

MARIA ŁAŃCUCKA-ŚRODONIOWA

A CATALOGUE OF THE TYPES OF FOSSIL SPECIES
AND INTRASPECIFIC TAXA KEPT IN THE MUSEUM OF THE
DEPARTMENT OF PALAEOBOTANY, INSTITUTE OF BOTANY,
POLISH ACADEMY OF SCIENCES, KRAKÓW

Katalog typów kopalnych gatunków i taksonów wewnątrzgatunkowych znajdujących się w Muzeum Zakładu Paleobotaniki Instytutu Botaniki Polskiej Akademii Nauk w Krakowie

ABSTRACT. This catalogue comprises 66 types of species and intraspecific taxa, of which 60 have been described chiefly on the basis of fruits and seeds from Tertiary floras and 6 from Quaternary floras. I managed to indicate the holotypes of only 16 newly described species, fixing the lectotypes and isotypes for most of the remaining taxa.

INTRODUCTION

The collection of the Department of Palaeobotany, Institute of Botany, P. A. Scs. in Kraków contains several dozen types of fossil taxa described in 1928—1982 by the following workers of the Jagiellonian University and the Institute of Botany, P.A.Sc.s.: J. Zabłocki (1928), W. Szafer (1931, 1945, 1947, 1952a, 1952b, 1954a,b, 1958a, 1958b, 1961, 1963), B. Szafran (1949), J. Jentys-Szaferowa & J. Truchanowiczówna (1953), M. Reymanówna (1963, 1973), M. Łańcucka-Środoniowa (1967, 1975, 1977, 1979), E. Zastawniak (1978) and D. Zdebska (1982).

The newly distinguished taxa come chiefly from Neogene floras (30 species and 2 forms from the Miocene and 25 species and 2 forms from the Pliocene). Eight species were described from floras of older age than Tertiary and 4 species, 1 variety and 1 form from Quaternary floras. These remains are inventoried and well protected, but many species lack holotypes (that is particularly true of fruits and seeds) indicated by the authors while making the diagnoses. The designation of lectotypes and isotypes was therefore an important and even necessary task. It was often very difficult to find specimens illustrated in particular papers, specially so in cases of abundant fossil material.

The present catalogue of types includes only taxa from Tertiary and Quaternary floras. The species described from floras older than Tertiary (seven from the Jurassic and one from the Devonian), whose holotypes have been indicated by the authoresses (Reymanówna 1983, 1973; Zdebska 1982), are here omitted. All the newly described taxa are recorded in the card index in the Department of Palaeobotany, Institute of Botany, P.A.Sc. in Kraków; it covers 74 taxa at the present time.

The catalogue is arranged in alphabetical order, with its division into Tertiary and Quaternary floras retained. The names of taxa are given according to the now binding nomenclature, whereas the names used by the authors are placed in brackets. The respective items of literature, the page on which the diagnosis or description is given and the data about illustrative documentation are provided for each taxon. Changes made in the determination of some taxa in accordance with the present-day state of palaeobotanical study are also given (they concern 11 genera and 4 species) and so are the remarks and opinions hitherto unpublished.

The designation „holotype” has been introduced (if not indicated by the author) only when the distinction of a species was based on one specimen. In the assemblage dealt with there are 14 holotypes (these should be 15 in number, but one was lost soon after its description), 50 lectotypes and one neotype. All the specimens are stored in the Museum of Department of Palaeobotany, Institute of Botany, P.A.Sc. in Kraków, but bear different collection denotations, because they belong to two different institutions: the Institute of Botany, P.A.Sc. (IB PAN) and the Institute of Botany, Jagiellonian University (IB UJ).

I wish to express my heartfelt thanks to my colleagues Dr. Tadeusz Tacik and Dr. habil. Ewa Zastawniak for their help with establishing correct designations as well as for valuable remarks and discussions during my work on this paper. My thanks also go to Dr. Janina Truchanowiczówna for choosing the lectotype of *Menyanthes carpatica* and the neotype of *M. trifoliata* L. var. *interglacialis*, and to Assist. Prof. Jerzy Staszkievicz for choosing the lectotypes for the species of the genus *Trapa*.

TERTIARY

Acorellus distachyiformis Łańc.-Środ., *Cyperaceae*

Nowy Sącz I — Miocene, Domański Wierch — Pliocene

Łańcucka-Środoniowa 1977, p. 40, Lectotype Pl. 5, fig. 3 and isotypes Pl. 5, figs. 1, 2, 4 (Nowy Sącz I: IB PAN 194/7). Paratypes Pl. 5, figs. 5, 7 (Domański Wierch: IB PAN 71/541).

Actinidia spinosa Szafer, *Actinidiaceae*

Mizerna — Pliocene

Szafer 1954a, p. 35. Holotype Pl. 7, figs. 21, 22. The specimen has been lost.

Aesculus rouppertii Zabł. („*Roupperti*”), *Hippocastanaceae*

Wieliczka — Miocene

Zabłocki 1928, p. 202. Holotype Pl. 9, fig. 12. IB PAN 37/26.

***Agrimonia pliocenica* Szafer, Rosaceae**

Krościenko — Pliocene

Szafer 1947, p. 110. Lectotype Pl. 9, fig. 25. Isotype Pl. 9, fig. 26. IB UJ 14/73.

***Alangium kirchheimeri* Szafer, Alangiaceae**

Krościenko — Pliocene

Szafer 1947, p. 156. Holotype Pl. 12, figs. 16, 17. IB UJ 14/111. The determination of the genus is doubtful — R. Eyde, 1964 (unpubl.).

= cf. *Cornaceae* gen. — Mai 1970, p. 472.***Andromeda carpatica* Łańc.-Środ., Ericaceae**

Nowy Sącz I, II — Miocene

Łańcucka-Środoniowa 1979, p. 67. Lectotype Pl. 11, figs. 11a, b and isotype Pl. 12, fig. 5 (Nowy Sącz I: IB PAN 194/15). Istotypes Pl. 12, figs. 1—4,6 (Nowy Sącz II: IB PAN 194/16).

***Campanula palaeopyramidalis* Łańc.-Środ., Campanulaceae**

Nowy Sącz I — Miocene

Łańcucka-Środoniowa 1974, p. 38. Lectotype Pl. 3, figs. 1, 1a, b and isotypes Pl. 3, figs. 2, 3 (IB PAN 194/6). Isotype Pl. 4, fig. 1 (IB PAN 194/4).

***Carex elongatoides* Łańc.-Środ., Cyperaceae**

Nowy Sącz I — Miocene

Łańcucka-Środoniowa 1979, p. 84. Lectotype Pl. 14, fig. 4. Isotypes Pl. 14, figs. 5, 6. IB PAN 194/17.

***Carex flaviformis* Łańc.-Środ. („flavaeformis”), Cyperaceae**

Nowy Sącz I — Miocene

Łańcucka-Środoniowa 1979, p. 90. Lectotype Pl. 14, fig. 19. Isotype Pl. 14, fig. 18. IB PAN 194/20.

***Carex globosiformis* Łańc.-Środ. („globosaeformis”), Cyperaceae**

Nowy Sącz I — Miocene

Łańcucka-Środoniowa 1979, p. 87. Holotype Pl. 14, fig. 12. IB PAN 194/19.

***Carex plicata* Łańc.-Środ., Cyperaceae**

Nowy Sącz II — Miocene

Łańcucka-Środoniowa 1979, p. 90. Lectotype Pl. 14, fig. 22. Isotypes Pl. 14, figs. 20, 21, 23—25. IB PAN 194/23.

***Carex pseudocyperoides* Łańc.-Środ., Cyperaceae**

Nowy Sącz II, I — Miocene

Łańcucka-Środoniowa 1979, p. 91. Lectotype Pl. 14, fig. 14 (IB PAN 194/27). Isotypes Pl. 14, fig. 15 (IB PAN 194/30); Pl. 14, figs. 16, 17 (IB PAN 194/28).

***Carex strigosoides* Łańc.-Środ., Cyperaceae**

Nowy Sącz II — Miocene

Łańcucka-Środoniowa 1979, p. 88. Lectotype Pl. 14, fig. 26. Isotype Pl. 14, figs. 27, 28. IB PAN 194/21.

Carpinus minima Szafer, *Betulaceae*

Krościenko — Pliocene

Szafer 1947, p. 66. Lectotype Pl. 5, fig. 20. Isotype Pl. 5, fig. 23. IB UJ 14/142. The morphological and anatomical structure does not correspond to the genus *Carpinus* — Jentys-Szaferowa 1958, p. 5.

Carpinus polonica Zabł., *Betulaceae*

Wieliczka — Miocene

Zabłocki 1928, p. 196. Lectotype Pl. 10, fig. 1. Isotypes Pl. 10, figs. 3, 14, 18. IB PAN 37/68.

Cicer pliocaenicum Szafer, *Papilionaceae*

Mizerna — Pliocene, Krościenko — Pliocene

Szafer 1954a, p. 40. Lectotype Pl. 9, fig. 7 (the specimen from Krościenko, presented as *Zelkova serrata* Makino foss. — cf. Szafer 1947, Pl. 7, fig. 5) and isotype Pl. 9, fig. 11 (Krościenko: IB PAN 14/272). Paratype Pl. 9, fig. 12 (Mizerna: IB PAN 15/99).

= *Meliosma europaea* Reid, *Sabiaceae* — Szafer 1961, p. 70.

= *Meliosma wetteraviensis* (Ludw.) Mai — Mai 1964, p. 110.

Circaea lutetianoides Szafer, *Onagraceae*

Krościenko — Pliocene

Szafer 1947, p. 118. Lectotype Pl. 10, fig. 13. IB UJ 14/85. Some of specimens classified in this species are seeds of *Viola* cf. *uliginosa* Bess. — Łańcucka-Środoniowa 1979, p. 49.

= *Poliothyrsis lutetianoides* (Szafer) Mai, *Flacourtiaceae*. — Mai 1980, p. 292.

Clerodendrum silesiacum Zast., *Verbenaceae*

Mirostowice — Miocene, Domański Wierch — Pliocene

Zastawniak 1978, p. 54. Holotype Pl. 5, fig. 1 (IB PAN 132/234. The number 132/233, given in the publication of 1978, is wrong). The drawing Text-fig. 3, fig. 4, was made from the holotype and its twin imprint 132/232. Isotypes Text-fig. 3, figs. 5—7 (IB PAN 132/250, 132/87, 132/28 + 84). Paratype Pl. 5, fig. 2 (Domański Wierch: IB PAN 71/318).

Cunninghamia europaea Szafer, *Taxodiaceae*

Stare Gliwice — Miocene

Szafer 1958b, p. 11. Lectotype (axis of cone) Pl. 2, figs. 10, 11. Isotypes Pl. 2, figs. 12, 13. Isotypes (needles) Pl. 2, figs. 6, 7. IB PAN 56/23.

= *C. miocenica* Ettings. (1872) — Kovar 1982, p. 27.

Eucommia europaea (Mädler) Szafer, *Eucommiaceae*

Mizerna — Pliocene

Szafer 1952b, p. 389. Lectotype (fruit) Pl. 4, fig. 3 (IB PAN 15/39). Isotype

Pl. 4, fig. 4 — the specimens has not been found. Isotypes (leaves) Pl. 3, figs. 4, 6, 8; Pl. 4, fig. 1 (IB PAN 15/38).

Eucommia europaea (Mädler) Szafer f. *monstrosa* Szafer, *Eucommiaceae*

Mizerna — Pliocene

Szafer 1952b, pp. 385, 398. Lectotype Pl. 4, figs. 7, 8.

= *E. europaea* (Mädler) Szafer, the fruit is damaged at its mid-length — M. Łańcucka-Środoniowa, 1973 (unpubl.).

Euryale carpatica Szafer, *Nymphaeaceae*

Krościenko — Pliocene

Szafer 1947, p. 101. Holotype Pl. 9, figs. 9—12. IB UJ 14/67.

= cf. *Pseudoeuryale* sp. — Dorofeev 1974, p. 72.

Fothergilla europaea Szafer, *Hamamelidaceae*

Krościenko — Pliocene

Szafer 1947, p. 89. Lectotype Pl. 7, fig. 35. Isotype Pl. 7, figs. 33, 34. IB UJ 14/57.

= *F. limburgensis* (C.-E. M. Reid) Kirchh. — Kirchheimer 1957, p. 175.

Gratiola tertiaria Łańc.-Środ., *Scrophulariaceae*

Nowy Sącz II — Miocene

Łańcucka-Środoniowa 1977, p. 38. Lectotype Pl. 1, figs. 1, 1a, b and Pl. 2, fig. 1 (IB PAN 194/4). Isotypes Pl. 1, figs. 2, 3 (IB PAN 194/5).

Hartziella miocaenica Szafer, *Onagraceae*

Stare Gliwice — Miocene

Szafer 1963, p. 27. Lectotype Pl. 1, figs. 8—10 (the information given in the paper of 1963 that the specimen comes from a site in Copenhagen is erroneous). Isotypes Pl. 1, figs. 11, 12, 14; Pl. 3, figs. 1—3 (the information given in the paper of 1963 that the specimen on Pl. 3, figs. 1, 2, comes from a site in Copenhagen is erroneous). IB PAN 56/448, 449.

Hartziella rosenkjaeri (Hartz) Szafer, *Onagraceae*

Copenhagen — Oligocene

Szafer 1963, p. 27. Lectotype Pl. 1, fig. 15; Pl. 5, fig. 1. Isotypes Pl. 2, figs. 1—3; Pl. 3, figs. 5, 6 (the information given in the paper of 1963 that the specimens come from a site in Stare Gliwice is erroneous). IB PAN 193/1.

Hartziella vindobonensis Szafer, *Onagraceae*

Brunn-Vösendorf b/Vienna — Pliocene

Szafer 1963, p. 27. Lectotype Pl. 2, figs. 9—11. Isotype Pl. 2, fig. 8. IB PAN 76/2.

Hydrangea polonica Łańc.-Środ., *Saxifragaceae*

Nowy Sącz II — Miocene

Łańcucka-Środoniowa 1975, p. 104. Lectotype Pl. 1, fig. 1; Text-fig. 2, fig. 1. Isotypes Pl. 1, figs. 2, 3; Text-fig. 2, figs. 2, 3. IB PAN 194/1.

Jasminum silesiacum* Szafer, *Oleaceae

Stare Gliwice — Miocene

Szafer 1961, p. 81. Lectotype Pl. 22, figs. 3, 5. Isotypes Pl. 22, figs. 1, 2. IB PAN 56/30.

Juglans szaferi* Zabł., *Juglandaceae

Wieliczka — Miocene

Zablocki 1928, p. 192. Lectotype Pl. 9, fig. 9. Isotypes Pl. 9, figs. 7, 10, 11. IB PAN 37/27.

Larix ligulata* Szafer, *Pinaceae

Krościenko — Pliocene

Szafer 1947, p. 54. Lectotype Pl. 2, fig. 14. Isotypes Pl. 2, figs. 10—12. IB UJ 14/34.

Magnolia gliwicensis* Szafer, *Magnoliaceae

Stare Gliwice — Miocene

Szafer 1961, p. 54. Holotype Pl. 15, figs. 6—9. IB PAN 56/33.

Menyanthes carpatica* Jentys-Szafer. & Truchan., *Menyanthaceae

Mizerna — Pliocene

Jentys-Szaferowa & Truchanowiczówna 1953, p. 46. Lectotype — the specimen picked out by J. Truchanowiczówna on Feb. 20, 1984, not illustrated in the paper of 1953. IB PAN 15/104.

Olea zablockii* Szafer („*Zablockii*”), *Oleaceae

Krościenko — Pliocene

Szafer 1947, p. 172. Holotype Pl. 13, figs. 19—21. IB UJ 14/123. The determination of the genus needs verification — Kirchheimer 1957, p. 454.

= *Daphniphyllum cylindricum*, *Euphorbiaceae* — Geissert & Gregor 1981, pp. 65, 66. That suggestion raises questions, because the original specimen was not examined.***Photinia szaferi* Zast., *Rosaceae***

Mirowstowice — Miocene

Zastawniak 1978, p. 48. Holotype Pl. 4, fig. 2 (IB PAN 132/160). Isotypes Pl. 4, figs. 1, 3, 3a, 4; Text-fig. 2, figs. 5, 5' (IB PAN 132/221, 132/61, 132/158).

Physalis pliocenica* Szafer, *Solanaceae

Krościenko — Pliocene

Szafer 1947, p. 167. Lectotype Pl. 13, fig. 23 (seed). Isotypes Pl. 13, fig. 24 (seed); Pl. 13, fig. 22 (fruit-calyx). IB UJ 14/120.

Pinus sylvestris* L. *miocenica* Zabł. („*silvestris*”), *Pinaceae

Wieliczka — Miocene

Zabłocki 1928, p. 183. Holotype Pl. 7, fig. 7. IB PAN 37/19. The author regards the fossil specimen as a form, although this taxonomic rank is not reflected in the name given.

***Podostemonites coloratus* Szafer, Podostemaceae**

Krościenko — Pliocene

Szafer 1952a, p. 763. Holotype Pl. 1, figs. 1—5. IB UJ 14/58. No preparations of leaves, flowers, stamina, stem pubescence and other details of the anatomic structure made from that specimen (Pl. 1, figs. 5, 6; Pl. 2 — Pl. 5) have been found.

***Proserpinaca reticulata* Reid. f. *tetramera* Szafer, Haloragaceae**

Mizerna — Pliocene

Szafer 1954a, p. 43. Holotype Pl. 10, fig. 8. IB PAN 15/72.

***Prunus microserrata* Zast., Rosaceae**

Miostowice — Miocene

Zastawniak 1978, p. 45. Holotype Pl. 3, figs. 3, 3a; Text-fig. 2, fig. 1 (IB PAN 132/65). Isotypes Pl. 3, fig. 2; Text-fig. 2, figs. 2, 3 (IB PAN 132/26, 132/23). = *Salix microserrata* (Zast.) Zast. comb. n., *Salicaceae* — Zastawniak 1980 (unpubl.). A new combination published by courtesy of E. Zastawniak.

***Prunus persicoides* Szafer, Rosaceae**

Mizerna — Pliocene

Szafer 1954a, p. 38. Lectotype Pl. 8, figs. 14, 15. Isotypes Pl. 8, figs. 12, 13, 16. IB PAN 15/66.

***Pterocarya raciborskii* Zabł., Juglandaceae**

Wieliczka — Miocene

Zabłocki 1928, p. 192 (no detailed description given). Lectotype Pl. 10, fig. 21. Isotype Pl. 10, fig. 23. IB PAN 37/21.

***Ranunculus reidii* Szafer („Reidi”), Ranunculaceae**

Krościenko — Pliocene

Szafer 1947, p. 99. Lectotype Pl. 9, fig. 1. Isotype Pl. 9, fig. 2. IB UJ 14/65.

***Rhus obliquoides* Szafer, Anacardiaceae**

Krościenko — Pliocene

Szafer 1947, p. 129. Holotype Pl. 10, fig. 28. IB UJ 14/90. The determination of the genus is uncertain — Kirchheimer 1957, p. 290. The fruit shows no morphological characters of the genus *Rhus* — E. M. Friis & M. Łańcucka-Środoniowa, Aug. 12, 1976 (unpubl.).

***Rubus semirotundatus* Łańc.-Środ., Rosaceae**

Nowy Sącz I, II — Miocene

Łańcucka-Środoniowa 1979, p. 55. Lectotype Pl. 10, fig. 2 and isotypes Pl. 10,

figs. 1, 4 (Nowy Sącz II: IB PAN 194/10). Isotype Pl. 10. fig. 3 (Nowy Sącz I: IB PAN 194/12).

Ruppia major Szafer („*maior*”), *Potamogetonaceae*

Stare Gliwice — Miocene

Szafer 1961, p. 87. Lectotype Pl. 22, figs. 23, 24. Isotype Pl. 22, fig. 25. IB PAN 56/29.

= *Limnocarpus major* (Szafer) Negru, *Potamogetonaceae* — Negru 1968, p. 1302.

Ruppia maritima L. *miocaenica* Szafer, *Potamogetonaceae*

Stare Gliwice — Miocene

Szafer 1961, p. 85 (taxonomic rank not specified). Lectotype Pl. 22, fig. 17. IB PAN 56/29.

Schefflera dorofeevii Łańc.-Środ., *Araliaceae*

Nowy Sącz I, Chyżne, Lipnica Wielka — Miocene

Łańcucka-Środoniowa 1975, p. 107. Lectotype Pl. 1, fig. 10 and isotype Pl. 1, fig. 11 (Nowy Sącz I: IB PAN 194/2, 194/3). Paratypes Pl. 1, fig. 12 (Chyżne: IB PAN 82/6); Pl. 1, fig. 13 (Lipnica Wielka: IB PAN 124/2).

Scirpus pliocenicus Szafer, *Cyperaceae*

Krościenko — Pliocene

Szafer 1947, p. 187. Lectotype Pl. 15, fig. 31. Isotype Pl. 15, fig. 32. In the assemblage there are many specimens that represent the species better than does the lectotype, but they have not been shown in illustrations. IB UJ 14/138.

= *Schoenoplectus pliocenicus* (Szafer) Łańc.-Środ., *Cyperaceae* — Jahn, Łańcucka-Środoniowa & Sadowska 1984, Tab. 2, Pl. 3, figs. 7, 8.

Sinomenium dielsii Szafer („*Dielsi*”), *Menispermaceae*

Krościenko — Pliocene

Szafer 1947, p. 96. Lectotype Pl. 8, fig. 15. Isotypes Pl. 8, figs. 16, 21. IB UJ 14/63.

Sphaenotheca carpatica Szafer, *Symplocaceae*

Krościenko — Pliocene

Szafer 1958a, p. 205. Holotype Text-fig. 1, figs. 1—7. IB UJ 14/143.

Tetraclinis carpatica Maśl., *Cupressaceae*

Krościenko — Pliocene

Maślankiewiczowa 1953, p. 845. Lectotype Pl. 1, figs. 2, 3, 8. IB UJ 14/41. The morphological structure does not agree with that of the genus *Tetraclinis* or the *Coniferae* — M. Łańcucka-Środoniowa, 1966 (unpubl.). The anatomical structure different from that of the *Coniferae*, refers the specimen to the *Dicotyledones* — Z. Kvaček, 1978 (unpubl.).

= *Dicotyledones* gen.

***Tetraclinis wandae* Zabł., Cupressaceae**

Wieliczka — Miocene

Zabłocki 1928, p. 188. Lectotype (cone) Pl. 8, fig. 14. Isotype Pl. 8, fig. 12. Isotypes (leafy twigs) Pl. 8, figs. 16, 17. IB PAN 37/32.

= *T. brongniartii* (Endlich.) Kräusel — Mai & Walther 1978, p. 28.***Tilia praeplatyphyllos* Szafer, Tiliaceae**

Stare Gliwice — Miocene

Szafer 1961, p. 73. Lectotype Pl. 19, fig. 7. Isotypes Pl. 19, figs. 3, 6. IB PAN 56/31.

***Tilia tuberculata* Szafer, Tiliaceae**

Mizerna — Pliocene

Szafer 1954a, p. 44. Lectotype Pl. 10, fig. 9. Isotypes Pl. 10, figs. 10, 11. IB PAN 15/73.

***Trachycystis szaferi* Szafran, Mniaceae (Musci)**

Domański Wierch — Pliocene

Szafran 1949/1950, p. 249. Holotype Fig. 1, 2. IB UJ 71/536.

***Vaccinium minutulum* Łańc.-Środ., Ericaceae**

Nowy Sącz II, Niskowa — Miocene

Łańcucka-Środoniowa 1979, p. 66. Lectotype Pl. 11, figs. 12a, b (Nowy Sącz II: IB PAN 194/13). Paratype Pl. 11, fig. 13 (Niskowa: IB PAN 194/14).

***Weigela oraviensis* Łańc.-Środ., Caprifoliaceae**

Chyżne — Miocene

Łańcucka-Środoniowa 1967, p. 13. Lectotype Pl. 2, fig. 1; Text-fig. 5, fig. 1. Isotype Pl. 2, fig. 2; Text-fig. 5, fig. 2. IB PAN 82/5.

***Weigela szaferi* Łańc.-Środ., Caprifoliaceae**

Krościenko — Pliocene

Łańcucka-Środoniowa 1967, p. 15. Lectotype Text-fig. 5, fig. 6 (IB PAN 14/265). Isotypes Pl. 2, fig. 4; Text-fig. 5, figs. 4, 7—11 (IB PAN 14/266).

***Zannichellia praepedicellata* Szafer, Potamogetonaceae**

Stare Gliwice — Miocene

Szafer 1961, p. 88. Holotype Pl. 23, fig. 8. IB PAN 56/32.

QUATERNARY

***Armeria iversenii* Szafer, Plumbaginaceae**

Łęki Dolne — Pleistocene

Klimaszewski & Szafer 1945, p. 17. Lectotype Pl. 1, fig. 2b (IB UJ Q-68/1). Isotypes Pl. 1, figs. 2a, c — specimens have not been found. The slide with pollen

grains (Szafer 1945, Pl. 1, figs. 4, 5) has not been found. In the assemblage there are many specimens that represent the species better than does the lectotype, but they have not been shown in illustrations. Diagnosis: Szafer 1945, p. 23.

Larix polonica* Rac. f. *fossilis* Szafer, *Pinaceae

Hamernia — Interglacial

Szafer 1931, p. 23. Lectotype Pl. 1, fig. 1. Isotype Pl. 1, fig. 2. IB UJ Q-64/1.

Remarks on the structure of cones of this species are given by Raciborski (1890, p. 492) and Szafer (1914, p. 130 and 1948, p. 10).

Menyanthes trifoliata* L. var. *interglacialis* Jentys-Szafer. & Truchan., *Menyanthaceae

Kalisz — Eemian Interglacial

Jentys-Szaferowa & Truchanowiczówna 1953, p. 45. The neotype was chosen by J. Truchanowiczówna on Feb. 20, 1984. In the paper of 1953 the authoresses did not name the sites from which the specimens illustrated come and today these specimens cannot be found in the abundant fossil material. The neotype belonged to the materials dealt with by the authoresses when they were preparing the diagnoses. IB PAN Q-63/1.

Trapa capitulata* Szafer, *Trapaceae

Ciechanki Krzesimowskie — Mazovian Interglacial

Szafer 1954b, p. 132. Lectotype Pl. 2, fig. 2. IB PAN Q-62/1.

Trapa hryniewieckii* Szafer, *Trapaceae

Żydowszczyzna, USSR — Mazovian Interglacial

Szafer 1954b, p. 130. Lectotype Pl. 1, fig. 8. Isotype Pl. 1, fig. 9. IB UJ Q-61/2.

Trapa mikii* Szafer, *Trapaceae

Żydowszczyzna, USSR — Mazovian Interglacial

Szafer 1954b, p. 131. Lectotype Pl. 2, figs. 8, 9. Isotype Pl. 2, fig. 10. IB UJ Q-61/1.

Polish Academy of Sciences, Institute of Botany. Department of Palaeobotany, Lubicz 46, 31-512 Kraków, Poland

Instytut Botaniki PAN, Zakład Paleobotaniki

REFERENCES

- Dorofeev P. I. 1974. *Nymphaeaceae* in: Iskopajemye cvetkovye rastenija SSSR, I: *Magnoliaceae* — *Eucommiaceae*. Izd. Bot. Inst. AN SSSR. Leningrad.
- Geissert F. & Gregor H.-J. 1981. Eine neue elsässische pliozän-Flora, die „Saugbagger-Flora“ der Kiesgrube von Sessenheim (Bas — Rhin). Cour. Forsch.-Inst. Senkenberg, 50:59—71.
- Jahn A., Łańcucka-Środoniowa M. & Sadowska A. 1984. Stanowisko utworów plioceńskich w Kotlinie Kłodzkiej na Dolnym Śląsku (summary: A locality of the Pliocene sediments in the Kłodzko Basin (Lower Silesia)). Geol. Sudet., 18 (2): 7—43.

- Jentys-Szaferowa J. 1958. The genus *Carpinus* in Europe in the paleobotanical literature. Monogr. Bot., 7:3—59.
- & Truchanowiczówna J. 1953. Nasiona *Menyanthes* L. w Polsce od pliocenu po okres współczesny (summary: Seeds of *Menyanthes* L. in Poland from the Pliocene to the present time). Prace Inst. Geol., 10:37—59.
- Kirchheimer F. 1957. Die Laubgewächse der Braunkohlenzeit. Halle (Saale).
- Klimaszewski M. & Szafer W. 1945. Plejstocen w Łękach Dolnych koło Tarnowa (summary: The Pleistocene in Łęki Dolne near Tarnów). Starunia, 19:1—34.
- Kovar J. 1982. Eine blätter-Flora des Egerien (ober oligozän) aus marinen Sedimenten der zentralen Paratethys im Linzer Raum (Österreich). Beitr. Paläont. Österr., 9:1—209.
- Łańcucka-Środoniowa M. 1967. Two new genera: *Hemiptelea* Planch. and *Weigela* Thunb. in the younger Tertiary of Poland. Acta Palaeobot., 8 (3):3—19.
- 1975. *Hydrangea* L. (*Saxifragaceae*) and *Schefflera* Forst. (*Araliaceae*) in the Tertiary of Poland. Ibid., 16 (2):103—112.
- 1977. New herbs described from the Tertiary of Poland. Ibid., 18 (1):37—44.
- 1979. Macroscopic plant remains from the freshwater Miocene of the Nowy Sącz Basin (West Carpathians, Poland). Ibid., 20 (1):3—117.
- Mai D. H. 1964. Die Mastixioideen-Floren im Tertiär der Oberlausitz. Paläont. Abh. B, 2 (1):1—192.
- 1970. Subtropische Elemente im europäischen Tertiär I. Ibid. 3 (3/4):441—503.
- 1980. Zur Bedeutung von Relikten in der Florengeschichte. 100 Jahre Arboretum (1879—1979), Berlin 1980:281—307.
- & Walther H. 1978. Die Floren der Haselbacher Serie im Weisselster.-Becken (Bezirk Leipzig, DDR.) Abh. Staatl. Mus. Mineral. Geol. Dresden, 28: 1—200.
- Maślankiewiczowa Z. 1953. *Tetraclinis carpatica* n. sp. z pliocenu Karpat Zachodnich (summary: *Tetraclinis carpatica* n. sp. from the Pliocene deposits of the West Carpathian Mountains). Acta Soc. Bot. Pol., 22 (4):839—848.
- Negru A. G. 1968. Iskopaemye plody *Ruppiaceae* i *Potamogetonaceae* iz buglovskich otlozenij Moldavii. Bot. Żurn., 53 (9):1300—1305.
- Raciborski M. 1890. Kilka słów o modrzewiu w Polsce. Kosmos, 15:488—497.
- Reymanówna M. 1963. The Jurassic flora from Grojec near Cracow in Poland. Part I. Acta Palaeobot., 4 (2):9—48.
- 1973. The Jurassic flora from Grojec near Kraków in Poland. Part II. *Caytoniales* and anatomy of *Caytonia*. Ibid., 14 (2):45—87.
- Szafer W. 1914. Przyczynek do znajomości modrzewi euroazjatyckich ze szczególnem uwzględnieniem modrzewia polskiego (Zusammenfassung: Beitrag zur Kenntniss der Lärchen Eur-Asiens mit besonderer Berücksichtigung der polnischen Lärche). Kosmos, 38:1281—1322.
- 1931. The oldest interglacial in Poland. Bull. Acad. Pol. Sc., Cl. Math. Natur., Sér. B (1):19—50.
- 1945. Kopalna *Armeria* w plejstocenie europejskim ze szczególnym uwzględnieniem plejstocenu w Polsce (summary: The fossil *Armeria* in the European Pleistocene especially in Poland). Starunia, 20:1—31.
- 1947. Flora pliocenińska z Krościenka n/Dunajcem. Cz. II (summary: The Pliocene flora of Krościenko in Poland. Part II). Rozpr. Wydz. Mat.-Przyr. PAU, Dział B, 72 (2):1—213.
- 1952a. Przedstawiciel rodziny *Podostemonaceae* w trzeciorzędzie Karpat Zachodnich (summary: A member of the family *Podostemonaceae* in the Tertiary of West Carpathian Mts.). Acta Soc. Bot. Pol., 21 (4):747—769.
- 1952b. Rodzina *Eucommiaceae* w trzeciorzędzie europejskim (summary: The family *Eucommiaceae* in the Tertiary of Europe). Kosmos, Ser. A, 66 (1/3):378—409.
- 1954a. Pliocińska flora okolic Czorsztyna i jej stosunek do plejstocenu (summary: Pliocene flora from the vicinity of Czorsztyn (West Carpathians) and its relationship to the Pleistocene). Prace Inst. Geol., 11:3—238.
- 1954b. O niektórych żyjących i kopalnych formach orzecha wodnego (*Trapa* L.) (summary: On some living and fossil forms of *Trapa* L.). Acta Soc. Bot. Pol., 23 (1):117—141.
- 1958a. The genus *Sphaenotheca* Kirchh. in the Lower Pliocene of the Carpathian Mountains. Veröff. Geobot. Inst., Zürich, 33: 203—206.

- 1958b. Rodzaj *Cunninghamia* R. Br. w miocenie europejskim (summary: The genus *Cunninghamia* R. Br. in the European Miocene). Acta Biol. Crac., Sér. Bot., 1:7—13.
- 1961. Mioceńska flora ze Starych Gliwic na Śląsku (summary: Miocene flora from Stare Gliwice in Upper Silesia). Prace Inst. Geol., 33: 1—205.
- 1963. What is *Carpolithes rosenkjaeri* Hartz? Acta Palaeobot., 4 (1):3—35.
- Szafran B. 1949/1950. *Trachycystis szaferi* a new species of moss from the Miocene of Poland. Acta Soc. Bot. Pol., 20 (1):247—250.
- Zabłocki J. 1928. Tertiäre Flora des Salzlagers von Wieliczka. Teil I. Ibid., 5 (2):174—208.
- Zastawniak E. 1978. Upper Miocene leaf flora from Mirostowice Dolne (Western Poland). Acta Palaeobot., 19 (1):41—66.
- Zdebska D. 1982. A new zosterophyll from the Lower Devonian of Poland. Palaeontology, 25 (2):247—263.