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The Vascular Flora of the Gills Creek Watershed

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Abstract: This is a floral inventory of the Gills creek watershed. It was conducted from fall 2014 through spring 2016. The final product is a list of plants that are known to presently or historically exist in the watershed. The list is comprised of 250 native species and 36 introduced and invasive species. The results indicate that Gills creek watershed's plant diversity is severely threatened by introduced and invasive species, but still retains sizable native diversity.

Introduction: Gills creek is a 47,000 acre watershed. Its upper limit is at the NE side of Columbia where it encompasses Sesquicentennial State Park. The northeast boundary is near the Percival Road exit off I-77; to the west of this exit the northern boundary dissects Woodlands Country Club, and completely encompasses Spring Valley Country Club. Going down the eastern boundary, the watershed includes much of the western half of Ft. Jackson. Arcadia Lakes, Forest Acres, and land on both sides of Beltline road (N. Beltline and S. Beltline) are within the heart of the watershed. The western boundary nearly follows Two Notch Road south from the I-77/I-20 intersection in northern Columbia. These areas are part of the fall line sandhills. The watershed stretches south along the east side of Harden street, including much of Shandon; the southern region contains Owensfield Park, Williams Brice Stadium, and the floodplain south of Olympia/Granby roads along Bluff Road and the east side of the Congaree River. The southernmost part of the watershed includes the Bluff Road exit off I-77, and finally ends where Gills Creek drains into the Congaree River just south of Whitehouse road.

The fall line sandhills plant community is distinct because the flora is adapted for dry, nutrient-poor soil; water easily drains through sand, larger-grained than silt or mud (Barry 100). Some characteristic species are *Quercus laevis* (turkey oak), *Quercus margaretta* (sand post oak), *Vaccinium arboretum* (sparkleberry), *Opuntia humifusa* (prickly pear cactus), and *Yucca filamentosa* (Spanish bayonet). In the more hydric parts of the sandhills, such as the lake in Sesquicentennial State Park, the plant community reflects this change; characteristic species include *Lyonia lucida* (fetterbush) and *Symplocos tinctoria* (horse sugar). There is a transition region from sandy soil to silt in the heart of the watershed.

The southern region of the watershed represents the inner-coastal plain, which is easily flooded near streams. Plants here are adapted to richer soils and flooding (the fine-grained silt can retain moisture and nutrients). The plant community in the coastal plain varies with water levels as well; trees like *Acer rubrum* (red maple), *Magnolia virginiana* (sweet bay), *Persea palustris* (red bay), and *Nyssa biflora* (swamp tupelo) succeed in floodplains. Many hardwoods, however, are restricted from frequently wet habitats. On slopes upland from the floodplain one can find species such as *Asimina triloba* (Paw-paw) and *Fagus grandifolia* (American beech). On elevated plateaus above the slopes one will find drier-adapted plants like *Pinus taeda* (loblolly pine), *Ilex vomitoria* (yaupon holly), and *Quercus falcata* (southern red oak).

Most of the watershed is highly urbanized. This has two disastrous effects on native ecology: 1) Humans introduce many foreign plants when they landscape. This is an ecological threat because relatively few native organisms use introduced plants. Other introduced plants are called invasive because they grow at aggressive

rates, out-competing native plants over expanses of acres; 2) most of the city is paved – there is no water absorption on pavement, so rain water gets channeled into a few highly concentrated streams during storms, rather than penetrating the ground as it would naturally. For this reason most of Gills Creek is in the form of a straightened stream, indicating its fast flow; in contrast, most natural, coastal plain creeks meander because the water has little momentum. Intense flooding makes it harder for some plants to take root, and favors others that are tolerant. *Ligustrum sinense* (Chinese privet) and *Triadica sebifera* (Chinese tallow) are highly threatening invasive plants that thrive on floodplains throughout the city. Birds eat the berries and spread them up and downstream. When I interviewed our Naturalist in Residence, Rudy Mancke, he recalled: “I’ve seen Chinese privet on almost every floodplain I’ve been on in South Carolina.” For the context of this study, there is no better example of urban flooding than the floods of historical magnitude that ripped through thousands of buildings (and killed nine people!) near Gills Creek in October 2015. This was a major setback to plant-collecting during this time, and left vegetation in proximity to the creek littered with debris.

Materials and methods: This study was predominately conducted in the field. Waders, boots, and a good knife for cutting twigs were essential. I drove or biked to a number of sites throughout the watershed where I collected plants in plastic bags before bringing them back to the A.C. Moore Herbarium. I used plant-pressing supplies in the herbarium to preserve collected plants: newspaper, cardboard, blotterpaper, foam, hardwood frames, tightening straps, vented oven (~100 °F). Basically, plants have to be flattened and dried out so they can be mounted on poster board and given scientific labels later on.

The historical part of the inventory was done researching the herbarium records; I looked through a fraction of the total collection (about 10,000 of the total 130,000 specimens) and recorded the specimens that were collected in the watershed. I frequently had to use Richland County maps to determine if the collection site was within the watershed or not.

If a species was not collected or found in the herbarium, but has definitely been observed in the field by either myself, Dr. Nelson, or Herrick Brown (Curators of the herbarium), it has been included on the list. Therefore the results have a foundation in scientific specimens, but are informally supplemented by verbal accounts of trustworthy experts (not technically scientific methodology). Common local ornamental plants that are not known to spread into natural habitats are left out of the study.

List Key:

Plants on the list include a brief description in parentheses of where they may be found. Here is useful background information and phraseology:

- Owensfield Park (OFP) and Shandon lots are disturbed areas that people have cleared, so the species found in these locations are commonly occurring weeds.
- Sesquicentennial State Park (SSP) is the site best representing the sandhills.
- Hammond South Campus (HSC, off Veteran's rd.) and Buchanan St. (off Beltline Rd.) represent mixed sandy-silt floodplain with upland slopes and mixed pine-hardwood forests.
- S. Beltline locations (Hickory and Mikell streets) and Bluff rd. represent coastal floodplains. Plants from Humane Lane are a mixture of the Gills Creek floodplain and upland slopes.
- If a plant name is followed by only a number(s) in parentheses, I collected the plant and the number indicates where and when I obtained the specimen, as follows:

(1-17) Lake Catherine, October 2014;

(18-22) Mikell Lane, a mile south of Rosewood dr. on S. Beltline, April 2015;

(23-51) Hiked from Humane lane down to Gills Creek April 2015;

(52-64) Hiked from Humane lane down to Gills Creek, 8 May 2015;

(65-85) Hiked south along the Congaree River floodplains from Jordan Memorial boat ramp (west end of Rosewood dr.), 14 May 2015

(86-96) Near Bluff road intersection with S. Beltline, 4 June 2015

(97-123) Hammond S. Campus, 25 June 2015.

(124-154) Hammond S. Campus, 10 July 2015

(155-187) OFP and Shandon, 24 March 2016

(188-195) Near Jackson Blvd I-77 exit-ramp, 31 March 2016

(196-215) Sesquicentennial State Park, 4 April 2016

(216-222) Shandon and OFP, 10 April 2016

- If a plant is on the list because it's an herbarium specimen, its name is followed by its collector name and respective collector specimen-number or date; the area it was found is listed too.
- Plants from SSP that Dr. Nelson already listed for his undergraduate class were borrowed for this list.
- Lack of specific epithet indicates uncertainty of species.
- Plants with only a location in parentheses are ones I recorded a sighting of in the field.
- **INV**- Invasive, commonly inhibits native plant growth where growing.
- **INT**- Introduced, lesser adverse effects on native ecology than invasive plants.
- Plants are grouped into their genetic families.

Acanthaceae

1. *Clethra tomentosa* (115, 133, 134)
2. *Clethra alnifolia* (Nelson, Class plant list- SSP)

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Adoxaceae

3. *Viburnum*

Altingiaceae

4. *Liquidambar styraciflua* (OFP)

Amaranthaceae

5. *Alternanthera philoxeroides* (HSC) **INV**
6. *Allium* (Shandon)

Amaryllidaceae

7. *Ipheion uniflorum* (165) **INT**
8. *Lycoris radiata* (Shandon) **INT**

Anacardiaceae

9. *Rhus copallinum* (Nelson, Class plant list- SSP)
10. *Toxicodendron pubescens* (SSP)
11. *Toxicodendron radicans* (OFP)
12. *Toxicodendron toxicarium* (Nelson, Class plant list- SSP)

Annonaceae

13. *Asimina triloba* (64)

Apiaceae

14. *Anthriscus* (57)
15. *Chaerophyllum procumbens* (65)
16. *Chaerophyllum tainturia* (elevated plain near Humane lane)
17. *Daucus carota* (HSC)
18. *Sanicula* (HSC)

Apocynaceae

19. *Vinca major* (171) **INV**

Aquifoliaceae

20. *Ilex cornuta* (OFP) **INT**
21. *Ilex glabra* (SSP)
22. *Ilex opaca* (HSC)
23. *Ilex vomitoria* (OFP)
24. *Ilex coriacea* (197, 209)

Araceae

25. *Arisaema triphyllum* (HSC)
26. *Peltandra virginica* (HSC)

Araliaceae

27. *Hedera helix* (OFP) **INV**

Arecaceae

28. *Sabal minor* (Dead end off Buchanan St.)

Aristolochiaceae

29. *Hexastylis arifolia* (112)

Asparagaceae

30. *Polygonatum biflorum* (128)
31. *Yucca filamentosa* (SSP)
32. *Liriope muscari* (Shandon) **INT**
33. *Asplenium platyneuron* (44, 62)

Asteraceae

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34. *Ambrosia artemisiifolia* (common weed)
 35. *Baccharis halimifolia* (dead end off Buchanan St.)
 36. *Bidens bipinnata* (14)
 37. *Conoclinium coelestinum* (154)
 38. *Elephantopus tomentosus* (142)
 39. *Erigeron strigosus* (68, 90)
 40. *Eupatorium serotinum* (150)
 41. *Gaillardia pulchella* (Parking lot off Rosewood Dr.)
 42. *Gnaphalium purpureum* (94)
 43. *Helenium amarum* (15, 129, 148)
 44. *Heterotheca subaxillaris* (153)
 45. *Krigia caespitosa* (55, 160)
 46. *Lactuca serriola* (Shandon)
 47. *Packera glabella* (43)
 48. *Solidago* spp.(152)
 49. *Solidago gigantea* (8)
 50. *Sonchus oleraceus* (79)
 51. *Symphiotrichum racemosum* (3, 141)
 52. *Taraxacum officinale* (OFP) **INT**
 53. *Verbesina occidentalis* (10)
 54. *Youngia japonica* (13, 32, 73, 75, 216) **INV**
- Athyriaceae
55. *Athyrium thelypteroides* (138, 139)
- Axodaceae
56. *Sambucus canadensis* (91, 92)
- Berberidaceae
57. *Nandina domestica* (HSC) **INV**
- Betulaceae
58. *Alnus serrulata* (121, 208)
 59. *Betula nigra* (Brown, verbal)
- Bignoniaceae
60. *Bignonia capreolata* (OFP)
 61. *Campsis radicans* (93)
- Blechnaceae
62. *Woodwardia areolata* (107, 127, 144, 207)
 63. *Woodwardia virginica* (Nelson, Class plant list- SSP)
- Boraginaceae
64. *Myosotis verna* (42)
- Brassicaceae
65. *Brassica rapa* (195)
 66. *Cardamine pensylvanica* (35)
 67. *Lepidium virginicum* (11)
- Bromeliaceae
68. *Tillandsia usneoides* (Common epiphyte)
- Cabombaceae
69. *Brasenia schreberi* (Nelson, Class plant list- SSP)

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Cactaceae

70. *Opuntia humifusa* (SSP)

Callitrichaceae

71. *Callitriche heterophylla* (50)

Campanulaceae

72. *Triodanis perfoliata* (56)

Cannabaceae

73. *Celtis laevigata* (Shandon)

Caprifoliaceae

74. *Lonicera sepervirens* (OFP)

75. *Lonicera japonica* (190) **INV**

76. *Valerianella radiata* (30, 31, 41, 83, 189)

Caryophyllaceae

77. *Arenaria caroliniana* (Nelson, Class plant list- SSP)

78. *Stellaria media* (48)

79. *Stipulicida setacea* (Nelson, Class plant list- SSP)

Celestraceae

80. *Euonymous americana* (HSC)

Cistaceae

81. *Lechea mucronata* (125)

Clusiaceae

82. *Triadinum walteri* (4)

Colchicaceae

83. *Uvularia* (Brown, verbal)

Commelinaceae

84. *Commelina communis* (Shandon) **INT**

85. *Murdannia keisak* (HSC) **INV**

86. *Tradescantia ohiensis* (69, 90, 172)

Cornaceae

87. *Nyssa biflora* (in Gills creek floodplain off S. Beltline)

88. *Nyssa sylvatica* (SSP)

89. *Cornus florida* (204)

Cucurbitaceae

90. *Melothria pendula* (135, 136)

Cupressaceae

91. *Chamaecyparis thyoides* (SSP)

92. *Juniperus virginiana* (SSP)

Cyperaceae

93. *Carex vulpinoidea* (78, 81)

Cyrillaceae

94. *Cyrilla racemiflora* (104, 117)

Dennstaedtiaceae

95. *Pteridium aquilinum* (63, 113, 191, 192)

Dryopteridaceae

96. *Polystichum acrostichoides* (HSC)

Ebenaceae

97. *Diospyros virginiana* (SSP)
Eleagnaceae
98. *Elaeagnus pungens* (dead end off Buchanan St.) **INV**
Ericaceae
99. *Chimaphila maculata* (HSC)
100. *Gaylussacia dumosa* (205)
101. *Kalmia latifolia* (Brown, verbal)
102. *Leucothoe axillaris* (Nelson, Class plant list- SSP)
103. *Lyonia lucida* (213, 214)
104. *Lyonia mariana* (Nelson, Class plant list- SSP)
105. *Monotropa uniflora* (SSP)
106. *Oxydendrum arboretum* (119)
107. *Rhododendron canescens* (Brown, verbal)
108. *Vaccinium arboretum* (SSP)
109. *Vaccinium corymbosum* (20)
110. *Vaccinium stamineum* (199)
Euphorbiaceae
111. *Triadica sebifera* (SSP)
Fabaceae
112. *Albizia julibrissin* (OFP) **INT**
113. *Centrosema virginianum* (HSC)
114. *Lespedeza spp.* (HSC)
115. *Melilotus albus* (72)
116. *Sesbania punicea* (9, 67) **INV**
117. *Trifolium campestre* (23, 86,156) **INT**
118. *Trifolium dubium* (76) **INT**
119. *Trifolium incarnatum* (OFP) **INT**
120. *Trifolium repens* (Shandon) **INT**
121. *Vicia angustifolia* (39, 162)
122. *Vicia villosa* (74)
123. *Wisteria frutescens* (HSC)
124. *Wisteria sinensis* (29) **INV**
125. *Cercis canadensis* (36)
Fagaceae
126. *Quercus alba* (103)
127. *Quercus falcata* (Shandon)
128. *Quercus incana* (SSP)
129. *Quercus laevis* (202, 211)
130. *Quercus margaretta* (SSP)
131. *Quercus marilandica* (SSP)
132. *Quercus nigra* (OFP)
133. *Quercus phellos* (OFP)
134. *Quercus stellata* (SSP)
135. *Quercus velutina* (OFP)
Gelsemiaceae
136. *Gelsemium sempervirens* (18)

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Geraniaceae

137. *Geranium carolinianum* (OFP)

Haloragaceae

- Myriophyllum aquaticum* (Hickory St., identified by Rudy Mancke) **INV**

Hydrangeaceae

138. *Decumaria barbara* (HSC)

Hypericaceae

139. *Hypericum mutilum* (6, 137)
140. *Hypericum hypericoides* (145)

Iridaceae

141. *Iris verna* (215)
142. *Sisyrinchium* (Hickory St., identified by Rudy Mancke)

Iteaceae

143. *Itea virginica* (116, 132)

Juglandaceae

144. *Carya glabra* (Nelson, Class plant list- SSP)
145. *Carya pallida* (Nelson, verbal, SSP)
146. *Carya tomentosa* (147)
147. *Carya cordiformis* (Nelson, Class plant list- SSP)

Juncaceae

148. *Juncus effuses* (Humane Lane)
149. *Luzula sp.* (19)

Lamiaceae

150. *Callicarpa americana* (HSC)
151. *Lamium purpureum* (47)
152. *Prunella vulgaris* (Shandon)
153. *Salvia lyrata* (218, 219)
154. *Scutellaria eliptica* (105)
155. *Stachys floridana* (floodplain off S. Beltline, Hickory st.)

Lauraceae

156. *Persea palustris* (22, 198)
157. *Sassafras albidum* (SSP)

Lygodiaceae

158. *Lygodia japonica* (HSC) **INV**

Lythraceae

159. *Decodon verticillatus* (146)

Magnoliaceae

160. *Liriodendron tulipifera* (dead end off Buchanan St.)
161. *Magnolia grandiflora* (OFP)
162. *Magnolia virginiana* (HSC)

Meliaceae

163. *Melia azedarach* (59) **INV**

Moraceae

164. *Morus rubra* (dead end off Buchanan St.)
165. *Morus alba* (Hickory St., identified by Rudy Mancke) **INT**

Myricaceae

166. *Myrica cerifera* (HSC)

Nymphaeaceae

167. *Nymphaea odorata* (Nelson, Class plant list- SSP)
168. *Nuphar advena* (131)

Oleaceae

169. *Fraxinus caroliniana* (123)
170. *Fraxinus pennsylvanica* (88)
171. *Ligustrum japonicum* (dead end off Buchanan St.) **INV**
172. *Ligustrum sinense* (61) **INV**

Onocleaceae

173. *Onoclea sensibilis* (Nelson, Class plant list- SSP)

Onograceae

174. *Ludwigia decurrens* (1)

Orchidaceae

175. *Tipularia discolor* (Nelson, Class plant list- SSP)

Osmundaceae

176. *Osmunda regalis* (118)
177. *Osmunda cinnamomea* (66)

Oxalidaceae

178. *Oxalis rubra* (37, 167, 168) **INT**
179. *Oxalis stricta* (166)
180. *Oxalis violacea* (194)

Papaveraceae

181. *Corydalis flavula* (70, 193) **INT**

Passifloraceae

182. *Passiflora incarnata* (17)

Phyllanthaceae

183. *Phyllanthus* (Shandon)

Phytolaccaceae

184. *Phytolacca americana* (Shandon)

Pinaceae

185. *Pinus palustris* (SSP)
186. *Pinus serotina* (Cely 18, SSP)
187. *Pinus taeda* (OFP)
188. *Pinus echinata* (Nelson, Class plant list- SSP)

Plantaginaceae

189. *Nuttallanthus canadensis* (24, 163, 203)
190. *Plantago sp.* (84)
191. *Veronica arvensis* (Kennemore, Jr. 286, Rosewood boat landing)
192. *Veronica hederifolia* (Nelson 7219, Wheat St. X Sims St.)

Platanaceae

193. *Platanus occidentalis* (200)

Poaceae

194. *Agrostis perrenans* (149)
195. *Aristida oligantha* (Nelson, Class plant list- SSP)

- 196. *Arundinaria gigantea* (dead end off Buchanan St.)
- 197. *Bambusa* spp. (neighborhood weed) **INV**
- 198. *Dicanthelium* (85, 95)
- 199. *Elymus riparius* (80)
- 200. *Hordeum pusillum* (220)
- 201. *Leersia lenticularis* (97)
- 202. *Lolium multiflorum* (71)
- 203. *Microstegium vimeneum* (HSC) **INV**
- 204. *Panicum virgatum* (52)
- 205. *Poa chapmaniana* (40)
- 206. *Sorghum halepense* (common grass) **INV**
- 207. *Chasmanthium laxum* (108)

Polygonaceae

- 208. *Eriogonum tomentosum* (Nelson, Class plant list- SSP)
- 209. *Polygonum longicetum* (2)
- 210. *Polygonum sagittatum* (Nelson, Class plant list- SSP)
- 211. *Rumax ascetosella* (25)
- 212. *Rumax crispus* (51)

Polypodiaceae

- 213. *Pleopeltis polypodioides* (SSP)
- 214. *Polypodium polypodioides* (Nelson, Class plant list- SSP)

Pontederiaceae

- 215. *Pontederia cordata* (HSC)

Ranunculaceae

- 216. *Xanthorhiza simplicissima* (114)
- 217. *Ranunculus abortivus* (38)
- 218. *Ranunculus muricatus* (26) (54)

Rosaceae

- 219. *Aronia arbutifolia* (212)
- 220. *Crataegus flava* (Nelson, Class plant list- SSP)
- 221. *Malus angustifolia* (222)
- 222. *Potentilla canadensis* (217)
- 223. *Prunus caroliniana* (21, 45)
- 224. *Prunus serotina* (210)
- 225. *Pyrus calleryana* (Shandon)

Rubiaceae

- 226. *Galium aparine* (49, 60, 96)
- 227. *Galium pilosum* (Moody 10 June 1991, SSP)
- 228. *Galium tinctorium* (Barchiesi 50, Alexander Cir in Gregg Park subdv)
- 229. *Houstonia pusilla* (158)
- 230. *Cephalanthus occidentalis* (100)
- 231. *Diodia teres* (Cely 164, SSP)
- 232. *Diodia virginiana* (Nelson 27285, 3801 Duncan St.)
- 233. *Houstonia caerulea* (Cely 31, SSP)
- 234. *Houstonia purpurea* (Moody 2 June 1991, SSP)
- 235. *Mitchella repens* (HSC)

236. *Oldenlandia corymbosa* (Hollowell, 20 July 1988, 825 Fairwood Dr.)
237. *Richardia brasiliensis* (Nelson 10,771, Wheeler St. X Sumter St.)
238. *Richardia scabra* (Nelson, 7 July 1975, Forest Acres)
239. *Rubus flagellaris* (46)
240. *Rubus trivialis* (159)
241. *Sherardia arvensis* (Nelson 17,069, Arcadia Lakes)
- Salicaceae
242. *Populus deltoides* (drainage ditch, OFP)
243. *Populus heterophylla* (Hickory st., identified by Rudy Mancke)
244. *Salix nigra* (Drainage ditch OFP)
- Santalaceae
245. *Nestronia umbellula* (99, 101)
- Sapindaceae
246. *Acer negundo* (33)
247. *Acer rubrum* (28)
- Sarraceniaceae
248. *Sarracenia rubra* (Douglass 26 January 1975, Sesqui)
- Saururaceae
249. *Saururus cernuus* (7)
- Scrophulariaceae
250. *Agalinus purpurea* (Barchiesi 94, Gregg Park subdiv.)
251. *Aureolaria pedicularia* (Batson, 15 July 1957, Forest Lake)
252. *Aureolaria virginica* (Barchiesi 80, Alexander Cir in Gregg Park subdiv)
253. *Mazus pumilus* (27)
254. *Mecardonia acuminata* (Ohilson, Camp Jackson)
255. *Verbascum blattaria* (Fairgrounds 7 October 1940)
256. *Verbascum virgatum* (Nelson 21,855, 400m SW of Beltline X Shop Rd.)
- Selaginellaceae
257. *Selaginella arenicola* (Nelson, Class plant list- SSP)
- Simaroubaceae
258. *Ailanthus altissima* (Shandon) **INV**
- Smilacaceae
259. *Smilax glauca* (Nelson, Class plant list- SSP)
260. *Smilax laurifolia* (Nelson, Class plant list- SSP)
- Solanaceae
261. *Nicandra physalodes* (Nelson 353, Forest Acres)
262. *Petunia atkinsiana* (Nelson 12,360, near Morgan loop in Fort Jackson)
263. *Physalis angulata* (Nelson 31,008, Near I-77 S. side of town)
264. *Physalis pubescens* (Nelson 15,697, Arcadia Lakes Dr.)
265. *Salpichroa organifolia* (Nelson 9092, Duncan St. X Monroe St)
266. *Solanum ptychanthum* (Nelson 27255, 3801 Duncan St.)
267. *Solanum carolinense* (Maude Smith, 20 May 1926, Shandon)
268. *Solanum rostratum* (Frank Nelson, 20 June 2004, 6511 Helena Road)
- Styracaceae
269. *Styrax americanus* (Nelson 12,386, Enon road in Fort Jackson)
- Symplocaceae

270. *Symplocos tinctoria* (201)
Theaceae
271. *Gordonia lasianthus* (Batson, dead end off Buchanan St.)
Thelypteridaceae
272. *Thelypteris* (109, 143, 188)
Typhaceae
273. *Typha latifolia* (98)
Ulmaceae
274. *Ulmus alata* (221) *Ulmus americana* (102)
275. *Ulmus parviflora* (Nelson 33924, Humane Lane) **INT**
276. *Ulmus rubra* (dead end off Buchanan St.)
Urticaceae
277. *Boehmeria cylindrica* (106, 126)
278. *Pilea pumila* (floodplain near Humane lane)
Verbenaceae
279. *Glandularia pulchella* (12, 77, 155) **INT**
280. *Verbena brasiliensis* (130) **INV**
Violaceae
281. *Viola primulifolia* (196)
282. *Viola sororia* (34, 124, 169, 170)
Viscaceae
283. *Phoradendron serotinum* (Nelson, Class plant list- SSP)
Vitaceae
284. *Parthenocissus quinquefolia* (Shandon)
285. *Ampelopsis arborea* (OFP)
286. *Vitis rotundifolia* (SSP)

Discussion:

The high proportion of native to invasive species largely misrepresents their respective prevalence throughout the watershed. In terms of visible foliage and biomass, invasive plants alone represent anywhere from 25-50% of the watershed's total vegetation. However, there is enough remaining native vegetation to represent the habitats and physiographic regions described in the introduction. The people of Gills Creek Watershed still have much reason to try stopping the spread of invasive plants to preserve the remaining natural treasures.

The list is incomplete because only a fraction of the herbarium's records were researched. There are definitely more species in the field that have not been identified or collected during this study. Much of the watershed is privately owned, making it difficult to access- there could be many more species present in these unexplored areas. There could be another 100-300 species present in the watershed. If I were to conduct a similar study again, I would focus more on plant collecting in the spring and fall, and more on herbarium research during the summer and winter when fewer plants are flowering.

The rarest plant I collected was *Nestronia umbellula* (on an upland slope at HSC). It is a hemi-parasite found growing on the roots of trees. Most localized

populations are either all male or all female plants, so reproduction is mostly by root sprouting. Therefore these shrubs are usually found growing in clusters of clones. Production of fruit is rare because the males and females are often isolated from each other (US Forest Service Online).

Thank you Dr. Nelson for advising this project, accompanying me on field trips to Humane Lane, and identifying most of the plants I collected. Thank you Herrick Brown for accompanying me on field trips to Hammond South Campus, aiding in use of GPS imagery to find accessible sites, and aiding with the organization of the final report. Thank you Rudy Mancke for inspiring my love of nature study and for accompanying me on a field trip through the floodplain off Hickory St.

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