fluminea* (Muller, 1774), Asian Clam

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Kingdom Fungi, Fungi (WDCA, about 1000 spp.)

As a group, Fungi are commensals, decomposers, food material of other organisms, mutualists, parasites, pathogens, predators, prey, and scavengers.

☐ *Cladonia pyxidata* (Pixie-cups, Cladoniaceae)
☐ *Cladonia cristatella* (British-soliders, Cladoniaceae) (Alden et al. 2008, 85)
☐ *Cladonia rangiferina* (L.) Weber ex F.H. Wigg. (1780) (Reindeer-moss, Reindeer Lichen, Cladoniaceae)
☐ *Ganoderma applanatum* (Persoon) Pat., Artist's Fungus
☐ *Gymnosporangium* sp. (a fungus on *Amelanchier* fruit)
☐ *Gymnosporangium juniperi-virginianae* Schwein., 1822; Cedar-apple Rust (a fungus on apples, hawthorns, junipers, and quinces)
☐ *Laetiporus sulphureus* (Bull.) Murrill, 1920; Sulfur Shelf Fungus
☐ *Lycoperdon pyriforme* Jacob Christian Schaeffer, 1774; Pear-shaped Puffball
☐ *Saccharomyces cerevisiae*, Baker's Yeast, Yeast

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Eucarya: Plantae: Nonflowering Plants. This list is not complete for TRP.

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Phylum Bryophyta (Mosses and Liverworts): 100s of spp. in the WDCA.

Dr. Charles Davis and Mrs. Linda Davis (Davis and Davis 2006), extensively surveyed bryophytes of Great Falls Park. They found 29 families and 48 genera of mosses, 17 families and 20 genera of liverworts, and no hornwort species.

Dorothy Belle Poli and her team found 22 kinds of bryophytes of which they identified 2 liverwort and 15 moss species during June in the 2006 Bioblitz, a poor time to survey bryophytes.

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Lists: PI (Leonard 1935, mosses; Leonard and Pierce 1939; bryophytes, Evans 2008, 25)

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Subclass Sphagnidae, Peat Mosses (= Bog Mosses)

☐ *Sphagnum* (Conard and Redfearn 1979, 24).
Subclass Andreaeidae
Andreaeidae (Conard and Redfearn 1979, 27).
Subclass Bryidae (many genera) (Conard and Redfearn 1979, 28).
☐ *Leucobryum glaucum* (Hedw.) Angstr. Ex Fr. (White Cushion Moss, Leucobryaceae) (Conard and Redfearn 1979, 86).
Polytrichaceae
☐ *Polytrichum* (Tree Mosses, shaped like tiny trees, Polytrichaceae) (Conard and Redfearn 1979, 227).

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Conard, Henry S. and Paul L. Redfearn, Jr. 1979. How to Know the Mosses and Liverworts. Second Edition. WCB McGraw-Hill, Dubuque, IA. 302 pp.

Crum, H. A. and L. E. Anderson. 1981. Mosses of Eastern North America. (All local species are likely to be in this book.)

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Phylum Lycophyta

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Lycopodiaceae, Clubmoss Family
☐ *Lycopodium*, Clubmosses (MD, 10 spp., BB 1984, 1)
Selaginellaceae, Spikemoss Family
☐ Selaginella, Spikemosses (MD, 2 spp., BB 1984, 7)
Isoetaceae, Quillwort Family
☐ *Isoetes*, Quillworts (MD, 3 spp., BB 1984, 7)

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Lists: BWA (Shetler and Orli 2000), DMWP (Xu 1991, Haug 1993), GFV (Steury et al. 2008), PI (Killip and Blake, 1935, 1953; Shetler et al. 2006).

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Phylum Sphenophyta

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Equisetaceae, Horsetail Family
☐ *Equisetum* (MD, 4 spp., BB 1984, 1).
☐ *Equisetum arvense* L. (Common Horsetail)
☐ *Equisetum fluviatile* L. (Water Horsetail)
☐ *Equisetum hyemale* L. (Scouring-rush)
☐ *Equisetum laevigatum* A. Braun (Smooth Horsetail)
☐ *Equisetum sylvaticum* L. (Woodland Horsetail)
☐ *Equisetum* ×*ferrissii* Clute (pro sp.) [*hyemale* × *laevigatum*]

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Phylum Pterophyta, Ferns

(Earth, about 12,000 extant spp.; MD, 63 spp.; WDCA, 5 exotic spp., 2 hybrids, 54 native spp., Shetler and Orli 2000)

Lists: WDCA (Shetler and Orli 2000), DMWP (Xu 1991, Haug 1993), GFP (Steury et al. 2008), PI (Killip and Blake, 1935, 1953; Shetler et al. 2006).

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Aspleniaceae, Spleenwort Family
☐ *Asplenium*, Spleenworts (WDCA, 7 native spp., 1 native hybrid)
☐ *Asplenium platyneuron* (L.) B. S. P., Ebony Spleenwort, including *A.* ×*virginicum* (*A. platyneuron* × *A. trichomanes*)

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Ophioglossaceae (Adder's-tongue Family)
☐ *Botrychium* (Moonworts, Grape Ferns) (MD, 6 spp., BB 1984, 10).
☐ *Botrychium virginianum* (L.) Sw. (Rattlesnake Fern) (Twice compound pinnate leaves, sterile and fertile.)
☐ *Ophioglossum vulgatum* L. (Adder's-tongue) (Simple leaf, the only *Ophioglossum* in MD.)

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Osmundaceae (Royal Fern Family)
☐ Osmunda (MD, 3 spp., BB 1984, 12)
☐ *Osmunda cinnamomea* L. (Cinnamon Fern)
☐ *Osmunda claytoniana* L. (Interrupted Fern) [after John Clayton]
☐ *Osmunda regalis* L. (Royal Fern).

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Schizaeaceae (Curly-grass Family)
☐ Lygodium (MD, 1 sp., BB 1984, 14)
☐ *Lygodium palmatum* (Bernh.) Sw. (Climbing Fern)

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Polypodiaceae (Fern Family): *Adiantum* (MD, 2 spp.), *Asplenium* (8 spp. and at least 2 hybrids), *Athyrium* (4), *Camptosorus* (1), *Cheilanthes* (2), *Cystopteris*(3), *Dennstaedtia* (1), *Dryopteris* (8 sp. and 1 hybrid), *Gymnocarpium* (1), *Matteuccia* (1), *Onoclea* (1), *Pellaea* (2), *Phegopteris* (2), *Phyllitis*(1), *Polypodium* (2), *Polystichum* (1), *Pteridium* (1), *Thelypteris* (3), *Woodsia* (2), *Woodwardsia* (2)
☐ *Adiantum* (MD, 2 spp.)
☐ *Adiantum pedatum* L., Maidenhair Fern.
☐ *Athyrium angustum* (Willdenow) C. Presl., Lady Fern; other scientific names) (twice–thrice pinnately compound leaves)(TRP)
☐ *Athyrium pycnocarpon* (Sprengel) Tidestr., Narrow-leaved Glade Fern, Narrow-leaved Spleenwort; many other scientific names(once-pinnately compound leaves) (TRP, 100417, large leaves)

☐ *Matteuccia pensylvanica* Raymond (Ostrich Fern) (TRP, a large patch)
☐ *Cystopteris fragilis* (L.) Bernh. (Brittle Fern, Fragile Fern) (BI, TRP, common)
☐ *Onoclea sensibilis* L. (Bead Fern, Sensitive Fern) [sensitive, after the fact the early light frosts kill leaves of this fern]
☐ *Polystichum acrostichoides* (Michaux) Schott, Christmas Fern (BI, GAP, TRP, common)
[Christmas, after the fact that this is an evergreen fern that can be used for Christmas decorations]

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☐ *Pteridium* (MD, 1 sp.)
☐ *Pteridium aquilinum* (L.) Kuhn (Brake, Braken Fern)

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Marsileaceae (Pepperwort Family)
☐ *Marsiliea* (MD, 1 sp., BB 1984, 41)
☐ ☹ *Marsilea quadrifolia* L. (Pepperwort)

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Salviniacae, Water Fern Family
☐ *Azolla caroliniana* Willd. (Mosquito Fern). This is the only *Azolla* in MD (BB 1984, 41).
☐ *Salvinia rotundifolia* Willd. (Salvinia). This is the only *Salvinia* in MD (BB 1984, 41).

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Lists: BWA (Shetler and Orli 2000), DMWP (Xu 1991, Haug 1993), GFV (Steury et al. 2008), PI (Killip and Blake, 1935, 1953; Shetler et al. 2006).

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Phylum Coniferophyta (Conifers). This list is likely complete for BI.

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Cupressaceae, Cedar Family
☐ *Juniperus virginiana* Linnaeus; *Cèdre Rouge* (Quebec), Eastern Juniper, Juniper, Pencil Cedar, Eastern Redcedar, Redcedar, Red Juniper, Savin, Virginia Redcedar; Cupressaceae) (BI, River Terrace Forest; GU)
☐ ☹ X*Cupressocyparis leylandii* (A. B. Jackson and Dallimore) Dallimore and A. B. Jackson, Leyland Cypress (Keyhole Field, east side, 3 trees; Medical Center Loading Dock, 2 trees)
☐ ☹ *Cedrus atlantica* 'Glauca', Blue Atlas Cedar (Building D, north side, 2 trees; White-Gravenor Hall, south corners, 2 trees)
☐ ☹ ? *Pinus strobus* L., Eastern White Pine (GU, Kober-Kogan, north side, 2 trees (1 dead in 2012), St. Mary's Hall, east side, 13 trees; Southwest Quad, formerly 55 trees in that site)
☐ ☹ *Pseudotsuga menziesii* (Mirb.) Franco, Douglas-fir (GU, Observatory Hill, 3 trees)
☐ *Tsuga canadensis* (Carolus Linnaeus) Élie Abel Carrière, Canada Hemlock, Eastern Hemlock, Hemlock, Hemlock Spruce, *Pruche du Canada* (in Quebec), Spruce-pine (in WV) (GU, Kober-Kogan, north side, 1 tree; Observatory Hill, several trees; St. Mary's Hall, north side, 1 tree; White-Gravenor Hall, north side, several trees)

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Pinaceae, Pine Family
☐ *Pinus echinata* Mill., Shortleaf Pine, Yellow Pine (WDCA)
☐ *Pinus virginiana* Mill., Jersey Pine, Poverty Pine, Scrub Pine, Spruce Pine, Virginia Pine
(Native to the U.S. Tree; small bark patches compared to P rigida. Leaves (needles) are in fascicles of 2. Cones are spiney. In River Terrace Forest of BI, TRP. AEA, 99.)

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Taxodiaceae, Bald-cypress Family
☐ ☹ *Metasequoia glyptostroboides* Miki ex Hu and Cheng, 1948; Dawn Redwood, Chinese Redwood, Shui Sa (= Water-fir, Chinese name) (GU, Lauinger Library, west side, about 5 trees; Observatory Hill, 1 tree)
☐ ☹ *Taxodium distichum* (L.) Rich., Bald-cypress (not a true cypress) (GU, Reiss, east side across the sidewalk)

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Lists: BWA (Shetler and Orli 2000), DMWP (Xu 1991, Haug 1993), GFV (Steury et al. 2008), PI (Killip and Blake, 1935, 1953; Shetler et al. 2006).

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Phylum Ginkgophyta (Ginkgos) (Earth, 1 living sp.)
Ginkgoaceae, Ginkgo Family
☐ ☹ *Ginkgo biloba* Linnaeus, Ginkgo (VA, Blandy Research Farm, a grove of scores of trees; GU, about 10 trees; WDC, lines of trees along some roads)

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Eucarya: Plantae: Anthophyta (Flowering Plants). Plants are in families in alphabetical order with dicots and monocots interdigitated. This list is likely near complete for BI.

Lists: BWA (Shetler and Orli 2000), DMWP (Xu 1991, Haug 1993), GFV (Steury et al. 2008), PI (Killip and Blake, 1935, 1953; Shetler et al. 2006; Evans, 2008, page 27, 2006 Potomac Gorge Bioblitz).

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Aceraceae, Maple Family. See Sapindaceae.

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Adoxaceae, Adoxa Family
☐ *Viburnum prunifolium* L., Black Haw

☐ *Viburnum rafinesquianum* Schultes, Downy Arrowwood (TRP?)

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Alliaceae, Onion Family (see Amaryllidaceae)

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Amaranthaceae, Amaranth Family (now includes Chenopodiaceae)

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Amaryllidaceae, Amaryllis Family (Fruits are capsules.) Allium, Camassia, Hippeaestrum, Leuocojum, Narcissus, Manfreda, Northoscordum, Sternbergia, Tristagma, Zepharathes

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Allioideae, Onion Subfamily

☐ *Allium* (Fruits are capsules) (WDCA, 3 native spp., 6 introduced spp.; GFP, 4 spp.)

☐ *Allium canadense* L., Meadow-garlic, Wild-onion (GFP, TRP)

☐ ☹ *Allium cepa* L., Garden Onion (Walmart plant area.)

☐ ☹ *Allium porrum* L., Leek

☐ ☹ *Allium sativum* L., Garlic

☐ ☹ *Allium schoenoprasum* L., Chives

☐ *Allium tricoccum* Aiton, Ramp, Wildleek (BI, GFP, TRP)

☐ ☹ *Allium* tuberosum, Chinese Chives

☐ ☹ *Allium vineale* L., Wild-garlic (GAP, GFP, TRP)

☐ ☹ *Hippeaestrum* spp and cvs., Amaryllus

☐ ☹ *Narcissus* spp., varieties, and cvs.

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Anacardiaceae, Cashew Family

☐ *Rhus* spp., Sumacs (WDCA, 4 spp.)

☐ *Rhus aromatica* Aiton, Fragrant Sumac (BI)

☐ *Rhus glabra* L. , Smooth Sumac (BI, TRP)

☐ *Rhus typhina* L., Staghorn Sumac

☐ *Toxicodendron radicans* (L.) Kuntze, *Bois de Chien*, *Herbe à la Puce*, Cow-itch, Markry, Mercury, Poison-ivy, Poison Ivy (poor name), *Rhus radicans* (BI, COCNHP, GAP, GFP, TRP)

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Annonaceae, Custard-apple Family (WDCA, 1 sp.)

☐ *Asimina triloba* (Linnaeus) Michel Félix Dunal, Custard Apple (Central USA), Hoosier Banana (Ohio), Michigan Banana (Michigan), Pawpaw, Poor Man's Banana, West Virginia Banana (WV) (BI, COCNHP, TRP)

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Apiaceae, Parsley Family (Umbelliferae)

NOTE: It is dangerous to eat unknown members of this family in the field because some are very poisonous to Humans and can be fatal.

☐ ☹ *Anethum graveolens* L., Dill

☐ *Apium graveolens* var. *dulcum* (Miller) Persoon, Celery

☐ *Chaerophyllum procumbens* xxxx, Spreading Chervil (BI, TRP)

☐ ☹ *Conium maculatum* L., Poison Hemlock (BI, COCNHP)

☐ *Cryptotaenia canadensis* Augustin Pyramus De Candolle, Honewort, Wild Chervil (GAP, GU)

☐ ☹ *Daucus carota* L., Carrot, Queen-Ann's-lace, Wild Carrot

☐ *Erigeron philadelphicus*, Daisy Fleabane

☐ Erigenia bulbosa (Michaux) Nuttall, Harbinger-of-spring (BI, TRP)

☐ ☹ *Foeniculum vulgare* Mill, Fennel

☐ *Osmorrhiza claytonii* (Michaux) C. B. Clarke, Bland Sweet-cicely; Hairy Sweet-cicely, Sweet-cicely, Sweet Cicely, Sweet-jarvil, Wild-anise (BI, GAP, TRP)

☐ *Osmorrhiza longistylis* (Torr.) DC, Anise-root, Long-styled Sweet-cicely, Smooth Sweet-cicely, Sweet Cicely (appressed pubescence) (BI, GAP)

☐ ☹ *Pastinaca sativa* L., Parsnip, Wild Parsnip (GU Medical Campus)

☐ *Petroselinum crispum*, Parsley

☐ *Zizia aurea* xxxx, Golden-alexander (BI, TRP)

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Apocynaceae, Dogbane Family

Ascelpias, *Amsonia*, *Apocynum*, Hoya, *Matelea*, *Trachelospermum*, *Vinca*

☐ *Apocynum cannabinum*, *Apocynum medium*, Common Dogbane, Indian-hemp (TRP)

☐ *Asclepias* (WDCA, 11 spp.)

☐ *Asclepias syriaca* L., Common Milkweed

☐ Asclepias verticillata L., Whorled Milkweed

☐ ☹ *Hoya carnosa* (L. f.) R. Br., Porcelain-flower, Waxplant (GU, Observatory plant collection) (HOYA SAXA!)

☐ ☹ *Vinca minor* L., Common Periwinkle (GAP, TRP)

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Aquifoliaceae, Holly Family (GU has a large Holly collection of about 85 cvs. and spp. of *Ilex*.)

☐ ☹ *Ilex aquifolia* L., English Holly (GU, Obs. Hill)

☐ ☹ Ilex chinensis xxxx, Chinese Holly

☐ *Ilex decidua* Walter, Possum-haw

☐ *Ilex glabra* (L.), A. Gray, Inkberry (GU, Observatory Hill)

☐ *Ilex opaca* Aiton, American Holly (GU, Observatory Hill)

☐ *Ilex verticillata* (L.) Asa Gray, Black-alder, Michigan Holly, Winterberry Holly

☐ ☹ *Ilex* x*aquipernyi* 'Dragon Lady', Dragon Lady Holly (GU, Observatory Hill, 1 tree)

☐ ☹ *Ilex xattenua* 'Sunny Foster', Sunny Foster Topel Holly (GU, Observatory Hill, 1 female tree)
☐ *Nemopanthus mucronata* (L.) Trel., Mountain Holly, Wild Holly

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Araceae, Aroid Family, Arum Family (now includes Lemnaceae)
☐ *Calla palustris* L., Wild Calla
☐ *Arisaema triphyllum* (L.) Schott, Jack-in-the-pulpit, Jill-in-the-pulpit (GAP, GFP, TRP)
☐ *Symplocarpus foetidus* (L.) Salisb ex. Nuttall, Skunkcabbage (COCNHP, GFP)

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Araliaceae, Spikenard Family, Ginseng Family
Aralia, *Hedera*, *Panax*.
☐ ☹ *Hedera helix* Linnaeus, English Ivy (GU, many areas of ground cover) (major alien, invasive plant, TRP)
☐ ☹ *Hedera hibernica* (Kirchn.) Bean, Irish Ivy (GU, many areas of ground cover) (major alien, invasive plant)
☐ *Panax quinquefolius* L., Ginseng, Sang (TRP, extinct?)
☐ *Panax trifolius* L., Dwarf Ginseng (TRP)

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Aristolochaceae, Dutchman-pipe Family (Fruits are capsules.)
☐ *Aristolochia durior* Hill, *Aristolochia macrophylla* Lam., Dutchman's-pipe, Pipevine (GU, Observatory Hill)
☐ *Asarum canadense* L., Broad-leaved Asarabaccais, Canada Wild Ginger, Canadian Snakeroot, Wild-ginger, many scientific other names (BI; GU, Hariri courtyard, west side; TRP)

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Asparagaceae, Asparagus Family
☐ ☹ *Asparagus officinalis* L., Asparagus
☐ ☹ *Convallaria majalis* L., Lily-of-the-valley (was in Convallariaceae) (GU)
☐ *Maianthemum* (*Smilacina*) *racemosum* (L.) Link, False Solomon's-seal (was in Liliaceae) (GFP)
☐ *Maianthemum* (*Smilacina*) *racemosum* (L.) Link (was in Liliaceae) (GFP)
☐ ☹ *Muscari botryoides* (L.) Mill., Common Grape-hyacinth (was in Liliaceae) (GU)
☐ ☹ *Ornithogalum nutans*, Drooping Star-of-Bethlehem (was in Liliaceae) (COCNHP)
☐ *Polygonatum biflorum* (Walter) Elliot, Dwarf Solomon's-seal, Smooth Solomon's-seal (was in Liliaceae) (GFP)
☐ *Smilacina racemosa* (L.) Desfontaines, False Solomon's-seal (was in Liliaceae) (TRP)
☐ Yucca (was in Agavaceae, now in Asparagaceae: Agavoideae)
☐ ☹ *Yucca filamentosa* L., Adam's-needle (formerly in Agavaceae and Liliaceae) (GU)
☐ ☹ *Yucca recurvifolia* Salibsb.s, Curve-leaf Yucca (formerly in Agavaceae and Liliaceae)

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Asteraceae, Aster Family
Achillea, Ambrosia, Arnica, Artemisia, Arctium, Anaphalis, Antennaria, Anthemis, Aster, Bellis, Bidens, Boltonia, Cacalia, Carduus, Centaurea, Chichorum, Chrysanthemum, Chrysogonum, Chrysopsis, Cirsium, Cnicus, Condrilla, Conza, Coreopsis, Crepis, Eclipta, Elephantopus, erectites, Erigeron, Eupatorium, Filago, Galinsoga, Gnaphalium, Grindelia, Helianthus, Heliopsis, Haplopappus, Helenium, Heterotheca, Hieraceum, Hypochaeris, Inula, Krigia, Kuhnia, Lactuca, Lapsana, Leontodon, Liatris, Madia, Marshallia, Matricaria, Megalodonta, Mikania, Parthenium, Picris, Pluchea, Polymnia, Prenanthes, Pulicaria, Pyrropappus, Onopordum, Rudbeckia, Sclerolepsis, Senecio, Seriocarpus, Silphium, Silybum, Solidago, Sonchus, Tanacetum, Taraxacum, Tragopogon, Tussilago, Verbesina, Vernonia, Xanthium, etc.

☐ & ☹ *Achillea millefolium* L., Yarrow, Milfoil (TRP)
☐ *Anaphalis margaritacea* (L.) C. B. Clarke, Pearly Everlasting (BI)
☐ *Antennaria plantaginifolia* (L.) Richards, Plantain-leaved Everlasting (BI)
☐ *Arnica acaulis*, Leopard's-bane (BI)
☐ ☹ *Artemisia annua* L., Annual Wormwood, Sweet-Annie, Sweet Sagewort, Sweet Wormwood (BI, GU)
☐ "Asters" (*Almutaster*, *Canadanthus*, *Dellingeria*, *Eucephalus*, *Eurybia*, *Lionactis*, *Olioneuro*, *Oreostemma*, *Sericocarpus*, *Symphyotrichum*, www.guynesom.com/AsternamesWEB.htm)
☐ *Erigeron philadelphicus* L., Common Fleabane, Philadelphia-daisy, Philadelphia Fleabane, Kevish (BI, TRP)
☐ *Hieracium venosum* L., Rattlesnake-weed, Poor Robin's-plantain (BI)
☐ ☹ *Jacobaea maritimia* (L.) Pelser & Meijden (2005), *Senecio cineraria* (L.) L., Dusty Miller, Silver-ragwort; *S. bicolor* subsp. *cineraria*, *S. candicans*, *S. maritimus* (WDCA, gardens)
☐ *Krigia dandelion* (L.) Nuttall., Potato Dandelion (BI)
☐ *Krigia virginica* (L.) Willd., Virginia Dwarf-dandelion (BI)
☐ *Lactuca canadenis* L., Wild Lettuce, Horseweed (BI)
☐ *Prenanthes serpentaria* Pursh, Lion's-foot, Gall-of-the-Earth (TRP)

☐ *Senecio aureus* L., Golden Groundsel, Golden Ragwort, Heart-leaved Groundsel Squaw-weed (BI, TRP)
☐ ☹ *Taraxacum officinale* G. H. Weber, Common Dandelion (BI, TRP)
☐ ☹ *Youngia japonica* (L.) DC., Oriental False Hawksbeard (BI)

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Begoniaceae, Begonia Family
☐ ☹ *Begonia sempervirens*, Wax Begonia (GU)

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Berberidaceae, Barberry Family
Berberis, Caulophyllum, Jeffersonia, Mahonia, Podophyllum (BB 1984, 481).
☐ *Caulophyllum thalictroides* (L.) Michaux, Blue Cohosh, Papoose-root (TRP)
☐ *Jeffersonia diphylla* (L.) Persoon, Twinleaf (BI, COCNHP, TRP)
☐ *Podophyllum peltatum* L., Mayapple (BI, COCNHP, TRP)

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Betulaceae, Birch Family (Fruits are capsules.)
Alnus (MD, 3 spp.), *Betula* (4), *Carpinus* (1), *Corylus* (2), *Ostrya* (1)
☐ *Alnus serrulata* xxxx, Hazel Alder, Smooth Alder (BI)
☐ *Betula nigra* L., River Birch, Water Birch (GU)
☐ *Carpinus caroliniana* Walter, American Hornbeam, Blue-beech, Ironwood, Musclewood (smooth, gray bark) (BI, GU)
☐ *Ostrya virginica* (Mill.) K. Koch (Hop-hornbeam, Ironwood (striated bark) (BI, GU)

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Boraginaceae Juss., Borage Family, Forget-me-not Family (world, about 2,000 spp in 145 genera, worldwide; now includes Hydrophyllaceae)
Borago, *Ellisia*, *Hydrophyllum*, *Lithospermum* (including *Onosmodium*), *Nemophila*, *Phacelia*
☐ ☹ *Borago officinalis* L., Borage (WDCA, gardens)
☐ *Ellisia nyctelea* L., Ellisia (BI)
☐ *Hydrophyllum canadense* L., Broad-leaved Waterleaf (spotted young leaves) (BI, TRP)
☐ *Mertensia virginica* (L.) Persoon, Bluebells, Virginia Bluebells, Virginia Cowslip (BI, TRP)
☐ *Lithospermum virginianum* L.*, Onosmodium virginianum* (L.) A. DC., False Groomwell, Jacob's-tears (GFP, 4 shoot groups remaining)
☐ *Phacelia*
☐ *Phacelia covillei* S. Watson, Blue Scorpionweed, Coville's Phacelia (BI, TRP)
☐ *Phacelia dubia* (L.) Trel., Small-flowered Phacelia (BI)
☐ *Phacelia purshii* Buckl., Miami-mist, Pursh's Phacelia (BI)
☐ ☹ *Phacelia ranunculacea* (Nuttall) Const. (Not in the WDCA)

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Brassicaceae, Mustard Family (Fruits are silicles and siliques.)
Alliaria, Alyssum, Arabidopsis, Arabis, Armoracia, Barbarea, Berteroa, Brassica, Cakile, Capsella, Cardamine, Cardaria, Camelina, Conringia, Cronopus, Dentarium, Descurainia, Diplotaxus, Erysimum, Eurucastrum, Eruca, Hesperis, Lepedium, Lobularia, Lunaria, Nasturtium, Raphanus, Rorippa, Sibara, Sisymbrium, Teesdalia, *Thlaspi*.

☐ ☹ *Alliaria petiolata* (M. Bieb.) Cavara & Grande, Garlic-mustard (BI, COCNHP, TRP; a major invasive species)
☐ *Arabis laevigata* (Muhl. ex Willd.) Poir., Smooth Rockcress (Lower leaves are toothed.) (BI)
☐ *Arabis lyrata* L., Lyre-leaved Rockcress (BI)
☐ *Barbarea vulgaris* Brown, Winter Cress (BI)
☐ *Barbarea vulgaris*, Aiton f., Springcress, Wintercress, Yellow-rocket (BI)
☐ *Capsella bursa-pastoris* (L.) Medicus, Shepherd's-purse (BI)
☐ *Cardamine angustata* O. E. Schultz, Dentaria heterophylla, Slender Toothwort (BI)
☐ *Cardamine arenicola* xxxx, Tiny Sandcress (BI)
☐ *Cardamine concatenata* (Michaux) Sw., *Dentaria laciniata*, Cutleaf Toothwort, Cutleaf-pepperroot (BI, GAP, PI, TRP)
☐ ☹ *Cardamine hirsuta* (Linnaeus) Medicus, Bitter Cress, Hairy Bittercress, Winter Cress (COCNHP, BI, GAP, TRP)
☐ ☹ *Lepidium campestre* (L.) Aiton f., Fieldcress (Stem leaves are auricled (eared).) (BI)
☐ *Lepidium virginicum* L., Wild Peppergrass (BI)
☐ ☹ *Erysimum repandum* xxxx, Treacle-mustard (Stem leaves are auricled (eared).) (BI)
☐ *Lepidium virginicum* xxxx, Wild Peppergrass (BI)

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Buddleijaceae, Butterflybush Family. See Loganiaceae

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Buxaceae (Boxwoods and kin)
☐ ☹ *Aucuba japonica* Thunberg, Aucuba, Spotted-laurel (GU, Medical Center)
☐ ☹ *Buxus*, Boxwoods (GU)

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Cannaceae, Canna Family
☐ ☹ *Canna* cv. (Canna)

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Cactaceae (Cactus Family)

☐ *Opuntia humifusa* (Raf.) Raf., Eastern Pricklypear, Pricklypear, Indian-fig (BI)

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Callitrichaceae (Water-starwort Family):

☐ *Callitriche* (4 spp. in MD).

☐ *Callitriche heterophylla* Pursh, Larger Water-starwort (BI)

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Caprifoliaceae, Honeysuckle Family (See also Adoxaceae (Viburnum), Diervillaceae, Linneaceae)

☐ Lonicera

☐ ☹ *Lonicera japonica* Thunberg, Japanese Honeysuckle (BI, 1000s; GAP, 1000s, TRP, 1000s)

☐ ☹ *Lonicera maackii* (Rupr.) Herder, Amur Honeysuckle (BI, TRP)

☐ ☹ *Lonicera morrowii* A. Gray, Morrow's Honeysuckle (BI)

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Caryophyllaceae, Carnation Family (now includes Dipsaceae and Valerianaceae)

Agrostema, Arenaria, Cerastium, Corrigiola, Dianthus, DIpsacus, Holosteum, Honkenya, Lychnis, Myosoton, Paronychia, Sagina, Saponaria, Scleranthus, Silene, Spergularia, Stellaria, *Valeriana*

☐ *Cerastium arvense* (Field Chickweed). Biennial forb. 5 styles per pistil, petals are longer than sepals. April–May. BI.

☐ *Cerastium fontanum* Baumg. ssp. *vulgare* (Hartm.) Greuter & Burdet, *Cerastium vulgatum*, Big Chickweed, Common Mouse-eared Chickweed (BI)

☐ & ☹ *Dianthus* cv., Carnation

☐ *Silene caroliniana* (Wild Pink). Perennial forb. Pink petals, connate sepals. April–May. BI.

☐ & ☹ *Stellaria*, Chickweeds (WDCA, 5 native spp., 2 alien spp.)

☐ ☹ *Stellaria media* (L.) Vill., Chickenwort, Common Chickweed, Craches, Maruns, Winterweed (BI, GAP, GU, PI, TRP)

☐ *Stellaria pubera* Michaux, *Alsine pubera (*Michaux) Britton, Star Chickweed (BI; GAP; GU; PI, TRP)

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Celastraceae, Stafftree Family (Fruit are capsules.)

Celastrus, *Euonymous*

☐ ☹ *Celastrus orbiculatus* Thunb., Oriental Bittersweet (major alien, invasive plant from Asia) (BI; TRP, common along some shores; a major invasive plant)

☐ *Celastrus scandens* L., American Bittersweet

☐ & ☹ *Euonymus* (Earth, ca. 180 spp.; WDCA, 2 native spp., 3 alien, introduced spp.)

☐ ☹ *Euonymus alatus* (Thunberg) Siebold, Winged Burningbush, Winged Euonomus (BI, TRP)

☐ *Euonymus americanus* L., Strawberrybush (TRP)

☐ ☹ *Euonymus fortunei* (Turcz) Hand.-Mazz., Winter-creeper (WDCA, a major invasive plant)

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Colchicaceae, Colchicum Family

☐ *Uvularia sessilifolia* L., Sessile Bellwort, Wild-oats (TRP)

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Cornaceae, Dogwood Family

☐ *Cornus* (WDCA, 7 spp.)

☐ *Cornus florida* L., Eastern Flowering Dogwood (GU, Med-Dent Building, north side, 6 trees; TRP)

☐ ☹ *Cornus florida var. rubra*, Pink-flowering Dogwood

☐ ☹ *Cornus* 'Celestial' (*C. florida* x *C. kousa*), Celestial Dogwood

☐ ☹ *Cornus kousa* Hance, Kousa, Japanese Dogwood, Korean Dogwood (GU, Copley Square near Copley Hall, several trees)

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Crassulaceae (Stonecrop Family)
(MD, 6 spp. , BB 1984, 539)

Sedum (WDCA, 5 spp.)

☐ *Sedum telephioides* Michaux (Wild Live-forever) (BI)

☐ *Sedum ternatum* Michaux, Wild Stonecrop, Three-branched Stonecrop (BI, TRP)

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Cyperaceae, Sedge Family (MD: hundreds of species)

Bulbostylis, Carex, Cladium, Cymophyllus, Cyperus, Dulichium, Eleocharis, Eriophorum, Fimbristylis, Fuirena, Hemicarpha, Psilocarya, Rhynchospora, Scleria, *Scirpus*

☐ *Carex careyana* Torrey (Carey's Sedge) (BI)

☐ *Carex pensylvanica* Lam., Pennsylvania Sedge (BI)

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Diervillaceae

☐ *Diervilla*

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Dioscoriaceae, Yam Family

Dioscorea (MD, 4 spp.)

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Ericaceae, Heath Family (now includes Pyrolaceae)
(MD: 33 spp. in MD. *Chimaphila* (2), Epigaea (1), Gaulteria (1), Gaylussacia (4), Kalmia (2), Leucothoe (1), Lyonia (2), Menziesia (1), Oxydendron (1), Rhododendron (8), *Vaccinium* (12) (Brown and Brown 1984, 247).)

☐ *Chimaphila umbellata* (L.) Barton, Pipsissewa, Prince's-pine, Umbellate-wintergreen (TRP)

☐ *Epigaea repens* L., Mayflower, Ground-laurel, Trailing Arbutus (Carderock; GAP, extinct)
☐ *Gaylussacia baccata* (Wang.) K. Koch, Black Huckleberry (BI)
☐ *Kalmia latifolia* L., Calico-bush, Ivy-laurel, Mountain-laurel (BI, TRP)
☐ *Leucothoe racemosa* (L.) Gray, Swamp Leucothoe, Fetterbush (BI, in vernal pond area)
☐ *Oxydendron arboreum* (L.) DC; Sourwood, Sorrel-tree (Building D, north side, 2 trees)
☐ & ☹ *Rhododendron* "Azaleas" (WDCA, many cvs., thousands of plants in parks, yards, etc.)
☐ *Rhododendron periclymenoides* (Michaux) Shinners, *R. nudiflorum* (L.) Torrey, Pink Azalea, Pink-honeysuckle, Pinxter-flower (GAP, TRP)
☐ *Kalmia latifolia* L., Calico-bush, Ivy-laurel, Mountain-laurel (BI, TRP)
☐ *Vaccinium pallidum* Aiton, *V. vacillans*, Mountain Blueberry, Upland Blueberry (BI)
☐ *Vaccinium stamineum* L., Deerberry, Buckberry, Squaw-huckleberry (BI)

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Fabaceae, Bean Family, Pea Family (Fruits are legumes = botanical pods.)
☐ ☹ *Albizia julibrissin* Durazzini, Silk-tree, "Mimosa" (WDCA)
☐ *Cercis canadensis* L., Eastern Redbud, Judas-tree (BI, DMWP, GAP, GU, TRP)
☐ *Cercis canadensis* 'Forest Pansy', Forest Pansy Redbud (GU, on north side of Kober-Kogan Hall)
☐ ☹ *Cladrastis kentukea* (Dum.-Cours.) Rudd., *Cladrastis lutea*, Yellowwood (Alden et al. 2008, 519) (GU, north side of Lauinger, 2 large trees)
☐ ☹ *Gymnocladus* (Earth, 3 spp., North America, 1 sp.) [Greek, *Gymnocladus*, naked branch]
☐ ☹ *Gymnocladus dioica* (L.) K. Koch, Kentucky Coffeetree (GU)
☐ ☹ *Pueraria lobata* (Willd.) Ohwi, Kudzu, Kudzu-vine (near Glen Echo, MD; GU)
☐ ☹ *Robinia pseudoacacia* Linnaeus, 1753; Black Locust (BI, GAP, GU)
☐ *Trifolium* (Clovers) (WDCA, 12 spp., including 10 introduced spp.)
☐ ☹ *Trifolium pratense* L., Red Clover (GU)
☐ ☹ *Trifolium repens* L., White Clover (GU, TRP)
☐ ☹ *Trigonella foenum-graecum* L., Fenugreek, *Bockshornklee* (German), Bockhornsklöver (Swedish) *Methi* (Hindi, Nepali, Urdu) (drug, herb, maple flavoring, spice)
☐ ☹ *Wisteria floribunda*, Japanese Wisteria
☐ ☹ *Wisteria sinensis* (Sims) DC, Chinese Wisteria (GFP; TRP, this species?)
☐ *Vicia* sp. (vetch) (BI)

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Fagaceae, Beech Family (Fruit are nuts.)
Castanea (MD, 2 native sp., 2 exotic spp.), *Fagus* (MD, 1 sp.), *Quercus* (MD, 22 spp.; (BB 1984, 66)
☐ *Castanea dentata* (Marshall) Bborkh; American Chestnut, Chestnut (GFP)
☐ ☹ *Castanea mollissimia* Blume, Chinese Chestnut (WDCA)
☐ ☹ *Castanea pumila* (L.) Mill., Chinquapin
☐ *Fagus grandifolia* Ehrh., American Beech (BI, GAP, GU, TRP)
☐ ☹ *Fagus sylvatica* Purpurea Group; Copper Beech, Purple Beech (WDCA, gardens)
☐ *Quercus*, Oaks. WDCA, 22 spp., including 1+ introduced sp. Most spp. are large trees.)
Red Oak Group (Black Oak Group)
☐ *Quercus palustris* Muenchh., Pin Oak (GFP, GU)
☐ *Quercus phellos* Linnaeus, Willow Oak (GFP, GU)
☐ *Quercus rubra* L.; Northern Red Oak, Champion Oak, *Quercus borealis* (GFP, GU, TRP)
White Oak Group
☐ *Quercus*, Oaks. WDCA, 22 spp., including 1+ introduced sp. Most spp. are large trees.)
☐ *Quercus alba* L., 1753, White Oak (GAP, GFP, GU, TRP)
☐ *Quercus falcata* Michaux; Southern Red Oak, Spanish Oak (GFP)
☐ *Quercus macrocarpa* Michaux, Bur Oak, Burr Oak
☐ *Quercus montana* (Linnaeus),*Quercus prinus*, Chestnut Oak (TRP, one large tree by Ziz-zag Path)
☐ *Quercus muehlenbergii* Engelmann, Chinkapin Oak, Chinquapin Oak

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Fumariaceae, Fumitory Family (See Paveraceae which now includes Fumariaceae.)

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Gelsemiaceae
☐ ☹ *Gelsemium sempervirens* (L.) Saint-Hilaire, *Gelsemium sempervirens* (L.) Aiton, Yellow Jessamine

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Geraniaceae, Crane's-bill Family, Geranium Family
Erodium (MD, 1 sp.), *Geranium* (MD, 8 spp.)
☐ & ☹ *Geranium*, Geraniums
☐ *Geranium maculatum* L., Crane's-bill, Wild Geranium, Wood Geranium (BI, TRP)

☐ ☹ *Pelargonium* cvs. and spp., Geraniums, Pelargoniums (WDCA, gardens)

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Grossulariaceae, Gooseberry Family
☐ *Ribes* sp.

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Hamamelidaceae, Witch-hazel Family (Fruits are capsules.)
☐ ☹ *Corylopsis spicata* Siebold & Zucc., Winter-hazel (GU)
☐ ☹ *Fothergilla gardenii*, Dwarf Fothergilla, Dwarf Witchalder (GU)
☐ ☹ *Hamamelis mollis*, Chinese Witch-hazel (GU)
☐ *Hamamelis vernalis* Sargent, Ozark Witch-hazel
☐ ☹ *Hamamelis virginiana* Carolus Linnaeus, Café due Diable, Common Witch-hazel, Winter-bloom, Snapping-alder, Witch-hazel (BI, GFP, TRP)
☐ *Liquidambar styraciflua* Carolus Linnaeus, Bilsted, Sweetgum (DMWP)
☐ ☹ *Hamamelis ×intermedia* (*H. japonica* × *H. mollis*), Hybrid Witch-hazel (parents native to Asia, many cvs.) (WDCA, gardens)

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Hostaceae, Hosta Family
☐ *Hosta* spp., Hostas (GU, gardens)

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Hydrangeaceae, Hydrangea Family
Deutzia, *Hydrangea*, *Philadelphus*, etc.
☐ *Hydrangea arborescens* L., Wild Hydrangea (TRP)

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Hydrophyllaceae. See Boraginaceae which now contains Hydrophyllaceae.

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Iridaceae, Iris Family
☐ ☹ *Crocus* spp. (Crocus)
☐ ☹ *Iris domestica*, Blackberry-lily; *Belamcanda chinensis* (old name)

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Juglandaceae, Walnut Family (Fruits are nuts.)
Carya, Hickories (MD, 6 spp.), *Juglans*, Walnuts (MD, 2 spp.)
☐ *Carya cordiformis* (Wang.) K. Koch., (Bitternut Hickory, Swamp Hickory (BI, TRP)
☐ *Carya tomentosa* Nuttall, Mockernut, White-heart Hickory (BI)
☐ *Juglans* (WDCA, 2 native spp.)
☐ *Juglans cinerea* L., Butternut, White Walnut (TRP, planted tree by headquarters)
☐ *Juglans nigra* Linnaeus, Black Walnut (BI, GAP)

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Lamiaceae, Mint Family, Menthaceae
☐ *Collinsonia canadensis* L., Richweed
☐ *Cunila origanoides* (L.) Britton, Common Dittany
☐ ☹ *Glechoma hederacea* L., Alehoof, Catsfoot, Creeping-Charlie, Creeping-Charley, Creeping-Jenny, Field Balm, Gill-over-the-ground, Ground-ivy, *Lierre Terrestre*, *Nepeta hederacea* Trevisan, *Nepeta glechoma* Benth., Run-away-robin, Tunhoof (BI, GAP, TRP)
☐ ☹ *Lamium* (WDCA, 3 introduced spp.)
☐ ☹ *Lamium amplexicaule* L., Henbit (GU)
☐ ☹ *Lamium maculatum* L., Spotted Dead-nettle (GU)
☐ ☹ *Lamium purpureum* L., Purple Dead-nettle, Red Dead-nettle
☐ & ☹ *Mentha*, Mints (WDCA, 5 spp., including 3 introduced spp., plus 4 hybrids)
☐ ☹ *Mentha spicata* L., Spearmint (sessile leaves) (WDCA, gardens)
☐ ☹ *Mentha ×piperita* L. (Mentha aquatica x *Mentha spicata*), *Menthe poivrée*, Peppermint (leaves with short petioles)
☐ *Monarda* (Beebalms) (WDCA, 5 native spp.)
☐ ☹ *Ocimum basilicum* L., Basil (WDCA, gardens)
☐ *Perilla frutescens* (L.) Britton, Beefsteak-plant, Beefsteak-mint (TRP)
☐ ☹ *Solenostemon scutellarioides* (Linnaeus), Coleus (many cvs.) (WDCA, gardens)

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Lauraceae, Laurel Family
☐ ☹ *Cinnamomum camphora* L. Sieb., Camphor-laurel, Camphor-tree, Camphorwood
☐ ☹ *Cinnamomum verum* J. Presyl., Ceylon Cinnamon, Sri Lanka Cinnamon, True Cinnamon
☐ ☹ *Laurus nobilis* L., Baytree, Grecian Laurel, Laurel, Sweet Bay, True Laurel
☐ *Lindera* (MD, 1 native sp.)
☐ *Lindera benzoin* (L.) Blume; Northern Spicebush, Spicebush (DMWP, GAP, TRP)
☐ ☹ *Persea americana* Mill., Avocado
☐ *Sassafras* (MD, 1 native sp.)
☐ *Sassafras albidum* (Thomas Nuttall) Christian Gottfried Nees von Esenbeck, Red Sassafras, Sassafras, Silky Sassafras, White Sassafras (WDCA)

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Liliaceae, Lily Family (Fruits are capsules. Many former members of Liliaceae are now in Agavaceae, Amaryllidaceae, Asparagaceae, Colchicaceae, Hostaceae, Hyacinthaceae, Melanthiaceae, Nartheciaceae, Ruscaceae, Tofieldiaceae, and Xanthorrhoeaceae.)

☐ *Erythronium albidum* L., White Fawnlily, White Troutlily (TRP, rare)
☐ *Erythronium americanum* Ker-Gawl., Troutlily, Yellow Dogtooth-violet, Yellow Troutlily (TRP)
☐ ☹ *Lilium longiflorum* Thunberg, Easter Lily
☐ ☹ *Tulipa* cv., tulip (no particular cv.)

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Linanthaceae (False Mermaid Family)
☐ *Floerkea proserpinacoides* Willd., False-mermaid (winter annual) (BI, TRP)

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Linnaeaceae, Linnaea Family (Was part of Caprifoliaceae)
☐ ☹ *Abelia* R. Br. (Earth, 15–30 spp., many hybrids and cvs.) (WDCA, gardens)
☐ ☹ *Abelia* ×*grandiflora* (André) Rehd, Glossy Abelia (WDCA, gardens; GU)
☐ ☹ *Kolkwitzia*
☐ *Linnaea*
☐ ☹ *Weigela*

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Loganiaceae, Logania Family (Strychnine Family) (Fruit are capsules.)
☐ ☹ *Buddleja* See Scrophulariaceae
☐ *Spigelia marilandica* (L.) L., Indian-pink, Woodland Pinkroot

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Lythraceae, Lythrum Family
☐ ☹ *Lagerstroemia* cv., crape-myrtle (no particular cv.) (WDCA, gardens)

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Malvaceae, Mallow Family (now includes Tiliaceae)
☐ *Tilia americana* L., American Linden, Basswood, *Tilia heterophylla* Vent., *Tilia neglecta* Spach (TRP)
☐ ☹ *Tilia cordata* Mill., Little-leaf Linden
☐ ☹ *Tilia tomentosa* Moench, Silver Linden

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Magnoliaceae, Magnolia Family
☐ *Liriodendron* (MD, 1 sp.), *Magnolia* (WDCA, 3 native spp.)
☐ ☹ *Magnolia grandiflora* L., Southern Magnolia — Ya'll
☐ ☹ *Magnolia* 'Judy'; Judy Magnolia (a hybrid of hybrids of 2 spp., sterile triploid)
☐ ☹ *Magnolia stellata* (Siebold & Zucc.) Maxim., Star Magnolia (Asia)
☐ *Magnolia virginiana* L., Small Magnolia, Swamp-bay, Swamp Magnolia, Sweet-bay Magnolia
☐ ☹ *Magnolia* ×*soulangiana* (Étienne Soulange-Bodin, 1820), Saucer Magnolia (many cvs., a hybrid of 2 Asian spp.)

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Melanthiaceae (not to be confused with Melianthaceae) *Amianthium*, *Helonias*, *Trillium*, *Veratrum*, *Zigadenus*, etc.
☐ *Trillium sessile* Linnaeus, Toadshade, Toad Trillium, maroon and yellowish (BI, TRP)

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Montiaceae, Miner's-lettuce Family
☐ *Phemeranthus* (was *Claytonia* and *Talinium*) (Fruit are capsules.)
☐ *Phemeranthus virginica, Claytonia virginica* L.; Spring-beauty, Virginia Spring-beauty (BI, GAP, TRP)

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Moraceae, Fig Family
☐ ☹ *Broussonetia papyrifera* (L.) L'Her. ex Vent., Paper-mulberry (GU)
☐ ☹ *Maclura pomifera* (Rafinesque) Schneider, *Bois D'Arc*, Bodark, Horse-apple, Osage-orange
☐ ☹ *Morus alba* L., White Mulberry
☐ *Morus rubra* L., Red Mulberry

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Muscaceae, Banana Family
☐ *Musa* sp., Banana, Mellow-yellow (Donovan's song)

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Myricaceae, Myrtle Family
☐ *Morella* (formerly *Myrica*)

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Nartheciaceae
☐ *Aletris*

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Nymphaeaceae, Waterlily Family
☐ *Nymphaea* cv., Waterlily
☐ *Nuphar lutea* (L.), Spatterdock (BI, DMWP, GFP)
☐ *Nymphaea odorata* Aiton, Fragrant Waterlily

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Nyssaceae, Sourgum Family, Tupelo Family
☐ *Nyssa sylvatica* Marshall, Beetlebung (on Martha's Vineyard), Blackgum, Pepperidge, Sourgum, Tupleo (BI, GU, GFP) (sometimes placed in Cornaceae)

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Oleaceae, Olive Family
☐ *Chionanthus virginicus* L., Fringe-tree, Old-man's-beard (GFP)
☐ ☹ *Forsythia suspensa* (Thunberg) Vahl., Forsythia (WDCA, gardens)
☐ ☹ *Jasminum nudiflorum* Lindl., Winter Jasmine (WDCA, gardens)
☐ *Fraxinus* (WDCA, 6 native spp.)
☐ *Fraxinus americana* Carolus Linnaeus, White Ash (GAP, TRP)

☐ *Fraxinus pennsylvanica* Marsh., Green Ash, Red Ash (TRP)
☐ ☹ *Syringa* (Earth, 20 spp., many cvs., some being hybrids of 2 *Syringa* spp.)
☐ ☹ *Syringa vulgaris* L., Lilac

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Orchidaceae, Orchid Family
(MD: 44 spp., BB 1984, 367; GFP, 12 spp.)
☐ *Aplectrum hyemale* (Muhlenberg) Torrey, Adam-and-Eve Orchid, Puttyroot (GFP)
☐ ☹ *Epipactis helleborine* (L.) Crantz, Broadleaf Helleborine Orchid, Helleborine Orchid (DMWP)
☐ *Spiranthes cernua* (Linnaeus) Richard, Nodding Ladies'-tresses Orchid
☐ *Spiranthes gracilis* (Bigelow) Beck von Mannagetta, Slender Lady's-tresses
☐ *Tipularia discolor* (Pursh) Nuttall, Cranefly Orchid (DMWP, GFP)

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Orobanchaceae, Broomrape Family
Agalinis, *Aureolaria*, *Buchnera*, *Conopholis*, *Castilleja*, *Epifagus*, *Melampyrum*, *Pedunculari*s, *Orobanche*
☐ *Conopholis americana* (L.) Wallr., Cancerroot, Squaw-root (root parasite, especially on *Quercus* spp.) (BI, COCNHP, TRP)
☐ *Epifagus virginiana* (L.) Bartram, Beechdrops (BI, GAP, TRP)
☐ *Orobanche uniflora* L., One-flowered Broomrape, One-flowered Cancerroot (GFP, TRP)

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Oxalidaceae, Wood Sorrel Family
☐ *Oxalis* (MD, 8 spp.)
☐ *Oxalis europaea* Jordan, European Yellow Wood Sorrel
☐ *Oxalis grandis* Small, Great Yellow Wood Sorrel
☐ *Oxalis stricta* L., Upright Wood Sorrel (BI, GAP)
☐ *Oxalis violacea* L., Violet Wood Sorrel (BI, TRP)

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Papaveraceae, Poppy Family (now includes Fumariaceae)
☐ ☹ *Chelidonium majus* Linnaeus, Greater-celandine, *Herbe aux Verrues* (Quebec)
☐ *Corydalis flavula* (Rafinesque-Smaltz) de Candolle, Yellow Corydalis (TRP)
☐ *Dicentra canadensis* (Goldie) Walp., Squirrel-corn
☐ *Dicentra cucullaria* (L.) Bernhardi, Dutchman's-breeches (TRP)
☐ ☹ *Eschscholzia californica* Adelbert von Chamisso, California Poppy (WDCA, gardens)
☐ *Sanguinaria canadense* Linnaeus, Bloodroot, Red-puccoon (GAP, missing?; TRP)
☐ *Sanguinaria canadense* 'Flore Pleno' (in gardens)
☐ *Stylophorum diphyllum* (Michaux) Nuttall, Celandine - poppy, Mock-poppy, Wood-poppy (possibly an introduced sp. in North America)

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Parasitic plants
There are about 8 spp. of parasitic plants in the WDCA. They are in the genera *Cuscuta*, *Conophilis*, *Epifagus*, and *Orobanche*.

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Parnassiaceae, Grass-of-Parnassus Family
☐ *Parnassia*

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Paulowniaceae, Princess-tree Family)
☐ ☹ *Paulownia tomentosa* (Thunberg) Siebold & Zucc. ex Steud., Empress-tree, Foxglove-tree; Imperial-tree, Kiri (Japanese), Pao Tong (Chinese), Princess-tree (also placed in Scrophulariaceae) (GU, along the border of GAP)

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Phrymaceae, Lopseed Family, Gauklerblumengewächse
Mazus, *Micranthemum*, *Phyrma*

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Phytolacceae, Pokeweed Family
☐ *Phytolacca americana* L., American Pokeweed, Pokeweed

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Plantaginaceae, Plantain Family
Antirrhinum, Bacopa, Chelone, Collinsia, Cymbalaria, Gratioa, Kickxia, Limonsella, Linaria, Lindernia, Mecardonia, Misopates, Natallanthus, Penstemon, Plantago, Veronica, *Veronicastrum*
☐ *Chelone glabra* L., White Turtlehead (Alden et al. 2008, 177).
☐ *Chelone obliqua* L., Purple Turtlehead, Red Turtlehead
☐ ☹ *Plantago lanceolata* L., English Plantain
☐ *Plantago rugelii* Decaisne, Common Plantain
☐ & ☹ *Veronica* (WDCA, 5 native spp.; 10 introduced spp.; GFP, 8 spp.)
☐ ☹ *Veronica hederifolia* L., Ivy-leafed Speedwell (GAP, GFP, TRP)
☐ ☹ *Veronica officinalis* L., Common Speedwell (GFP)
☐ ☹ *Veronica persica* Poir, Bird's-eye, Robin's-eye (GFP, GU)

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Platanaceae, Planetree Family
☐ *Platanus occidentalis* L., American Sycamore, Eastern Sycamore, Sycamore (BI, GAP, TRP)
☐ ☹ *Platanus ×acerifolia* (Aiton) Willd., London Plane-tree (possible hybrid of a NA and an Asian sp.) (GU)

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Poaceae, Grass Family
GFP
(North America, 100s of spp.; MD, 10s of spp.; BB 1984, 65; GFP, 93 spp.)
☐ *Anthoxanthum odoratum* L., Sweet Vernal Grass (BI, GFP)
☐ ☹ *Avena sativa* L., Oats
☐ *Deschampsia flexuosa* (L.) Trin., Crinkled Hair Grass (BI, GFP)
☐ *Dichanthelium boscii* (Poir.) Gould & C.A. Clark, Bosc's panicgrass (BI, GFP)
☐ ☹ *Hordeum vulgare* L., Barley
☐ ☹ *Microstegium vimineum* (Trin.) Camus, Japanese Stilt Grass, Asian Stilt grass, Vietnamese Stilt grass, Nepal Microstegium, Chinese Packing Grass (DMWP, GAP, GFP, TRP; a major invasive plant)
☐ ☹ *Miscanthus sinensis* Andersson, Chinese Silver Grass, Eulalia (Grass), Japanese Silver Grass, Maiden Grass, Porcupine Grass, Silver Feather, Zebra Grass (GFP, GU)
☐ *Muhlenbergia schreberi* Gmel., Nimbelwill (BI, GFP)
☐ *Muhlenbergia sobolifera* (Muhl.) Trin., Branched Muhly Grass (BI, GFP)
☐ ☹ *Phleum pratense*, Timothy Grass
☐ & ☹ *Poa* L., Blue Grass, Meadow Grass, Spear Grass (WDCA, 7 native spp., 5 alien spp.; MD, 11 spp., BB 1984, 163)
☐ ☹ *Poa annua* L., Annual Blue Grass, Spear Grass (BI, GFP)
☐ *Poa cuspidata* Nuttall, Short-leaved Blue Grass (BI, GFP)
☐ ☹ *Poa pratensis* L., June Grass, Kentucky Blue Grass, Spear Grass (GFP)
☐ *Poa sylvestris* Gray, Sylvan Blue Grass (BI, GFP)
☐ ☹ *Secale cereale* L., Rye
☐ *Uniola latifolia* Michaux, *Chasmanthium latifolium*, Wild-oats (GFP)
☐ *Uniola paniculata* L., *Chasmanthium paniculatum*, Sea-oats
☐ ☹ X*Triticum aestivum* L., Wheat (a trigeneric cross, yummy)
☐ ☹ *Zea mays* L., Corn, Indian Corn, Maize
☐ *Zizania aquatica* L., Wild-rice (DMWP)

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Polemoniaceae, Phlox Family
☐ *Phlox divaricata* L., Blue Phlox, Woodland Phlox (GAP, TRP)
☐ *Phlox paniculata* L., Fall Phlox
☐ *Phlox stolonifera* Sims, Creeping Phlox
☐ *Phlox subulata* L., Mosspink (BI)
☐ ☹ *Polemonium reptans* L., Greek Valerian

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Polygonaceae, Knotweed Family, Smartweed Family
Fagopyrum, *Polygonum* (includes *Tovara*), *Rheum*, *Rumex*
☐ & ☹ *Polygonum*, Knotweeds (= Smartweeds, *Renouée* (in Quebec) (WDCA, 29 spp., including 10 introduced spp.) [Greek *poly*, many; *gonu*, knee, joint referring to the thickened joints of the stem]
☐ ☹ *Polygonum aviculare* L., Common Knotweed, Knotweed, Birdgrass, Doorweed, Knotgrass, Waygrass, many synonymous scientific names (GFP, WDCA, in lawns)
☐ ☹ *Polygonum cespitosum* Blume, *nomen inquirendum* (name under inquiry) (USDA, 2013)
☐ ☹ *Polygonum cespitosum* Blume *var. longisetum* (Bruijn) A. Steward., Asiatic Waterpepper, Bristled Knotweed, Oriental Lady's-thumb (DMWP, GAP, GFP) [Latin *caespitosum*, tufted]
☐ & ☹ *Persicaria* (patterned leaves, etc.)
☐ ☹ *Persicaria perfoliata* (L.) H. Gross, Mile-a-minute, *Polygonum perfoliatum* L., Perfoliate Tearthumb (GAP, GFP, WDCA, spreading rapidly, a bad invasive)
☐ *Persicaria sagittata* (L.) Gross, *Polygonum sagittatum* L., Arrowleaf Tearthumb
☐ *Persicaria virginiana* (L.) Gaertn., *Polygonum virginianum*, *Tovara virginiana* (L.) Rafinesque-Smaltz, Jumpseed, Virginia Knotweed, and other scientific names (TRP)
☐ ☹ *Reyoutria japonica* Houtt., *Polygonum cuspidatum* Philipp Franz von Siebold and Joseph Gerhard Zuccarini, Japanese Knotweed (GU)
☐ ☹ *Rheum rhabarbarum* L., *Rheum raponticum* L. (misapplied name), Rhubarb
☐ ☹ *Rumex acetosella* L., Sheep-sorrel
☐ ☹ *Rumex crispus* Linnaeus, Curly Dock, Yellow Dock

Sanchez, A., T. M. Schuster, J. M. Burke, and K A. Kron. 2011. Taxonomy of Polygonoideae (Polygonaceae): A new tribal classification. Taxon 60: 151–160. (Many *Polygonum* are now in *Persicaria*.)

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Portulacaceae, Portulaca Family. See Montiaceae.
☐ ☹ *Portulaca grandiflora* Hook., Moss-rose, Moss-rose Purslane

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Primulaceae, Primrose Family

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Pyrolaceae, Pyrola Family. See Ericaceae.

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Ranunculaceae, Buttercup Family, Crowfoot Family
Aconitum, Actaea, Anemone, Anemonella, Aquilegia, Caltha, Cimicifuga, Clematis, Coptis, Delphinium, Eranthus, Helleborus, Hepatica, Hydrastis, Ranunculus, Thalictrum, *Trautvetteria*.

☐ *Anemone*

☐ *Anemone quinquefolia* L., Wood Anemone

☐ *Anemone virginiana* L., Thimbleweed

☐ *Anemonella thalictroides* (L.) Spach, Rue Anemone. See *Thalictrum thalictroides*.

☐ *Aquilegia canadensis* L., Canada Columbine, Canadian Columbine, Eastern Columbine, Eastern Red Columbine, Wild Columbine

☐ *Cimicifuga racemosa* (L.) Nuttall, Black Snakeroot

☐ *Clematis virginiana* L., Virgin's-bower

☐ *Hepatica nobilis var. acuta*, *Hepatica acutiloba*, *Anemone acutiloba*, Sharp-lobed Hepatica

☐ *Hepatica nobilis var. obtusa*, *Hepatica americana* (de Candolle) Ker, *Anemone americana*, Round-lobed Hepatica (BI)

☐ & ☹ *Ranunculus* (WDCA 19 spp., including 7 alien, naturalized spp.)
[Latin, *Ranunculus*, little frog; Pliny applied this name to plants in this genus, after aquatic species that grow where frogs abound]

☐ *Ranunculus abortivus* L., Aborted Buttercup, Kidney-leaved Buttercup, Kidney-leaved Crowfoot, Small-flowered Crowfoot (PI, TRP)

☐ ☹ *Ranunculus bulbosus* L., Bulbous Buttercup, Bulbous Crowfoot

☐ ☹ *Ranunculus ficaria* L., Fig Buttercup, Lesser-celandine, Pilewort, *Ficaire* (Quebec), *Scharbockskraut* (Germany) (GAP, GU, TRP; major invasive, watch out!)
[Latin *ficaria*, old generic name, from Ficus, the genus of figs, after the tuberous roots, of this species that resemble those of Figworts]

☐ *Ranunculus hispidus Michaux var. nitidus* (Chapman) T. Ducan, *Ranunculus septentrionalis*, Hispid Buttercup, Swamp Buttercup (TRP)

☐ *Ranunculus recurvatus* Poiret, Hooked Crowfoot (TRP)

☐ *Thalictrum coriaceum* (Britton) Small, Thick-leaved Meadow-rue, Maid-of-the-mist (includes *Thalictrum steeleanum* Boivin, Steele's Meadow-rue)

☐ *Thalictrum dioicum* L., Early Meadow-rue, Quicksilver-weed

☐ *Thalictrum polygamum* Muhlenberg, Tall Meadow-rue, *Thalictrum pubescens*

☐ *Thalictrum thalictroides* (L.) Eames & B. Boivin, *Anemonella thalictroides*, Rue Anemone (TRP)

Rosaceae, Rose Family, Rosengewächse
(World, 1000s of spp.; WDCA, 72 native spp., 3 native hybrids, 46 exotic spp.)
Agrimonia, Alchemilla, Amelanchier, Aruncus, Crataegus, Dalibarda, Filipendula, Fragaria, Geum, Physocarpus, Porteranthus, Potentilla, Prunus, Pyrus, Rosa, Rubus, Sanguisorba, Sorbis, Spiraea, *Waldsteinia*

☐ *Amelanchier* Medic. (North America, 16 spp.; MD, c. 8 spp.; BI, c. 5 spp.)
(In Eastern North American *Amelanchier* is an agamic complex in which the combination of apomixis, polyploidy, and hybridization creates complex patterns of diversification (Campbell and Wright 1996).)

☐ *Amelanchier*, Serviceberries (WDCA, 6 native spp., 1 native hybrid)

☐ *Amelanchier arborea* (F. Michaux) Fernald, Common Serviceberry, Downy Serviceberry, Shadbush

☐ *Amelanchier laevis* Wiegand, Juneberry, Smooth Serviceberry (COCNHP)

☐ *Amelanchier nantucketensis* E. P. Bicknell (GFP)

☐ *Amelanchier sanginea* (Pursh) DC, Roundleaf Serviceberry (GFP)

☐ *Amelanchier sera* Ashe (GFP)

☐ *Aruncus dioicus* (Walt.) Fernald, Goat's-beard (TRP)

Crataegus spp., hawthorns (WDCA, c. 15 spp.; GFP, 3 spp.)

Crataegus uniflora Mueuchhausen, One-flowered Hawthorn (GFP)

☐ Fragaria virginiana Duchesne, Wild Strawberry, *Fraisier* (Quebec) (GFP)

☐ *Geum* (WDCA, 5 spp.; GFP, 2 spp.)

☐ *Geum canadense* Jacquin, White Avens (GFP)

☐ *Geum vernum* (Raf.) Torr. & A. Gray, Spring Avens (GFP)

☐ *Gillenia trifoliata* (L.) Moench, Bowman's-root

☐ & ☹ Malus, Apples (WDCA, 2 native spp., 5 naturalized spp., 1 hybrid, many cvs.)

☐ ☹ *Malus* cv. (Healy Hall, east side, about 5 large trees, red-pink flowers)

☐ ☹ *Malus ×pumila* P. Mill., *Malus sylvestris*, *Pyrus malus*, Apple, Domestic Apple

☐ *Malus ×pumila* P. Mill., Domestic Apple

☐ *Physocarpus opulifolius* (L.) Maximillian, Ninebark (GFP)

☐ *Potentilla* (WDCA, 4 native spp. (including *P. norvegica*), 4 introduced spp.; GFP, 4 spp.)

☐ *Potentilla canadensis* L., Canada Cinquefoil (BI)

☐ ☹ *Potentilla* norvegica L., Rough Cinquefoil (introduced and native strains)
☐ ☹ *Potentilla recta* L., Upright Cinquefoil
☐ & ☹ *Prunus*, Apricots, Cherries, Peaches, Plums, Sloe, etc. (Earth, 420 spp.; Texas, 24 spp, plus some subspp.; WDCA, 11 native spp., 8 introduced spp.; GFP, 6 spp.) (Earth, 430 spp.; Texas, 24 spp. plus some subspp, LBJWFC; WDCA, 19 native spp., 8 alien spp.)
☐ ☹ *Prunus alleghaniensis* Porter, Allegheny Plum (MD, endangered)
☐ *Prunus americana* Marsh, American Wild Plum (GAP)
☐ ☹ *Prunus avium* (L.) L.; Sweet Cherry (BI, possibly historical)
☐ ☹ *Prunus cerasus* L., Pie Cherry, Sour Cherry
☐ ☹ *Prunus laurocerasus* Carolus Linnaeus, Laurel Cherry
☐ ☹ *Prunus lusitanica* Linnaeus, 1753; Portuguese Laurel Cherry
☐ ☹ *Prunus persica* (L.) Batsch, Peach
☐ *Prunus melanocarpa* (Michaux) Willdenow, Black Chokeberry, *Aronia melanocarpa*
☐ ☹ *Prunus pendula* Maximowicz, Weeping Spring Cherry (Asia)
☐ *Prunus serotina* Ehrhart, 1788; Black Cherry, Wild Black Cherry, Wild Cherry (GU, Reiss, east side, large tree, died in about 2000)
☐ ☹ *Prunus serrulata* John Lindley 'Kwanzan', Kwanzan Cherry
☐ ☹ *Prunus* ×*incamp* 'Okame' (*Prunus incisa* × *P. campanula*), Okame Cherry, Okame Plum (GU)
☐ ☹ *Prunus subhirtella* Friedrich Anton Wilhelm Miquel 'Autumnalis', Autumn-flowering Cherry (Asia)
☐ *Prunus virginiana* L., Choke Cherry
☐ ☹ *Prunus* ×*subhirtella* Miquel, Higan Cherry (*Prunus incisa* × *Prunus pendula*)
☐ ☹ *Prunus* ×*yedoensis* Matsum., Yoshino Cherry
☐ ☹ *Pyrus*, Pears (Earth 27 spp., WDCA, 2 spp.)
☐ ☹ *Pyrus calleryana* Decne., Bradford Pear
☐ *Pyrus americana* Marshall, American Mountain-ash
☐ ☹ *Pyrus communis* L., Common Pear, Pear
☐ & ☹ *Rosa*, Roses (Earth, 100+ spp.; WDCA, 4 native species; 8 exotic spp.)
☐ & ☹ *Rosa* cvs.
☐ ☹ *Rosa multiflora* Carl Pehr Thunberg ex Murray, Multiflora Rose (COCNHP, GAP, GFP)
☐ & ☹ *Rubus*, Brambles, Briars (including Blackberries, Dewberries, and Raspberries) (Earth, scores of spp.; WDCA, 9 native spp., 5 naturalized, exotic spp.; GFP, 8 spp.)
☐ *Rubus allegheniensis* Porter, Allegheny Blackberry
☐ *Rubus baileyanus* Britton, Dewberry
☐ *Rubus flagellaris* Willd., Northern Dewberry (GFP)
☐ *Rubus hispidus* L., Groundberry
☐ ☹ *Rubus idaeus* L., Red Raspberry
☐ *Rubus occidentalis* L., Black Raspberry (GFP)
☐ ☹ *Rubus phoenicolasius* Carl Johann Maximowicz, Wineberry (BI, GAP, TRP)
☐ ☹ *Sanguisorba canadensis* L., American Burnet, Burnet, Canadian Burnet
☐ ☹ *Spiraea* (WDCA: 3 native spp., 2 introduced spp.)

_____
Rubiaceae, Bedstraw Family, Madder Family
(MD: 21 spp.; Asperula (2 spp.), Cephalanthus (1), Diodia (1), Galium (14), Houstonia (4), Oldenlandia (1), Mitchella (1), Sherardia (1))
☐ *Cephalanthus occidentalis* L., Buttonbush
☐ *Galium aparine* L., Goosegrass, Cleavers
☐ *Galium circaezans* Michaux, Wild Licorice
☐ *Galium tinctorium*, Clayton's Bedstraw
☐ *Houstonia caerulea* L., Bluets, Quaker-ladies (GFP)
☐ *Houstonia longifolia* Gaertner, Long-leaved Summer Bluets (GFP)
☐ *Houstonia tenuifolia* Nuttall, Slender-leaved Summer Bluets
☐ *Mitchella repens* L., Partridgeberry (GFP)

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Ruscaceae, Ruscus Family

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Rutaceae, Rue Family
☐ ☹ *Poncirus trifoliata* (L.) Raf., Hardy-orange, Trifoliate-orange (WDCA, gardens; GU)
☐ *Ptelea trifoliata* L., Common Hop-tree (BI, COCNHP, GFP)

_____
Salicaceae, Willow Family
☐ *Populus* (GFP, 2 spp.)
☐ *Populus deltoides* Bartram ex Marshall, Eastern Cottonwood (BI, DMWP, GAP)
☐ *Salix* (GFP, 3 spp., 1 hybrid)
☐ *Salix nigra* Marshall, Black Willow (BI)

_____
Santalaceae (Sandalwood Family):
☐ *Comandra umbellata* (L.) Nuttall, Bastard-toadflax (BI, GFP)

_____
Sapindaceae, Soapberry Family (now includes Aceraceae)

☐ *Acer* (MD, 8 spp.)
☐ *Acer*, Maples (Medical Center Roof Garden, 16 cvs. of Japanese Maples)
☐ ☹ *Acer griseum* L.; Paperbark Maple
☐ *Acer negundo* Linnaeus; Ash-leaf Maple, Boxelder (BI, GAP, GFP, TRP)
☐ *Acer pensylvanicum* L., *Bois Barré* (Quebec), Moosewood, Striped Maple, Whistlewood (GU, Observatory Hill, 1 tree)
☐ ☹ *Acer platanoides* L., Norway Maple (GFP)
☐ *Acer rubrum* Linnaeus, *Plaine Rouge* (Quebec), Red Maple, Scarlet Maple, Soft Maple, Swamp Maple (BI, GFP, TRP)
☐ *Acer saccharinum* Linnaeus, *Plaine Blanche* (Quebec), Silver Maple, River Maple, White Maple (BI, TRP)
☐ *Acer saccharum* Marshall *sensu lato*, including *Acer nigrum*, Sugar Maple (GAP, GFP)
☐ *Acer saccharum* Marshall *sensu lato*, including *Acer nigrum*, (*Érable à Sucre* (Quebec), Rock Maple, Sugar Maple (GAP, GFP)
☐ ☹ *Koelreuteria paniculata* Lxm., Golden Rain Tree (GU, both trees might be gone, 2012)

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Sarraceniaceae (Pitcher-plant Family)

_____
Saxifragaceae, Saxifrage Family. (See Grossulariaceae, Hydrangeaceae, and Parnassiaceae for genera that were in Saxifragaceae.)
Astilbe, Boykinia, Chrysoplenium, Heuchera, Mitella, Parnassia, Penthorum, Saxifraga, *Tiarella*
☐ *Heuchera americana* L., Common Alumroot, Rock-geranium (BI, GFP, TRP)
☐ *Mitella diphylla* L., Bishop's-cap, Miterwort (TRP, southern edge of range)
☐ *Philadelphus* (4 spp. in MD), *Itea* (1), *Ribes* (4), *Saxifraga* (3).
☐ *Saxifraga virginiensis* Michaux, Early Saxifrage (BI, GFP, TRP)

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Scrophulariaceae, Figwort Family (The Angiosperm Phylogeny Group moved many former genera of this family into Orobanchaceae, Phrymaceae, Plantaginaceae, and Paulowniaceae.)
☐ ☹ *Buddleja davidii* Franch., Butterflybush, Orange-eye, Summer-lilac, (sometimes placed in Buddleyaceae or Loganiaceae) (GU)
☐ *Penstemon laevigatus* Aiton, Smooth Beardtongue (GFP)
☐ ☹ *Verbascum blattaria* L., Moth Mullein (GFP)
☐ ☹ *Verbascum thapsus* L., Common Mullein, Great Mullein (BI, GFP, TRP)

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Simaroubaceae (Quassia Family):
☐ ☹ *Ailanthus altissima* (Mill.) Swingle, Tree-of-heaven, Copal-tree (GAP; TRP, probably historical)

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Smilicaceae, Greenbriar Family
☐ *Smilax*, Greenbriars (MD, 10 spp.; GFP, 4 spp.)
☐ *Smilax herbacea* Michaux, Carrion-flower (TRP, rare)
☐ *Smilax rotundifolia* L., Catbrier, Common Greenbrier, Horsebrier, Round-leaf Greenbrier (BI, GAP, GFP, TRP)

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Staphyleaceae (Bladdernut Family)
☐ *Staphylea trifolia* L., Bladdernut (GFP)

_____
Sterculiaceae, Cocoa Family, Chocolate Family
☐ ☹ *Firmiana simplex* (L.) W. F. Wight, Chinese Parasol-tree (WDCA, gardens)

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Thymeliaceae, Mezereum Family
☐ *Dirca palustris* L., Leatherwood (BI)

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Tiliaceae, Linden Family, See Malvaceae.

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Tofieldiaceae
☐ Tofieldia

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Typhaceae, Cat-tail Family (now includes Sparinaceae)
☐ Lemna, Duckweeds
☐ Typha, Cat-tails

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Ulmaceae, Elm Family
☐ *Celtis* (WDCA, 3 spp.; MD, 2 spp.; GFP, 2 spp.)
☐ *Celtis occidentalis* L., Hackberry, Sugarberry
☐ *&* ☹ *Ulmus* (WDCA, 2 native spp., 4 alien spp.; GFP, 3 spp.)
☐ *Ulmus americana* L., American Elm (BI, GAP, GFP, GU, TRP)
☐ ☹ *Ulmus parvifolia* Nicholaus Joseph Jacquin, Chinese Elm, Lace-bark Elm (GFP)
☐ ☹ *Ulmus pumila* L., Dwarf Elm, Siberian Elm (GFP)
☐ ☹ *Ulmus rubra* Muhl., Chinese Elm (GU, Library Road, many small trees)
☐ ☹ *Zelkova serrata* (Thunberg) Makino, Japanese Zelkova, Keyaki (GU)

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Urticaceae, Nettle Family)
Boehmeria, Laportea, Pilea, *Urtica*

☐ *Laportea canadensis* (L.) Weddell, Wood-nettle (GFP, TRP)
☐ *Urtica dioica* L., Stinging Nettle (GFP, TRP)

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Valerianaceae, Valerian Family
☐ *Valeriana pauciflora* Michaux, Large-flowered Valerian (GFP, TRP)
☐ *Valerianella radiata* (L.) Dufresne, Corn-salad (GFP)

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Verbenaceae, Verbena Family
☐ *Callicarpa americana* L., American Beautybush
☐ ☹ *Lantana* cvs. (GU, many cvs. each warm season)

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Violaceae, Violet Family
Hybanthus (MD: 1 sp.), Viola (31)
☐ *Hybanthus concolor* (T. F. Forst.) Spreng., Green-violet (BI)
☐ *Viola* (WDCA, 20 native spp., 4 introduced spp.; GFP, 11 spp.)
☐ *Viola* bicolor Pursh (GFP)
☐ *Viola conspersa* Reichenback, American Dog Violet
☐ *Viola cucullata* Aiton, Marsh Blue Violet (GFP)
☐ *Viola pedata* L., Bird's-foot Violet (GFP)
☐ *Viola pubescens* Aiton, Yellow Violet (includes *V. pensylvanica* Michaux), Downy Yellow Violet, Smooth Yellow Violet, Stemmed Yellow Violet) (BI, COCNHP, GFP)

☐ *Viola rafinesquii* Greene, Wild Pansy
☐ *Viola sororia* Willdenow; *Viola papilionacea* and many other scientific names; Blue Violet, Common Blue Violet, Marsh Violet, Meadow Violet; a species complex (BI, COCNHP, GFP, GU, TRP)
☐ *Viola striata* Aiton, Striped Violet (COCNHP, GFP)
☐ *Viola triloba* Schweinitz, Three-lobed Violet
☐ ☹ *Viola* ×*wittrockiana* (*Viola altaica* × *Viola cornuta* × *Viola lutea* × *Viola tricolor*), Pansy (many cvs.)

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Vitaceae, Grape Family, Vine Family
Ampelopsis (2 spp. in MD), *Parthenocissus* (1), *Vitis* (6)
☐ ☹ *Ampelopsis brevipedunculata* (Carl Johann Maximowicz) Trautvetter, Porcelainberry (GAP)
☐ *Parthenocissus quinquefolia* (Carolus Linnaeus) Jules Émile Planchon, Virginia-creeper (BI, GAP, GFP, TRP)
☐ ☹ *Parthenocissus tricuspidata* (Siebold & Zucc.) Planch., Boston-ivy, Grape-ivy, Japanese-creeper, Japanese-ivy, Woodbine (GU, on the wall before the entrance to the Southwest Quadrangle parking garage)
☐ *Vitis* (WDCA, 7 spp.; MD, 6 spp.; GFP, 5 spp.)
☐ *Vitis aestivalis* Michaux, Summer Grape (GFP)
☐ *Vitis* sp., wild grape (BI, TRP)
☐ *Vitis vulpina* L., Chicken Grape, Winter Grape (GFP)

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Xanthorrhoeaceae, Xanthorrhoea Family
(Order Asparagales, 3 subfamilies, many genera including *Aloe*, *Eremurus*, *Haworthia*, and *Kniphofia*)
☐ ☹ *Hemerocallis*, Daylilies☐ ☹ *Hemerocallis fulva* (L.) L. (COCNHP, GU, TRP)

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Phylum Protista (broad sense = sensu lato)

As a group, Protistans are commensals, food material of other organisms, mutualists, parasites, pathogens, photosynthezers, predators, prey, and scavengers.

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☐ *Acanthamoeba castellanii* (host of *Legionella pneumophila*)
☐ *Dictyostelium discoideum* Raper, 1935 (predator of *E. coli* in leaf litter and soil; host of *Legionella pneumophila*)
☐ *Fuligo septica* (Linnaeus) Wiggers, Scrambled-egg Slime
☐ *Hartmannella vermiformis* (host of *Legionella pneumophila*)
☐ *Ophryocystis elektroscirrha* McLaughlin & Myers, 1970
☐ *Tetrahymena* sp. (host of *Legionella pneumophila*)
☐ *Tetrahymena pyriformis*

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Appendix 1. Abbreviations and Definitions
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BB 1972 = Brown and Brown 1972 (woody plants of MD)
BB 1984 = Brown and Brown 1984 (herbaceous plants of MD)
BI = Bear Island, MD.
BWA = Baltimore-Washington Area.

CBF = Chain Bridge Flats, MD.

DMWP = Dyke Marsh Wildlife Preserve, VA.

fb = full bloom.
FCSP = Florida Caves State Park, Florida.
forb = a nonwoody plant that is not in the families Cyperaceae, Juncaceae, and Poaceae.
FtD = Fort Davis, WDC.

GAP = Glover Archbold Park, WDC.
GEH = Glen Echo Heights, MD.
GFMD = Great Falls Area, MD.
GFP = Great Falls Park, VA.
GFVA = Great Falls Area, VA.
grass = a plant in the Family Cyperaceae, Juncaceae, or Poaceae.

Magnolia x*soulangiana* (Saucer Magnolia). The x joined to *soulangiana* indicates that this plant is a hybrid.
MD = Maryland.

PIA = Plummers Island and adjacent Mainland.
pers. comm. = personal communication.
pers. obs. = personal observation.

sp. = 1 species.
spp. = more than 1 species.

Tree = a woody plant that can grow 15 feet tall or taller.
TRP = Turkey Run Park

VA = Virginia.

WDC = Washington, D.C.
WDCA = Washington, D.C., Area (which includes WDC, Arlington County, Fairfax County, Montgomery County, Prince Georges County, and the City of Alexandria).

Appendix 2. Descriptions of selected species of the Potomac River Valley. The species are in alphabetical order by genus and species. Table 1. Shows some of their taxonomic relationships.

☐ ☹ *Allium vineale* L., Wild-garlic
n. A bulbous, perennial monocot (Amaryllidaceae); native to Europe and North Africa; with a strong garlic odor; narrow leaves; bulblets, white through pink flowers, or both on scapes; and green through brown capsules (Brown and Brown 1984, 333).
syn. Cow-garlic, Field-garlic, Meadow-garlic
Comments: In the WDCA, this naturalized plant grows in fields, gardens, lawns, woodlands (Brown and Brown 1984, 333). This plant often has green leaves during the cold season. Cows that consume this plant produce milk with an unpleasant taste. This plant's bublets thresh out with Wheat grains and reduce Wheat's value. Specific Ecological Roles. Leaves are food of White-tailed Deer. Nectar and pollen are food of some bee and flower-fly species. This is an invasive species in woodlands and other natural areas.

☐ *Carya cordiformis* (Wangenhelm) Karl Koch, Pignut, Bitternut Hickory, *Noyer Dur*, Swamp Hickory
n. A large, long-lived dicot tree (Juglandaceae) with alternate, pinnately compound leaves each with up to 11 leaflets; yellow-brown stem buds; small, greenish flowers; and ellipsoid fruit that is narrowly 6-ridged, up to 2.5 cm long, and extremely bitter and has a thick husk that splits into four valves (Strasbaugh and Core 1978, 290).
Comment: This species grows in rich mesic and xeric woods, on stream banks, and in swamps.
[Greek *Carya*, an ancient name for Walnut; *cordiformis*, heart form, after its fruit shape]

☐ ☹ *Corbicula fluminea* (Muller, 1774), Asian Clam
n. A freshwater clam (Corbiculidae) that is native to Asia and has spread to Europe, North America, and elsewhere as a result of human introduction of this species.
syn. Asian Clam, Asiatic Clam, Golden Clam and Golden Freshwater Clam (Koi-pond-trade name), Good Luck Clam and Properity Clam (Southeast Asia)
Comments: This species is a major, alien, invasive species, and it has done millions of dollars worth of damage to intake pipes used by power, water, and other industries. Many native clams are declining as *C. fluminea* out competes them for food and space. *Corbicula fluminea* requires well-oxygenated waters and prefers fine, clean sand, clay, and coarse sand substrates. This species spreads when it is attached to boats, carried in ballast water and water currents, sold through the aquarium trade, and used as bait (http://www.issg.org/database/species/ecology.asp?si=136&fr=1&sts=).
http://en.wikipedia.org/wiki/Corbicula_fluminea

☐ ☹ *Euonymus fortunei* (Turczaninow) Handel-Mazzetti, Wintercreeper *n.* A woody, evergreen, dicot vine (Celastraceae); native to East Asia (including China, Japan, Korea, and the Philippines); with areal rootlets; opposite, simple leaves; small greenish-yellow flowers; and capsules with seeds in reddish arils (eFloras.com, 2010).
syn. *Euonymus radicans*, Fortune's Spindle, *Fu Fang Teng* (in China), Vining Euonymus, Winterberry-vine, Winter-creeper, and many other names

Comments: This species has a juvenile creeping, climbing, and nonflowering phase and an adult flowering phase (also found in *Helix*). There are several similar species. *Euonymus fortunei* is a major alien, invasive species in the U.S. *Euonymus fortunei* grows in a wide range of habitats from those in deep shade through full sun.
[*fortunei*, after the plant explorer Robert Fortune]

Specific ecological roles. *Euonymus fortunei* is a significant ecological threat to forests where it grows over the ground and up trees. This species invades natural areas in most states in Eastern U.S. It can cover ground where it out-competes native organisms. It also can cover tree trunks and large limbs, making the trees heavier and causes them to fall in storms. The U.S. Fish and Wildlife Service and National Park Service says, "Do not plant this plant" (Swearingen et al. 2010, 121). When I moved into my current home, my yard was greatly invaded by *Euonymus fortunei*. Over the years I removed it from tree trunks, plant beds, and lawn areas. Stems of this vine grew in the furrows of the trunk of my large Sassafras tree, and were very difficult to remove. I cut the vine stems near their bases and let the stems loosen during their death, before I could easily remove them. This tenacious vine can live in lawns as a low plant below lawn-mower blades.

Euonymus fortunei nectar is food of some insect species including bot flies. Leaves and stems are food of some scale-insect species. Seeds are food of *Sciurus carolinensis* (Eastern Gray Squirrel), *Sturnus vulgaris* (European Starlings), and likely other animals in the U.S.

☐ ☹ *Halyomorpha halys* (Stål), Brown Marmorated Stink Bug
n. A stink-bug species (Pentatomidae) that is native to China, Japan, Korea, and Taiwan, is becoming more common in the U.S., is now in 29 U.S. states and causes marked crop damage, and is characterized by a white band on each antenna of an adult (Roylance 2010, 1, 19; Sun 2010, A1, A4).
syn. Stinky Big Sisters (Asian name) and Yellow-brown Stink Bug (Hoebeke and Carter 2003, 225; Sun 2010, A1)
Comments: A far as I can tell on 1 October 2010, researchers have not identified the compounds in defensive odors and attractive pheromones of *Halyomorpha halys*. The compounds trans-2-decenal and trans-2-octenal are known defensive odors from metathoracic glands of some stink-bug species. These glands produce 11 compounds in the stink bug *Cosmopepla bimaculata* (Krall et al. 1999).

General ecological roles. Like other organisms, *Halyomorpha halys* is part of food webs. Eggs are food of a parasitic wasps. Although lab tests show that some North American bird species and a lizard species tend not to eat *Halyomorpha halys*, there may be vertebrates in its native range that readily consume it. Dead *Halyomorpha halys* are likely food of many microorganism species.

Specific ecological roles. Eggs of *Halyomorpha halys* are food of the parasitic scelionid wasp *Trissolcus halyomorphae* Yang, 2009 in China where *Halyomorpha halys* is native (Yang et al. 2009).

Halyomorpha halys consumes about 300 kinds of host plants in its native range (Nielsen and Hamilton 2009, 608). This Bug consumes many plant species including some *Citrus* species and varieties, *Glycine max* (Soybeans), some *Ficus* (fig) species, *Fraxinus americana* (White Ash), Malus xxxx (Domestic Apples), *Paulownia tomentosa* (Princess-tree), *Prunus persicum* (Peaches), Pears, some *Diospyros* (persimmon) species, some *Rubus* spp. (raspberries), *Rosa rugosa* (Japanese Rose), *Solanum lycopersicum* (Tomatoes), *Viburnum prunifolium* (Blackhaw), *Zea mays* (Corn), and some other native plants and ornamental shrubs and trees (Nielsen and Hamilton 2009, 608; Roylance 2010, 1, 19; Sun 2010, A1, A4).

Feeding on Domestic Apples causes dry, tan cavities and dimpling and blemishes on the outside of the Apples. This insect caused up to 100% of fruit loss in some West Virginia orchards in 2010. *Halyomorpha halys* can render fruit unmarketable after they feed on fruit. *Halyomorpha halys* evidently sucks fluid from Corn silks which can stop Corn kernel development. Large overwintering groups are problems for some Humans.

Other information. The life cycle of *Halyomorpha halys* comprises eggs, five larval stages, and adults (Jacobs 2010). People first collected *Halyomorpha halys* in the U.S. in Allentown, Pennsylvania in 1998 (Hoebeke and Carter 2003, 225). The original colonizer(s) of *Halyomorpha halys* was likely a stowaway in a shipping container from Asia. People are expecting a large population size of this species in Allegany and Frederick Counties, Maryland, in 2010. Adults move from cornfields, gardens, and orchards into homes and other buildings where they overwinter. This insect is harmless to Humans. It does not bite or sting, and there are no data that indicate it transmits human disease. These insects smell like old shoes to some people. Humans control these hapless insects by burning them with propane torches, drowning

them in soapy water and flushing the dead insects down toilets, killing them with pesticides, squashing the bugs, and vacuuming them and throwing them in vacuum bags into the trash. If there are no cracks in your home, though which *Halyomorpha halys* can enter, none or very few of them will enter you home. The GU Center for the Environment recommends that to get rid of indoor *Halyomorpha halys* be green — collect them in a bag and throw them outside where they can become part of a food web. Vacuuming them and letting them die in a vacuum bag is slow and cruel punishment, and vacuum bags are pollution in dumps. Killing *Halyomorpha halys* in soapy water or other solutions is cruel as well. Flushing them down a toilet is polluting and certainly a waste of water. Billions of people do not have access to clean drinking water, but we use it for flush toilets in the U.S.
Identification. In Forest Ecology, we don't have the many hours needed to learn bee anatomy and key specimens to species. Therefore, we learn them by gestalt. Bees vary in size, color, hairyness (very hairy through almost glabrous), and shape. All be species have branched hairs which are not found in other kinds of insects.

Hedera helix L., English Ivy *n*. A evergreen, woody, dicot vine (Araliaceae); native to Europe, Northern Africa, and Western Asia; with aerial roots; evergreen, alternate, lobed, simple leaves; small greenish flowers in racemose umbels; and black berries (Swearingen et al. 2010, 106).
Comments: Adult-form leaves are not lobed. *Hedera helix* can grow up to 150 ft long, and a French specimen lived 440 years (Pellett 1978, 209).
[Latin *Hedera*, ancient Latin name for this plant; *helix*, old generic name, meaning twining]

Specific ecological roles. Nectar of this species is food of some species of beneficial pollinating bees, flower-flies, wasps,and other insects. *Hedera helix* is a noxious, invasive weed in parts of the U.S. This species can form mats on forest floors and chokes out 1000s of native species. Further, this vine can cover trunks and branches of trees, making them more likely to rot and making trees heavy and more likely to fall in storms.

Other information. People often confuse *Hedera helix* with *Hedera* hibernica, which has the same specific ecological roles in the WDCA. *Hedera hibernica* leaves have flat trichomes with 6–8 rays, resembling small starfish, and smell of honey when crushed. *Hedera helix* has erect, bristly trichomes with 8–12 rays. Different cultivars of *H. helix* and *H. hibernica* are more invasive than others. Oregon's Department of Agriculture bans the sale of both species in Oregon.

☐ *Juglans nigra* Linnaeus, Black Walnut
n. A large, monoecious, dicot tree (Juglandaceae); native to Canada and the U.S.; with large, alternate, aromatic, pinnnately-compound leaves; small greenish flowers; and large nuts with indehiscent husks.
[Greek *Juglans*, a contraction after the nut of Juniper, King of the Gods, *Jovis glans*; Latin *nigra*, black; walnut < Middle English *walnot* < Old English; black; probably after the outside color of the nut, dark brown color of the wood, dark color of the bark, or a combination of these features.]

Specific ecological roles: Decaying nut husks are food of *Rhagoletis completa* Cresson and *Rhagoletis suavis* (Osten Sacken) (Walnut Husk Flies). Leaves are the food of the 1 leafhopper sp. and at least 20 moth species (Codling Moth, Elm Spanworm, Fall Webworm, Hickory-horned-devil, Hickory Spanworm, Leopard Moth, Luna Moth, Walnut Sphinx Moth, etc.). The Fall Webworm can become common on Black Walnuts and cause much leaf damage. Phloem is food of five aphid species including the Walnut Aphid. The Walnut Aphid and Codling Moth are the serious problems of commercial JN growers. Pollen is a major food of Western Honey Bees in the Contiguous U.S. (Pellett 1978, 426), although this tree species is wind pollinated. Stems are food of White-tailed Deer. Seeds are foods of mice, Rooks (in Europe), and squirrels, including Eastern Gray Squirrels. Eastern Gray Squirrels, Eurasian Red Squirrels, Fox Squirrels, Japanese Squirrels, and Rooks are seed scatter hoarders (SSHs) (Vander Wall 1990, 199). Some of the seeds that they bury grow into new Black Walnut trees. *Juglans nigra* is a shade tree used by Humans. Black Walnuts produce juglone which inhibits growth of sapling Black Walnuts and many other plant species.

☐ *Lindera benzoin* (L.) Blume, Spicebush
n. A small, deciduous, dioecious, much-branched, dicot tree (Lauraceae); native to Canada and the U.S.; with simple, entire, alternate, aromatic leaves; small yellow flowers in February–April; and small green through red, ovoid drupes (Fernald 1950, 678–679; Alden et al. 2008, 127).
syn. Benjamin-bush
Comments: *Lindera benzoin* grows up to about 18 feet tall. This is a wonderful plant for a native-plant garden. This is a small tree in forest edges and within forests.
(GAP, NB, WDCA)

[*Lindera*, after Johann Linder, 1676–1723, early Swedish botanist; *benzoin*, an old name for some member of the Lauraceae]

Specific Ecological Roles. Nectar and pollen are food of some species of bees, flower flies, and other kinds of flies. Leaves and stems are food of the Spicebush Silkmoth (= Promethia Moth), and *Papilio troilus* (Spicebush Swallowtail). Fruit are food of some songbird species.

Human uses. Humans have used this species for medicinal purposes (Foster and Duke 1990, 252). Native Americans made a drupe tea for coughs, cramps, croup, delayed menses, and measles. They made a bark tea for anemia, colds, "purifying blood," rheumatism, and sweating. European Settlers used drupes as an Allspice substitute. They ate drupes to treat colic and flatulence. They applied an oil from drupes to bruises and to muscles and joints (for chronic rheumatism). They used twig tea for colic, colds, fevers, gas, and worms. People once used bark tea to expel worms, treat typhoid and other kinds of fever.

☐ *Phalacrocorax auritus* (Lesson, 1831), Double-crested Cormorant
n. A carnivorous bird (Phalagrocoracidae); native to North America; with adults up to 32 in, 4 lb; all black body feathers, and black head tufts in Eastern U.S. and white tufts in Western U.S. (Alsop 2001, 77)
Comments: Male calls are deep *gutteral grunt*s (Alsop 2001, 77, AEA, 277).

Specific ecological roles. This species primarily consumes fish and also eats amphibians, crustaceans, and insects. This bird usually dives underwater in catching prey. *Phalacrocorax auritus* often feeds as flocks when it is feeding on fish schools. This bird's eggs and chicks are food of *Canis latrans* (Coyotes), *Corvus* spp. (crows), foxes, jays, *Larus* spp. (gulls), *Procyon lotor* (Common Racoons), *Quiscalus* spp. (grackles), and probably other animals. Adult birds are food of *Bubo virginianus* (Great Horned Owls), *Caiman crocodylus* (Caimans), *Haliaeetus leucocephalus* (Bald Eagles), *Pelecanus occidentalis* (Brown Pelicans), and probably other animals. Within mixed colonies, *P. auritus* can affect nest-site availability of other species and provide food for the other species as chicks, eggs, pellets, regurgitated fish, and stolen food.

Other information. *Phalacrocorax auritus* may nest with up to thirteen other species of colony-nesting birds. *Phalacrocorax auritus* also hunt in mixed flocks, possibly benefitting other bird species through an interspecies prey-finding effort. Fishermen and pesticides have killed many *P. auritus*.

☐ *Phemeranthus virginica,* Spring-beauty
n. A perennial, dicot (Montiaceae); native to North America; with corms; simple, elongate leaves; pinkish, pentamerous flowers with ultraviolet nectar guides; and green through brown capsules
syn. *Claytonia virginica* L., Fairy-spud, Virginia Spring-beauty
Comments: This species is abundance in some open forest habitats. This species is a polyploid (2N = 12–191 chromosomes). Different parts of the same plant can have different chromosome numbers. Flowers solar track, moving with the Sun's movement across the horizon.

Specific ecological roles. Nectar and pollen are food of some species of pollinating bees (Apis, Andrena, etc.) and flower flies. Leaves and stems are food of two similar *Puccinia* fungus spp., including *Puccinia mariae-wilsoniae* Clint., Spring-beauty Rust.

☐ *Platanus occidentalis* Carolus Linnaeus, Eastern Sycamore
n. A large, monoecious, deciduous, dicot tree (Plantanaceae); native to extreme Southeastern Canada, Eastern U.S., and Northern Mexico; with exfoliating bark with brownish, whitish, and grayish patches; large, alternate, sharply-lobed, palmately veined leaves with petiole bases that surround axillary buds; tiny greenish flowers; and tiny fruit with pappi closely-packed spheroidal infructescences.
syn. American Sycamore, American Planetree, Buttonwood, Occidental Plane, Planetree, Plane Tree, Sycamore
Comments: *Platanus occidentalis* has the broadest trunk of all species in the WDCA.

Specific Ecological Roles. Leaves, roots, and stems are food of organisms including 3 aphid spp., 1 bacterium sp., 6 borer spp., 1 butterfly sp., 27 fungus spp., 1 mistletoe sp., 3 mite spp., 15 moth spp. (Cynthia Moth, Imperial Moth, Io Moth, Hickory-horned Devil Moth, Puss Moth, Sycamore Moth, Tussock Moth, etc.), 10 scale spp., the Sycamore Lace Bug, the Sycamore Plant Bug, 1 tree hopper sp., 1 whitefly sp., and the White-tailed Deer (Horst 1990, 776; Westcott 1973).

Leaves are food of *Neochlamisus platani* (Sycamore Leaf Beetle) and the alien fungus *Apiognomonia veneta* (*syn*.

Gnomonia platani), originally a parasite of *Platanus orientalis* (Oriental Planetree) which is considerably resistant to the fungus. It partially or almost totally defoliates *Platanus occidentalis* , rendering trees unsightly with spring leaf loss. *Platanus occidentalis* trees usually refoliate in July in the WDCA. Because of this disease, people rarely plant *Platanus occidentalis* ; instead that plant the more resistant London Planetree (*P. ×hispanica*; a presumed hybrid of *P. occidentalis* × *P. orientalis*), which are on the Leavey Esplanade.
Hollow *Platanus occidentalis* trunks are homes of bats, Chimney Swifts (birds), Common Racoons, and many others species. After Humans built chimneys in the US, Chimney Swifts birds started using chimneys as homes as well. I see Chimney Swifts flying about GU in the warm season.

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☐ *Procyon lotor* Linnaeus, 1758; Common Raccoon
n. An omnivorous, usually nocturnal mammal (Procyonidae); native to Central and North America; with dark fur on its face around it eyes, a ringed tail, and dextrous front paws (Alden et al. 2008, 357)
syn. Coon, North American Raccoon, Northern Raccoon, Raccoon, Racoon.
Comments: *Procyon lotor* carries and transmits the Rabies Virus. People have introduced PL in Europe and Asia.

Specific ecological roles. *Procyon lotor* consumes bird eggs, birds (infrequently) insects, fish, fruit (including acorns and walnuts) , worms, and mammals (infrequently). I sometimes see *Procyon lotor* foraging for garbage in GU dumpsters.

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☐ *Quercus alba* L., 1753, White Oak
n. A large, deciduous, monoecious, diploid, dicot tree (Fagaceae); native to Canada and the U.S.; with light ash-gray, partially peeling bark; very deep taproots, simple, alternate, round-lobed leaves; small male flowers in catkins, greenish female flowers, and acorns each with shallow, bowl-shaped cupule with tuberculate, puberulent scales and an ovoid through ellipsoid acorn (Fernald 1950, 543; Alden et al. 2008, 102).
syn. Eastern White Oak, Stave Oak
Comments: *Quercus alba* can live up to 600 years (Barnes & Wagner 2011, 220). It grows in well-drained soil. This species is the State Tree of Maryland. U.S. President Herbert Hoover planted a *Quercus alba* on the White House grounds in 1931.

[Latin *Quercus* < Celtic *quer*, beautiful; *cuez*, tree; *alba*, white, possibly referring to the whitish undersides of its mature leaves]
Specific ecological roles. Leaves are food of many insect species including Cloudywing Butterflies and *Porthetria dispar* (Gypsy Moth). Acorns are food of Acorn Weevils, Eastern Chipmunks, Eastern Gray Squirrels, White-tailed Deer, Wild Turkeys, etc.

Other information. *Quercus alba* grows up to 100 ft tall (Barnes & Wagner 2011, 230). Mature leaves are to 8 inches long and have 7–9 rounded lobes without spines. Young leaves are reddish and become bright green above and whitish below as they develop. Local members of the White Oak Group have variable leaves due to natural individual variation and hybridization. John James Audubon painted two Gray Jays on a branch of White Oak with green through reddish leaves and a yellowjacket nest in 1829 (Plate CVII). He painted four Brown Trashers with an oak branch (probably Blackjack Oak), their nest with eggs, and a Black Rat Snake that is detecting one bird with its tongue and perhaps strangled one of the birds (Plate CXVI). If you have an original Audubon painting, could you sell it for enough money to pay your tuition and other bills?

GU notes. A branch of this tree is part of the GU emblem. GU President Leo O'Donovan planted the Millenium Oak (*Q. alba*) in Healy Quadrangle in 2000. In 2004, 17-year Cicadas killed many small limbs of this tree when they laid eggs in the limbs. The tree recovered well from this trimming. GU spared a huge *Q. alba* when it erected Henle Village in the 1980s.

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☐ *Sciurus carolinensis* Gmelin, 1788; Eastern Gray Squirrel
n. An aboreal and terrestrial, diurnal, omnivorous squirrel (Sciuridae); native to North America; with long, furry tails, and fur that ranges from white (albino form) through brownish gray through gray through black.

Specific ecological roles. *Sciurus carolinensis* consumes, bones of some species, some insect species, eggs and nestlings of some bird species, nuts, other fruit, seeds, and tree buds of some species. *Sciurus carolinensis* buries seeds of some species (*e.g*., *Carya* spp., *Juglans nigra*, *Quercus rubra*) some of which grow into trees.

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☐ *Turdus migratorius* Linnaeus, 1766; American Robin *n*. A passerine bird (Turdidae); native to Central, North, and South America; with adults 10 in long and 2.7 oz; grayish

heads, backs, wings, and tails and reddish orange lower throats and breasts and white lower bellies and undertail coverts (Alsop 2001, 556; Alden et al. 2007, 323).
Comments: This species forms breeding pairs and occurs in migrating and local groups (Alsop 2001, 556). A male's call is a bold, gurgling, leisurely sing-song, *cheerily cheer-up, cheerio*, often with repeated phrases; *tut-tut-tut* or *hip-hip-hip*. This species' warning call is *chirp, chirp, chirp*; *chuck, chuck, chuck.* A fledgling American Robin in my garden gave out a screech when I approached to closely, and the bird glided to another location. Adult Robins quickly responded with loud chirps and chucks. When a Domestic Cat (which was not supposed to wandering about my neighborhood) was in my yard, Eastern Gray Squirrels emitted loud chucking sounds and Robins emitted loud *tsut-tsut-tsuts*.

Specific ecological roles. Adult *T. migratorius* consume earthworms, insects (beetle larvae, grasshoppers, and lepidopteran larvae), fruits (including berries of the American Holly and Pokeweed). *Turdus migratorius* are flexible feeders and consume readily accessible foods, although their diet generally consists of approximately 40% invertebrates and 60% fruits (Sallabanks and James, 1999). *Turdus migratorius* is food of these known predators: *Corvus brachyrhynchos* (American Crows), *Corvus corax* (Common Ravens), *Cyanocitta cristata* (Blue Jays), *Felis catus* (Domestic Cats), hawks, *Quiscalus quiscula* (Common Grackles), snakes, and squirrels. *Turdus migratorius* is a common species in some areas where it can have large impacts on ecosystems as predators, food of other organisms, and seed dispersers (Sallabanks and James, 1999). In most years, a flock of migrating American Robins removes hundreds of berries from my American Holly tree within 1–2 days in late winter or early spring.

Other information. *Turdus migratorius* sometimes mobs small predators such as Blue Jays and some snake spp. State Bird of Connecticut, Michigan, and Wisconsin.

☐ ☹ *Vinca minor* L., Common Periwinkle *n.* An evergreen, woody, trailing dicot (Apocynaceae); native to Europe; with opposite, simple, entire leaves; and blue through lavender through purple through white flowers (Swearingen et al. 2010, 104).
Comments: People brought this beautiful species to the U.S. as a garden plant in the 1700s. Its flowers appear in late winter and early spring in the U.S. Mid-Atlantic Region (pers obs.). *Vinca minor* is an ornamental plant used by gardeners and others as an aestically-pleasing (but not ecologically-pleasing) ground cover. This plant now covers forest floors and crowds out Spring-beauties, Trout-lilies, Toothworts, and other plants and many other organism species (Swearingen et al. 2010, 104). Although is such a problem for naturalistic areas, stores still often sell it.

Specific ecological role. This is an aesthetically-attractive and ecologically-unattractive, alien, invasive species that forms mats in forests where is crowds out native organisms. See above

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☐ *Xylocopa virginica virginica* L., Giant Carpenter Bee *n.* A carpenter bee (Apidae: Anthophorinae); native to Southern Canada and Eastern U.S.; with robust, black adults with yellow hair, and bodies up to 24 mm long.
syn. Eastern Carpenter Bee

Comments: Males have light yellow faces, and females have black faces. As *Nature, Gardens, and Georgetown* tells us, this species has a highly complicated mating system. Females excavate nesting galleries in solid wood, making sawdust that falls to the ground where it decomposes and is food for other organisms. Hovering male Giant Carpenter Bees (which cannot sting) frighten the bejabbers, stuffing, and tar out of some Humans. Some people erroneously think that the males are chasing them with the intention of stinging them. People will be people ....

Specific ecological roles. The Giant Carpenter Bee pollinates many kinds of flowers including milkweeds, Passionflowers, and sunflowers. This bee species is a nectar robber at times in that it bites holes in the sides of long corollas of flowers and sips nectar through the holes. Carpenter bees rob nectar from Japanese Honeysuckle and other honeysuckles in the WDCA and many flower species with long flowers elsewhere, *e.g.*, the tropics. The Ruby-throated Hummingbird, and other insects such as Western Honey Bees (which do not slit corollas) and some bumble-bee species obtain nectar through the slits. The Giant Carpenter Bee is the food of the parasitic Tiger Bee Fly, some woodpecker species, and other organisms. This bee burrows into wood of houses and other buildings in the WDCA, and people spend $100s – 1000s to eradicate this bee. Woodpeckers that obtain larval bees from their burrows in wood cause more destruction to buildings when they excavate the bees.

Appendix 3. Map Key

Vegetation Data Legend
Potomac Gorge, Maryland and Virginia
(21 March 2009, list by the National Park Service with some annotations by E. M. Barrows)

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1. Mesic Mixed Hardwood Forest (hardwood forest = angiospermous forest)

2. Eastern Hemlock – Hardwood Forest

3. Dry-Mesic Chestnut Oak – Northern Red Oak Forest

4. Dry-Mesic Acidic Oak – Hickory Forest
5. Chestnut Oak Forest

6. Basic Mesic Hardwood Forest

7. Rich Cove – Mesic Slope Forest (Twinleaf – Blue Cohosh Type)

8. Rich Red Oak – Sugar Maple Forest
9. Bedrock Terrace Oak – Hickory Forest
10. Rich Boulderfield Forest
11. Riverside Outcrop Woodland
12. River Floodplain Complex
13. River Floodplain Forest
14. Siver Maple Floodplain Forest
15. Terrace hardwood Floodplain Forest

16. Ice-Scour Floodplain Forest
17. Bedrock Floodplain Oak Forest
18. Tuliptree Small-stream Floodplain Forest
19. Maple-Ash Swamp Forest
20. Pin Oak – Swamp White Oak Forest

21. Red Maple Seepage Swamp
22. Upland Depression Willow Oak Swamp Forest

23. Successional Virginia Pine Forest (a kind of gymnospermous forest)

24. Successional Boxelder Floodplain Forest

25. Successional Tuliptree Forest (Circumneutral Type)

26. Successional Black Walnut Forest
27. Successional Mixed Deciduous Vine Forest
28. Depositional Bar and Shore Vegetation
29. Bedrock Floodplain Woodland
30. Sycamore – River Birch Scour Woodland
31. River Scour Woodland
32. Riverside Rock Outcrop and Prairie Complex
33. Riverwash Bedrock Prairie
34. Disturbed Woody Wetland
35. Disturbed Herbaceous Wetland

36. Mixed Deciduous Shrubland (Vine Shrubland)
37. Successional Meadow – Grassland
38. Open Water
39. Developed, Open Space
40. Developed, Low Intensity

41a. Developed, Medium Intensity

41b. Developed, Medium Intensity (George Washington Memorial Parkway)

41c. Developed, Medium Intensity (Glen Echo, MD)

42a. Developed, high intensity (Central Intelligence Agency, Federal Highway Administration, Turner-Fairbank Highway Research Center)

42b. Developed, high intensity (Glen Echo Park, MD)

44. Claude Moore Colonial Farm (Turkey Run Park)
45. Langley Fork Park (Athletic Fields, Hiking Trail)s

46. Langley Oaks Park
47. Turkey Run Recreation Area.
