acta universitatis lodziensis
2008
Folia Biologica et Oecologica 4: 95–110
(Acta Univ. Lodz., Folia Biol. et Oecol.)

https://doi.org/10.18778/1730-2366.04.07

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VASCULAR PLANTS FLORA OF THE RAILWAY GROUNDS OF ZDUŃSKA WOLA

Abstract: In the paper a list and general characterization of vascular plants flora recorded on railway grounds in the city of Zduńska Wola is presented. The great diversity of habitats within the railway grounds as well as their readiness to accept numerous introduced species result in a high variety of vascular plants there. This flora consists of 366 taxa.

Key words: flora, vascular plants, railway grounds, Zduńska Wola, Central Poland

1. INTRODUCTION

The vascular plant flora of the railway grounds of the town of Zduńska Wola has not yet been the subject of complex research. Fairly abundant data on vascular plants occurrence on the railway grounds of this town is given by MOWSZOWICZ (1960, 1978) and SOWA (1971). The floristic investigation carried out on the railway grounds of Zduńska Wola in 1977–1981 enriched the list of taxa of this type of flora (SOWA, WARCHOLIŃSKA 1984). In that period 256 taxa of vascular plants were recorded in the area.

The diversity of railway habitats of Zduńska Wola is contributed to by the appearance, proliferation and settling of new colonizer plants, both of native as well as alien origin.

The main aim of the floristic research carried out in 2002–2004 was compiling an updated list of vascular plants occurring in diverse habitats of Zduńska Wola railway grounds and working out a general characterization of the investigated flora.

2. MATERIALS AND METHODS

Data contained in the studies cited in the „Introduction" and the results of investigations carried out in 2002–2004 were used to assess the state of the flora of Zduńska Wola railway grounds. On the basis of data analysis a systematic list of taxa occurring in the investigated flora of Zduńska Wola railway grounds was compiled and its general characterization was carried out.

The systematic arrangement of taxa of the list was accepted after SZAFER et al. (1976) while the botanic nomenclature after MIREK et al. (2002). Studies by JACKOWIAK (1990), JANOWSKA (2002), LATOWSKI (1981, 2004), MOWSZOWICZ (1975), RUTKOWSKI (1998), WARCHOLIŃSKA (1993, 2003, 2004, 2005) were also employed.

In the list of taxa, the following data were subsequently given before and after their Latin names:

* – Recorded plants in 2002–2004;

- Constancy (**Shl** – Short living plants, **Per** – Perennial plants);
- Life form (**M** – Megaphanerophytes, **N** – Nanophanerophytes, **Ch** – Woody chamaephytes, **C** – Herbaceous chamaephytes, **H** – Hemicryptophytes, **G** – Geophytes, **T** – Therophytes);
- Geographic-historical group (**Ap** – Apophytes, **A** – Archaeophytes, **Ep** – Epoecophytes, **He** – Hemiagriophytes, **Ho** – Holoagriophytes, **Er** – Ergaziophygophytes, **Ef** – Ephemerophytes;
- Frequency classes (very rare, rare, rather frequent, frequent, common).

While determining the properties of vascular plants flora the following studies, among others, were employed: JACKOWIAK (1990), JANOWSKA (2002), KORNAŚ et al. (1959), KORNAŚ (1968), LATOWSKI (1981, 2004), MIREK et al. (2002), SZAFER et al. (1976), WARCHOLIŃSKA (2003, 2004, 2005), ZAJĄC, ZAJĄC (1975), ZARZYCKI et al. (2002).

3. RESULTS

3.1. List of taxa

Polypodiaceae

*1. Athyrium filix-femina (L.) Roth – Per, H, Ap, very rare
*2. Dryopteris filix-mas (L.) Schott – Per, H, Ap, very rare
*3. Pteridium aquilinum (L.) Kuhn – Per, G, Ap, rare

Equisetaceae

4. *Equisetum arvense* L. – Per, G, Ap, common
*5. *E. sylvaticum* L. – Per, G, Ap, rare
*6. *E. palustre* L. – Per, G, Ap, very rare

Pinaceae

*7. *Pinus sylvestris* L. – Per, M, Ap, rare

Cupressaceae

*8. *Juniperus communis* L. – Per, N, Ap, rare

Betulaceae

9. *Betula pendula* Roth – Per, M, Ap, ratler frequent
*10. *Alnus glutinosa* (L.) Gaertn. – Per, M, Ap, very rare
*11. *Carpinus betulus* L. – Per, M, Ap, very rare
*12. *Corylus avellana* L. – Per, N, Ap, rare

Fagaceae

13. *Quercus robur* L. – Per, M, Ap, rare
*14. *Q. rubra* L. – Per, M, He, rare

Salicaceae

15. *Populus alba* L. – Per, M, Ap, rare
16. *P. tremula* L. – Per, M, Ap, rather frequent
17. *Salix fragilis* L. – Per, M, Ap, very rare
*18. *S. caprea* L. – Per, N, Ap, rare

Cannabaceae

19. *Cannabis sativa* L. – Shl, T, Er, rare

Urticaceae

20. *Urtica urens* L. – Shl, T, Ar, frequent
21. *U. dioica* L. – Per, H, Ap, rather frequent

Ulmaceae

*22. *Ulmus laevis* Poll. – Per, M, Ap, very rare

Polygonaceae

*23. *Rumex maritimus* L. – Shl, T, Ap, very rare
*24. *R. conglomeratus* Murray – Per, H, Ap, very rare
25. *R. obtusifolius* L. – Per, H, Ap, rare
26. *R. crispus* L. – Per, H, Ap, frequent
27. *R. acetosa* L. – Per, H, Ap, rather frequent
28. *R. acetosella* L. – Per, G, Ap, frequent
*29. *Polygonum bistorta* L. – Per, G, Ap, very rare
30. *P. amphibium* L. – Per, G, Ap, rare
31. *P. persicaria* L. – Shl, T, Ap, common

32. *P. lapathifolium* L. subsp. *pallidum* (With.) Fr. – Shl, T, Ap, frequent
33. *P. lapathifolium* L. subsp. *lapathifolium*. – Shl, T, Ap, rare
34. *P. hydropiper* L. – Shl, T, Ap, rare
*35. *P. minus* Huds. – Shl, T, Ap, very rare
36. *P. aviculare* L. – Shl, T, Ap, common
*37. *Reynoutria sachalinensis* (F. Schmidt) Nakai – Per, G, Ep, very rare
*38. *R. japonica* Houtt. – Per, G, Ep, very rare
39. *Fallopia convolvulus* (L.) Á. Löve – Shl, T, Ar, common
40. *F. dumetorum* (L.) Holub – Shl, T, Ap, very rare
41. *Fagopyrum esculentum* Moench – Shl, T, Er, very rare

Chenopodiaceae

42. *Corispermum hyssopifolium* L. – Shl, T, Ep, very rare
*43. *Kochia laniflora* (S. G. Gmel.) Borbás – Shl, T, Ap, very rare
*44. *Chenopodium polyspermum* L. – Shl, T, Ap, very rare
45. *Ch. hybridum* L. – Shl, T, Ar, rare
46. *Ch. album* L. – Shl, T, Ap, common
47. *Ch. glaucum* L. – Shl, T, Ap, very rare
*48. *Atriplex hortensis* L. – Shl, T, Ep, very rare
49. *A. patula* L. – Shl, T, Ap, frequent
50. *Salsola kali* L. subsp. *ruthenica* (Iljin) Soó – Shl, T, Ep, very rare

Amaranthaceae

51. *Amaranthus caudatus* L. – Shl, T, Ef, very rare
52. *A. retroflexus* L. – Shl, T, Ep, frequent
53. *A. cruentus* L. – Shl, T, Er, very rare
54. *A. albus* L. – Shl, T, Ep, very rare
*55. *A. lividus* L. – Shl, T, Ep, rare

Caryophyllaceae

*56. *Dianthus deltoides* L. – Per, H, Ap, rare
*57. *Gypsophila muralis* L. – Shl, T, Ap, rare
*58. *Saponaria officinalis* L. – Per, H, Ap, rare
59. *Melandrium album* (Mill.) Garcke – Shl, H, Ap, frequent
60. *Silene vulgaris* (Moench) Garcke – Per, H, Ap, frequent
61. *Arenaria serpyllifolia* L. – Shl, T, Ap, rather frequent
62. *Stellaria media* (L.) Vill. – Shl, T, Ap, frequent
63. *S. graminea* L. – Per, H, Ap, rather frequent
64. *Cerastium arvense* L. – Per, C, Ap, frequent
65. *C. holosteoides* Fr. Emend. Hyl. – Per, C, Ap, frequent
*66. *Scleranthus perennis* L. – Per, H, Ap, rare
67. *S. annuus* L. – Shl, T, Ar, frequent

68. *Spergula arvensis* L. – Shl, T, Ar, frequent
69. *S. morisonii* Boreau – Shl, T, Ap, very rare
70. *Spergularia rubra* (L.) J. Presl et C. Presl – Shl, H, Ap, rather frequent
71. *Herniaria glabra* L. – Shl, H, Ap, rather frequent

Euphorbiaceae

*72. *Euphorbia peplus* L. – Shl, T, Ar, very rare
*73. *E. helioscopia* L. – Shl, T, Ar, rather frequent
74. *E. cyparissias* L. – Per, H, Ap, frequent
75. *E. esula* L. – Per, H, Ap, rather frequent

Ranunculaceae

*76. *Consolida regalis* S. F. Gray – Shl, T, Ar, very rare
*77. *Ranunculus bulbosus* L. – Per, G, Ap, rare
78. *R. repens* L. – Per, H, Ap, rather frequent
79. *R. acris* L. – Per, H, Ap, frequent

Papaveraceae

80. *Papaver argemone* L. – Shl, T, Ar, rare
81. *P. dubium* L. – Shl, T, Ar, rather frequent
82. *P. rhoeas* L. – Shl, T, Ar, rare
83. *P. somniferum* L. – Shl, T, Er, rare
84. *Chelidonium majus* L. – Per, H, Ap, frequent
*85. *Fumaria officinalis* L. – Shl, T, Ar, very rare

Brassicaceae

86. *Rorippa sylvestris* (L.) Besser – Per, H, Ap, rather frequent
87. *Barbarea vulgaris* R. Br. – Shl, H, Ap, very rare
88. *Cardaminopsis arenosa* (L.) Hayek – Shl, H, Ap, rare
89. *Matthiola incana* (L.) R. Br. – Shl, H, Er, very rare
90. Sisymbrium officinale (L.) Scop. – Shl, T, Ar, frequent
91. *S. altissimum* L. – Shl, H, Ep, rare
92. *S. austriacum* Jacq. – Shl, H, Ef, very rare
93. *S. loeselii* L. – Shl, T, Ep, frequent
94. *Descurainia sophia* (L.) Webb ex Prantl – Shl, T, Ar, common
95. *Arabidopsis thaliana* (L.) Heynh. – Shl, T, Ap, rather frequent
96. *Erysimum cheiranthoides* L. – Shl, T, Ar, rather frequent
97. *Brassica napus* L. – Shl, T, Er, very rare
98. *B. rapa* L. subsp. *oleifera* DC. – Shl, T, Er, very rare
99. *Erucastrum gallicum* (Willd.) O. E. Schultz – Shl, T, Ep, very rare
100. *Sinapis arvensis* L. – Shl, T, Ar, rare
101. *S. alba* L. – Shl, T, Er, very rare

102. *Diplotaxis muralis* (L.) DC. – Shl, T, Ep, ratler frequent
103. *Alyssum alyssoides* (L.) L. – Shl, H, Ap, very rare
104. *Berteroa incana* (L.) DC. – Shl, T, Ap, common
105. *Erophila verna* (L.) Chevall. – Shl, T, Ap, frequent
106. *Armoracia rusticana* P. Gaertn. – Per, G, Ar, rather frequent
107. *Thlaspi arvense* L. – Shl, T, Ar, rare
108. *Lepidium campestre* (L.) R. Br. – Shl, T, Ar, very rare
109. *L. ruderale* L. – Shl, T, Ar, frequent
110. *L. densiflorum* Schrad. – Shl, T, Ep, very rare
111. *L. virginicum* L. – Shl, T, Ep, very rare
112. *Capsella bursa-pastoris* (L.) Medik. – Shl, T, Ar, common
113. *Rapistrum perenne* (L.) All. – Per, H, Ef, very rare
114. *Raphanus raphanistrum* L. – Shl, T, Ar, frequent
115. *R. sativus* L. – Shl, T, Er, rather frequent

Resedaceae

116. *Reseda lutea* L. – Shl, T, Ap, rare
117. *R. luteola* L. – Shl, T, Ar, very rare

Violaceae

118. *Viola tricolor* L. s. str. – Shl, T, Ap, frequent
119. *V. arvensis* Murray – Shl, T, Ar, frequent

Clusiaceae

120. *Hypericum humifusum* L. – Shl, T, Ap, very rare
*121. *H. perforatum* L. – Per, H, Ap, rather frequent

Crassulaceae

122. *Sedum acre* L. – Per, C, Ap, rather frequent

Saxifragaceae

123. *Saxifraga granulata* L. – Per, H, Ap, rare

Rosaceae

*124. *Rosa rugosa* Thunb. – Per, N, Ar, rare
125. *R. canina* L. – Per, N, Ap, rather frequent
*126. *Rubus saxatilis* L. – Per, H, Ap, rare
*127. *R. idaeus* L. – Per, N, Ap, rare
128. *R. caesius* L. – Per, N, Ap, frequent
129. *Potentilla intermedia* L. Non Wahlenb. – Per, H, Ep, very rare
130. *P. recta* L. – Per, H, Ap, very rare
131. *P. argentea* L. s. str. – Per, H, Ap, rather frequent

*132. *P. collina* Wibel s. str. – Per, H, Ap, rare
133. *P. reptans* L. – Per, H, Ap, very rare
*134. *P. erecta* (L.) Raeusch. – Per, H, Ap, very rare
135. *P. anserina* L. – Per, H, Ap, frequent
136. *Alchemilla monticola* Opiz – Per, H, Ap, very rare
137. *Geum urbanum* L. – Per, H, Ap, frequent
*138. *Agrimonia eupatoria* L. – Per, H, Ap, very rare
139. *Crataegus monogyna* Jacq. – Per, N, Ap, very rare
140. *Pyrus communis* L. – Per, M, Ar, very rare
141. *Sorbus aucuparia* L. Hedl. – Per, M, Ap, very rare
*142. *Prunus spinosa* L. – Per, N, Ap, very rare

Fabaceae

*143. Lupinus polyphyllus Lindl. – Per. H, He, very rare
144. *Lupinus luteus* L. – Shl, T, Er, very rare
145. *L. angustifolius* L. – Shl, T, Er, very rare
*146. *Medicago falcata* L. – Per, H, Ap, very rare
147. *M. sativa* L. – Per, H, Er, rather frequent
148. *M. lupulina* L. – Shl, T, Ap, frequent
149. *Melilotus alba* Medik. – Shl, H, Ap, frequent
150. *M. officinallis* (L.) Pall. – Shl, H, Ap, ratler frequent
151. *Trifolium arvense* L. – Shl, T, Ap, rather frequent
152. *T. dubium* Sibth. – Shl, T, Ap, rare
153. *T. campestre* Schreb. – Shl, T, Ap, ratler frequent
154. *T. aureum* Pollich – Shl, T, Ap, rather frequent
155. *T. repens* L. – Per, H, Ap, frequent
156. *T. pratense* L. – Per, H, Ap, rather frequent
*157. *T. medium* L. – Per, H, Ap, rare
*158. *Lotus uliginosus* Schkuhr – Per, H, Ap, rare
159. *L. corniculatus* L. – Per, H, Ap, frequent
160. *Robinia pseudacacia* L. – Per, M, He, rather frequent
*161. *Astragalus glycyphyllos* L. – Per, H, Ap, rare
162. *Coronilla varia* L. – Per, H, Ap, frequent
*163. *Ornithopus sativus* Brot. – Shl, T, Er, very rare
164. *Vicia hirsuta* (L.) S. F. Gray – Shl, T, Ar, frequent
*165. *V. terasperma* (L.) Schreb. – Shl, T, Ar, rather frequent
166. *V. cracca* L. – Per, H, Ap, frequent
167. *V. villosa* Roth – Shl, T, Ar, rather frequent
*168. *V. sepium* L. – Per, H, Ap, rare
*169. *V. sativa* L. – Shl, T, Ar, rare
170. *V. angustifolia* L. – Shl, T, Ar, frequent
171. *Lathyrus pratensis* L. – Per, H, Ap, rare

Lythraceae

172. *Lythrum salicaria* L. – Per, H, Ap, rare

Onagraceae

173. *Epilobium parviflorum* Schreb. – Per, H, Ap, rather frequent
174. *Chamaenerion angustifolium* (L.) Scop. – Per, H, Ap, rare
175. *Oenothera biennis* L. Ss. str. – Shl, H, Ap, frequent

Malvaceae

176. *Malva sylvestris* L. – Shl, H, Ar, rare
177. *M. neglecta* Wallr. – Shl, H, Ar, frequent

Tiliaceae

*178. *Tilia cordata* Mill. – Per, M, Ap, very rare

Oxalidaceae

*179. *Oxalis fontana* Bunge – Per, G, Ep, rather frequent

Geraniaceae

180. *Geranium pratense* L. – Per, H, Ap, rare
181. *G. pusillum* Burm. F. ex L. – Shl, T, Ar, frequent
182. *Erodium cicutarium* (L.) L'Hér. – Shl, T, Ap, common

Aceraceae

183. *Acer pseudoplatanus* L. – Per, M, Ap, very rare
184. *A. platanoides* L. – Per, M, Ap, rather frequent
185. *A. negundo* L. – Per, M, He, rather frequent

Hyppocastanaceae

*186. *Aesculus hippocastanum* L. – Per, M, Er, rare

Balsaminaceae

*187. *Impatiens parviflora* DC. – Shl, T, Ho, rare

Apiaceae

*188. *Sium latifolium* L. – Per, H, Ap, very rare
189. *Carum carvi* L. – Shl, H, Ap, rather frequent
*190. *Aegopodium podagraria* L. – Per, H, Ap, rather frequent
191. *Pimpinella saxifraga* L. – Per, H, Ap, frequent
192. *Aethusa cynapium* L. – Shl, T, Ar, rare
193. *Heracleum sibiricum* L. – Per, H, Ap, frequent

194. *H. sphondylium* L. – Per, H, Ap, rather frequent
195. *Peucedanum oreoselinum* (L.) Moench – Per, H, Ap, rare
196. *Pastinaca sativa* L. – Shl, H, Ap, rather frequent
197. *Daucus carota* L. – Shl, H, Ap, rather frequent
*198. *Anthriscus sylvestris* (L.) Hoffm. – Per, H, Ap, rather frequent
*199. *Chaerophyllum bulbosum* L. – Shl, T, Ap, very rare
200. *Torilis japonica* (Houtt.) DC. – Shl, T, Ap, rather frequent

Primulaceae

201. *Lysimachia vulgaris* L. – Per, H, Ap, rare

Convolvulaceae

202. *Convolvulus arvensis* L. – Per, G, Ar, common

Boraginaceae

203. *Anchusa officinalis* L. – Shl, H, Ap, rare
204. *A. arvensis* (L.) M. Bieb. – Shl, T, Ar, very rare
205. *Symphytum officinale* L. – Per, H, Ap, very rare
206. *Echium vulgare* L. – Shl, H, Ap, rather frequent
207. *Lithospermum arvense* L. – Shl, T, Ar, rather frequent
208. *Myosotis stricta* Link ex Roem. & Schult. – Shl, T, Ap, frequent
209. *M. ramosissima* Rochel – Shl, T, Ap, very rare
210. *M. arvensis* (L.) Hill – Shl, T, Ar, rather frequent

Solanaceae

211. *Hyoscyamus niger* L. – Shl, T, Ar, very rare
212. *Solanum nigrum* L. – Shl, T, Ar, rare
*213. *S. tuberosum* L. – Per, G, Er, very rare
*214. *Datura stramonium* L. – Shl, T, Ep, very rare

Scrophulariaceae

*215. *Verbascum thapsus* L. – Shl, H, Ap, rare
216. *V. densiflorum* Bertol. – Shl, H, Ap, rare
217. *V. nigrum* L. – Shl, H, Ap, frequent
218. *Linaria vulgaris* Mill. – Per, G, Ap, frequent
*219. *Chaenorhinum minus* (L.) Lange – Shl, T, Ap, very rare
220. *Scrophuraria nodosa* L. – Per, G, Ap, very rare
221. *Veronica chamaedrys* L. – Per, C, Ap, frequent
222. *V. serpyllifolia* L. – Per, H, Ap, rather frequent
*223. *V. arvensis* L. – Shl, T, Ar, rather frequent
224. *V. verna* L. – Shl, T, Ap, rare

*225. *V. dillenii* Crantz – Shl, T, Ap, rare
226. *V. persica* Poir. – Shl, T, Ep, frequent
227. *Euphrasia rostkoviana* Hayne – Shl, T, Ap, rare
*228. *E. stricta* D. Wolff ex J. F. Lehm. – Shl, T, Ap, very rare
229. *Odontites serotina* (Lam.) Rchb. s. str. – Shl, T, Ap, rare
230. *O. verna* (Bellardi) Dumort. – Shl, T, Ar, rare

Lamiaceae

231. *Glechoma hederacea* L. – Per, H, Ap, frequent
232. *Prunella vulgaris* L. – Per, H, Ap, rare
233. *Galeopsis tetrahit* L. – Shl, T, Ap, rather frequent
234. *G. bifida* Boenn. – Shl, T, Ap, frequent
235. *Lamium purpureum* L. – Shl, T, Ar, frequent
236. *L. amplexicaule* L. – Shl, T, Ar, rather frequent
237. *Stachys palustris* L. – Per, G, Ap, rare
238. *Leonurus cardiaca* L. – Per, H, Ar, rare
239. *Ballota nigra* L. – Per, H, Ar, rather frequent
240. *Salvia verticillata* L. – Per, H, Ap, very rare
241. *Clinopodium vulgare* L. – Per, H, Ap, very rare
242. *Acinos arvensis* (Lam.) Dandy – Shl, T, Ap, rare
243. *Thymus pulegioides* L. – Per, C, Ap, rare
244. *T. serpyllum* L. Emend. Fr. – Per, C, Ap, rather frequent
245. *Mentha arvensis* L. – Per, G, Ap, frequent

Plantaginaceae

246. *Plantago major* L. – Per, H, Ap, frequent
247. *P. intermedia* Gilib. – Per, H, Ap, rare
248. *P. media* L. – Per, H, Ap, very rare
249. *P. lanceolata* L. – Per, H, Ap, frequent

Oleaceae

*250. *Syringa vulgaris* L. – Per, N, Er, very rare
*251. *Ligustrum vulgare* L. – Per, N, Er, very rare

Rubiaceae

252. *Galium verum* L. s. str. – Per, H, Ap, rather frequent
253. *G. mollugo* L. – Per, H, Ap, frequent
254. *G. aparine* L. – Shl, T, Ap, rather frequent

Caprifoliaceae

255. *Sambucus nigra* L. – Per, N, Ap, rare
256. *Symphoricarpos albus* (L.) S.F. Blake – Per, N, Er, very rare

Dipsacaceae

257. *Scabiosa ochroleuca* L. – Per, H, Ap, very rare
258. *Knautia arvensis* (L.) J. M. Coult. – Per, H, Ap, rather frequent

Cucurbitaceae

*259. *Sicyos angulata* L. – Shl, T, He, very rare

Campanulaceae

*260. *Jasione montana* L. – Shl, H, Ap, rare
261. *Campanula rapunculoides* L. – Per, G, Ap, very rare
262. *C. patula* L. – Per, H, Ap, rare

Asteraceae

*263. *Solidago virgaurea* L. s. str. – Per, H, Ap, rare
*264. *S. canadensis* L. – Per, H, He, frequent
265. *S. gigantea* Aiton – Per, H, He, rather frequent
*266. *Bellis perennis* L. – Per. H, Ap, rare
267. *Conyza canadensis* (L.) Cornquist – Shl, T, Ep, common
*268. *Erigeron acris* L. – Shl, H, Ap, rare
*269. *E. annuus* (L.) Pers. – Per, H, He, rare
270. *Helianthus annuus* L. – Shl, T, Er, very rare
*271. *Cosmos bipinnatus* Cav. – Shl, T, Er, very rare
272. *Galinsoga parviflora* Cav. – Shl, T, Ep, frequent
273. *G. ciliata* (Raf.) S. F. Blake – Shl, T, Ep, rare
274. *Anthemis arvensis* L. – Shl, T, Ar, frequent
*275. *A. ruthenica* M. Bieb. – Shl, T, Ar, very rare
*276. *A. cotula* L. – Shl, T, Ar, rare
*277. *Achillea ptarmica* L. – Tr, H, Ap, rare
278. *A. millefolium* L. – Per, H, Ap, common
279. *Chamomilla suaveolens* (Pursh) Rydb. – Shl, T, Ep, frequent
280. *Matricaria maritima* L. subsp. *indora* (L.) Dostal – Shl, T, Ar, rather frequent
281. *Leucanthemum vulgare* Lam. s. str. – Per, H, Ap, rather frequent
282. *Tanacetum vulgare* L. – Per, H, Ap, frequent
283. *Artemisia absinthium* L. – Per, Ch, Ap, rather frequent
284. *A. vulgaris* L. – Per, H, Ap, rather frequent
285. *A. austriaca* Jacq. – Per, H, Ep, very rare
286. *A. campestris* L. – Per, Ch, Ap, rather frequent
287. *Tussilago farfara* L. – Per, G, Ap, rare
288. *Senecio vulgaris* L. – Shl, T, Ar, common
289. *S. viscosus* L. – Shl, T, Ap, rare
290. *S. vernalis* Waldst. & Kit. – Shl, T, Ep, rather frequent

291. *S. jacobaea* L. – Per, H, Ap, frequent
292. *Arctium tomentosum* Mill. – Shl, H, Ap, frequent
293. *A. lappa* L. – Shl, H, Ap, frequent
*294. *A. minus* (Hill) Bernh. – Shl, H, Ap, rather frequent
295. *Carduus acanthoides* L. – Shl, H, Ar, very rare
296. *Cirsium vulgare* (Savi) Ten. – Shl, H, Ap, rare
297. *C. arvense* (L.) Scop. – Per, G, Ap, common
298. *Onopordum acanthium* L. – Shl, H, Ar, very rare
299. *Centaurea scabiosa* L. – Per, H, Ap, rare
300. *C. stoebe* L. – Shl, H, Ap, frequent
301. *C. cyanus* L. – Shl, T, Ar, very rare
302. *C. jacea* L. – Per, H, Ap, rather frequent
303. *Cichorium intybus* L. – Per, H, Ar, rather frequent
304. *Lapsana communis* L. – Shl, T, Ap, rare
*305. *Hypochoeris radicata* L. – Per, H, Ap, rare
*306. *H. glabra* L. – Shl, T, Ap, rather frequent
307. *Tragopogon pratensis* L. – Shl, H, Ap, frequent
308. *Leontodon autumnalis* L. – Per, H, Ap, frequent
*309. *L. hispidus* L. – Per, H, Ap, rare
310. *Taraxacum officinale* F. H. Wigg. – Per, H, Ap, common
311. *Sonchus oleraceus* L. – Shl, T, Ar, rather frequent
312. *S. asper* (L.) Hill – Shl, T, Ar, rather frequent
313. *S. arvensis* L. – Per, G, Ap, common
*314. *Lactuca serriola* L. – Shl, H, Ar, rather frequent
315. *Crepis biennis* L. – Shl, H, Ap, rare
316. *C. tectorum* L. – Shl, T, Ap, rather frequent
317. *Hieracium pilosella* L. – Per, H, Ap, frequent

Liliaceae

*318. *Allium vineale* L. – Per, G, Ap, rare
*319. *Ornithogallum umbellatum* L. – Per, G, Ap, very rare
320. *Asparagus officinalis* L. – Per, G, Ap, very rare

Juncaceae

321. *Juncus bufonius* L. – Shl, T, Ap, rather frequent
*322. *J. tenuis* Willd. – Per, H, Ep, rare
*323. *J. conglomeratus* L. Emend. Leers – Per, H, Ap, rare
324. *Luzula campestris* (L.) DC. – Per, H, Ap, rather frequent

Cyperaceae

325. *Carex hirta* L. – Per, G, Ap, rather frequent

Poaceae

326. *Digitaria ischaemum* (Schreb.) H. L. Mühl. – Shl, T, Ar, rather frequent
327. *Echinochloa crus-galli* (L.) P. Beauv. – Shl, T, Ar, rare
328. *Setaria pumila* (Poir.) Roem. & Schult. – Shl, T, Ar, rather frequent
329. *S. viridis* (L.) P. Beauv. – Shl, T, Ar, rather frequent
330. *Anthoxanthum odoratum* L. – Per, H, Ap, rather frequent
*331. *A. aristatum* Boiss. – Shl, T, Ep, rare
332. *Phleum pratense* L. – Per, H, Ap, rather frequent
*333. *Alopecurus pratensis* L. – Per, H, Ap, rare
334. *Apera spica-venti* (L.) P. Beauv. – Shl, T, Ar, rare
335. *Agrostis stolonifera* L. – Per, H, Ap, frequent
336. *A. capillaris* L. – Per, H, Ap, rare
*337. *Calamagrostis epigejos* (L.) Roth – Per, G, Ap, rather frequent
*338. *Holcus mollis* L. – Per, H, Ap, rather frequent
339. *H. lanatus* L. – Per, H, Ap, rare
340. *Corynephorus canescens* (L.) P. Beauv. – Per, H, Ap, rare
341. *Avena sativa* L. – Shl, T, Er, very rare
342. *Arrhenatherum elatius* (L.) P. Beauv. ex J. Presl & C. Presl. – Per, H, Ap, rare
*343. *Phragmites australis* (Cav.) Trin. ex Steud. – Per, G, Ap, very rare
344. *Eragrostis minor* Host – Shl, T, Ep, very rare
345. *Cynosurus cristatus* L. – Per, H, Ap, very rare
346. *Dactylis glomerata* L. – Per, H, Ap, rather frequent
347. *Poa annua* L. – Shl, T, Ap, frequent
348. *P. compressa* L. – Per, G, Ap, very rare
349. *P. trivialis* L. – Per, H, Ap, rather frequent
350. *P. pratensis* L. – Per, H, Ap, rather frequent
351. *Puccinellia distans* (Jacq.) Parl. – Per, H, Ap, very rare
*352. *Bromus inermis* Leyss. – Per, H, Ap, rather frequent
*353. *B. sterilis* L. – Shl, T, Ar, rare
354. *B. tectorum* L. – Shl, T, Ar, frequent
355. *B. hordeaceus* L. – Shl, T, Ap, frequent
*356. *B. carinatus* Hook & Arn. – Per, H, Ep, rare
357. *Festuca rubra* L. s. str. – Per, H, Ap, rare
358. *F. pratensis* Huds. – Per, H, Ap, rather frequent
359. *Lolium perenne* L. – Per, H, Ap, common
360. *L. multiflorum* Lam. – Per, H, Ep, rare
361. *Elymus repens* (L.) Gould – Per, G, Ap, common
362. *Triticum aestivum* L. – Shl, T, Er, rare
363. *Secale cereale* L. – Shl, T, Er, rare
364. *Hordeum vulgare* L. – Shl, T, Er, rare
365. *H. murinum* L. – Shl, T, Ar, rare
366. *Zea mays* L. – Shl, T, Er, very rare

3.2. The general characterization of the vascular plants flora of the railway grounds of Zduńska Wola

The flora of vascular plants of the Zduńska Wola railway grounds is rich. At present it comprises 366 taxa, which belong to 53 families. *Compositae* (55 taxa), *Gramineae* (41 taxa), *Cruciferae* (30 taxa), *Papilionaceae* (29 taxa), *Polygonaceae* (19 taxa), *Rosaceae* (19 taxa), *Caryophyllaceae* (16 taxa), *Scrophulariaceae* (16 taxa), *Labiatae* (15 taxa) and *Umbelliferae* (13 taxa) are the families that are richest in taxa. They comprise a total of 253 (69.1%) vascular plants of the investigated flora.

In years 2002–2004 recorded 102 new plants (see "List of taxa" – *).

Vascular plants of the very rare (94 taxa – 25.6%) and rare groups (102 taxa – 27.9%) were most frequently recorded. They constituted a total of 196 (53.5%) taxa. The interesting species of these groups are, e.g.: *Rumex maritimus*, *Reynoutria sachalinenses*, *Reseda lutea*, *R. luteola*, *Aethusa cynapium*, *Anchusa arvensis*, *Leonurus cardiaca*, *Lactuca serriola*. The other groups comprised, respectively: that of rather frequent – 84 (23.3%) taxa, of frequent – 68 (18.6%) taxa, of common – 18 (4.9%) taxa.

In the vascular plants flora of the Zduńska Wola railway grounds perennial plants dominated (186 taxa – 50.9%). As regards life forms plants of the group of hemicryptophytes (151 taxa – 41.3%) and therophytes (146 taxa – 39.9%) dominated. The group of geophytes comprised 30 (8.2%), of megaphanerophytes 18 (4.9%), and of nanophanerophytes 13 (3.6%) taxa. Only 8 taxa (2.2%) belonged to the other groups; 2 to woody chamaephytes (0.6%) and 6 to herbaceous chamaephytes (1.6%).

Plants of native origin (apophytes) constituted the most abundant group (233 taxa – 63.7%) among the geographic-historical groups. *Equisetum arvense*, *Polygonum aviculare*, *Chenopodium album*, *Berteroa incana*, *Erodium cicutarium*, *Taraxacum officinale*, *Sonchus arvensis*, *Lolium perenne*, *Elymus repens* belonged, among others, to the most common apophytes. Plants that belonged to the archaeophytes (67 taxa – 18.3%) were frequently and plants that belonged to the epoecophytes (29 taxa – 7.9%) and ergaziophygophytes (25 taxa – 6.8%) groups rather frequently noted. Plants of the holoagriophytes (1 taxa – 0.3%), ephemerophytes (3 taxa – 0.8%) and hemiagriophytes (8 taxa – 2.2%) groups were very rarely and rarely recorded. *Hyoscyamus niger*, *Carduus acanthoides*, *Onopordum acanthium*, *Lactuca serriola* from the group of archaeophytes, and *Corispermum hyssopifolium*, *Salsola kali*, *Amaranthus caudatus*, *A. albus*, *Datura stramonium* and *Eragrostis minor* from the group of epoecophytes were those that should be mentioned as interesting in the group of antropophytes.

4. DISCUSSION

The vascular plants flora of the Zduńska Wola railway grounds is rich. At present, it comprises 366 taxa, belonging to 53 families. Its richness is mostly affected by diverse habitat conditions and spatial arrangement and size areas of these habitats. Besides, by the vicinity of various communities, mainly ruderal and seminatural.

The characteristic distinguishing features of the investigated flora are attributable to very rare and rare plants (196 taxa – 53.5%). *Corispermum hyssopifolium*, *Reseda lutea*, *R. luteola*, *Anchusa arvenis*, *Hyoscyamus niger*, *Datura stramonium*, *Scabiosa ochroleuca*, *Carduus acanthoides*, *Lactuca serriola*, *Eragrostis minor*, *Cynosurus cristatus*, *Puccinellia distans* belong, among others, to the interesting species of these groups. Plants of the common group (18 taxa – 4.9%), e.g. *Equisetum arvanse*, *Polygonum aviculare*, *Fallopia convolvulus*, *Chenopodium album*, *Berteroa incana*, *Erodium cicutarium*, *Achillea millefolium*, *Taraxacum officinale*, *Lolium perenne*, *Elymus repens* had the lowest share in the analysed flora.

Note also the plants of native origin (apophytes). They constituted the group that was richest in plants (233 taxa – 63,7%). *Kochia laniflora*, *Agrimonia eupatoria*, *Trifolium fragiferum*, *Anthylis vulneraria*, *Astragalus cicer*, *Lysimachia mummularia*, *Chaenorhinum minus*, *Scabiosa ochroleuca*, *Cynosurus cristatus* should be mentioned among the groups of very rare and rare species.

The investigation results presented in the present study may be used in the future as a basis for comparative analyses of railway grounds floras in Central Poland, as well as the vascular plants flora of the Zduńska Wola railway grounds.

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