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## COLLECTION OF PTERIDOPHYTES IN THE HERBARIUM OF THE UNIVERSITY OF SILESIA (KTU)

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### SUMMARY

The collection of *Pteridophytes* (*Lycopodiophyta*, *Psilotophyta*, *Equisetophyta*, *Polypodiophyta*) contains at present (2004) over 2100 specimens representing 44 genera and over 132 taxa – species and subspecies. This collection originates mainly the area of the Upper Silesia and adjoining regions as well as from the whole territory of Poland and from different parts of the world (e.g. Mediterranean Region, Eastern and Western Europe, Asia, North and South America).

The KTU collection documents botanical scientific researches and includes materials from inter-herbarium exchange and partially from private herbaria donated as gifts. Good conditions of storage and accessibility of collections provide the opportunity of work with the resources of the herbarium on site.

### INTRODUCTION

The collection of Herbarium of the University of Silesia (KTU) was founded in 1972 within the Department of Plant Systematics and Geography of the then-existing Institute of Biology at the University of Silesia (Katowice, Poland) (Rostański & Krawczyk 1993).

Thanks to the efforts of the first Curator of Herbarium – Krzysztof Rostański the collection of the Scientific Herbarium was mentioned for the first time with the symbol KTU in *Index Herbariorum* (Holmgren & Keuken 1974) and then in *Polish Herbaria* (Mirek 1990, Mirek et al. 1997). Until 2000 the Herbarium was located in the building of the Faculty of Biology and Environmental Protection of the University of Silesia in Katowice – Jagiellońska St. 28). In 2001 the

Collection of the Herbarium was transferred to a new seat in the modern building of the University of Silesia Centre in Chorzów (75 Pułku Piechoty St., 1) (see fig. 1, fig. 2).



Fig. 1. New building of the Scientific Herbarium of the University of Silesia (KTU).



Fig. 2. Compact shelves with the *Pteridophytes* herbarium specimens.

The Herbarium – KTU collection documents botanical scientific researches and includes materials from inter-herbarium exchange and partially from private herbaria donated as the gifts. This collection originates mainly from the area of the Upper Silesia and adjoining regions as well as from the whole territory of Poland and different parts of the world (e.g. Mediterranean Region, Eastern and Western Europe, Asia, North and South America). For example the current collection of the grasses in the Herbarium KTU encompasses over 5,5 thousand specimens (Rostański 2003).

The scientific names of plants are according to “A dictionary of the flowering plants and ferns” (Willis 1973) and “Flowering plants and pteridophytes of Poland. A checklist” (Mirek et al. 2002).

### CHARACTERISTIC OF PTERIDOPHYTES COLLECTION IN HERBARIUM KTU

The collection of pteridophytes in the Herbarium – KTU includes material from *Lycopodiophyta*, *Psilotophyta*, *Equisetophyta*, *Polypodiophyta* and contains at present (2004) over 2100 specimens representing 44 genera and over 130 taxa (species and subspecies) (see fig. 3). This collection originates mainly from the area of the Upper Silesia and adjacent regions in Poland. A smaller part of collection of pteridophytes was collected in various parts of the world (South, North, West- and East parts of Europe, Cuba and Canada) (see fig. 4).

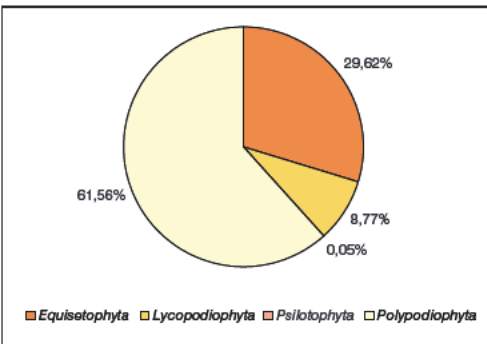


Fig. 3. Percentage of divisions of the Pteridophytes in collection of KTU – Herbarium.

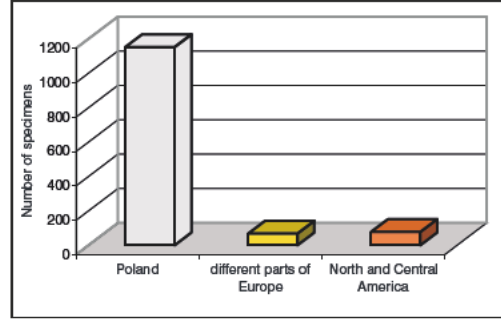


Fig. 4. Geographical origin of specimens of *Polypodiophyta* collection of KTU – Herbarium.

The *Equisetophyta* is represented in KTU by about 620 specimens from 19 taxa (tab. 1). The species which are represented by the highest number of specimens are: *Equisetum arvense* (165), *E. sylvaticum* (123), *E. palustre* (108) and *E. fluviatile* (90).

The *Lycopodiophyta* is represented only by 6 genera and 185 specimens (tab. 2).

The *Psilotophyta* is represented by only 1 specimen – *Psilotum nudum*, which was collected by Krzysztof Rostański in Cuba in 1982 (Arroyo Imias, Prov. Guantanamo).

The collection of ferns (*Polypodiophyta*) in KTU encompasses currently (2004) c.a. 1300 specimens and is represented by 18 families (see fig. 5), 36 genera and over 90 taxa (tab. 3). The genera which are represented by the highest number of species (and smaller taxa) are: *Asplenium* (11), *Adiantum* (8), *Dryopteris* (7), *Polypodium* (7) and *Cystopteris* (4). The genera which contain most numerous herbarium aegata are: *Dryopteris* (409), *Athyrium* (181) and *Asplenium* (102). The species which are represented by the highest number of herbarium aegata are: *Athyrium filix-femina* (161), *Dryopteris carthusiana* (153), *Dryopteris filix-mas* (131), *Dryopteris dilatata* (102), *Pteridium aquilinum* (79).

A group of specimens of the rarest European fern species includes i.a.: *Adiantum capillus-veneris*, *Asplenium fissum*, *Asplenium septentrionale*, *Cystopteris alpina*, *C. sudetica*, *Marsilea quadrifolia* and *Polypodium interjectum*.

Very interesting are the Cuban ferns (see fig. 6), collected by Krzysztof Rostański in years 1981, 1982 and 1989 during the expedi-

Table 1. List of *Equisetum* species (*Equisetophyta*) in the Scientific Herbarium of the University of Silesia (KTU).

| SPECIES OF THE GENUS <i>EQUISETUM</i> L.                                  | No. of specimens |
|---|------------------|
| 1. <i>Equisetum arvense</i> L.  | 165              |
| 2. <i>Equisetum arvense</i> var. <i>nemorosum</i> A. BR.                  | 7                |
| 3. <i>Equisetum fluviatile</i> for. <i>brachycladon</i> ASCHERS.          | 6                |
| 4. <i>Equisetum fluviatile</i> for. <i>corymbosa</i> MILDE                | 1                |
| 5. <i>Equisetum fluviatile</i> L.   | 85               |
| 6. <i>Equisetum fluviatile</i> var. <i>limmacanum</i> DOLL.               | 1                |
| 7. <i>Equisetum hyemale</i> L.  | 18               |
| 8. <i>Equisetum palustre</i> L.   | 99               |
| 9. <i>Equisetum palustre</i> L. for. <i>langiramosum</i> KLINGE           | 2                |
| 10. <i>Equisetum palustre</i> L. for. <i>tenne</i> DOLL                   | 1                |
| 11. <i>Equisetum palustre</i> L. var. <i>polystachyum</i> WEIGEL          | 6                |
| 12. <i>Equisetum pratense</i> EHRH.                                       | 16               |
| 13. <i>Equisetum ramosissimum</i> DESF.                                   | 4                |
| 14. <i>Equisetum ramosissimum</i> DESF. var. <i>subreticillatum</i> MILDE | 2                |
| 15. <i>Equisetum sylvaticum</i> L.  | 123              |
| 16. <i>Equisetum telmateia</i> EHRH.                                      | 64               |
| 17. <i>Equisetum variegatum</i> SCHLEICH.                                 | 23               |
| 18. <i>Equisetum variegatum</i> SCHLEICH. for. <i>caespitosa</i> DOLL.    | 1                |
| 19. <i>Equisetum x moorei</i> NEWMAN                                      | 1                |
| <b>Total number of specimens</b>  | <b>625</b>       |

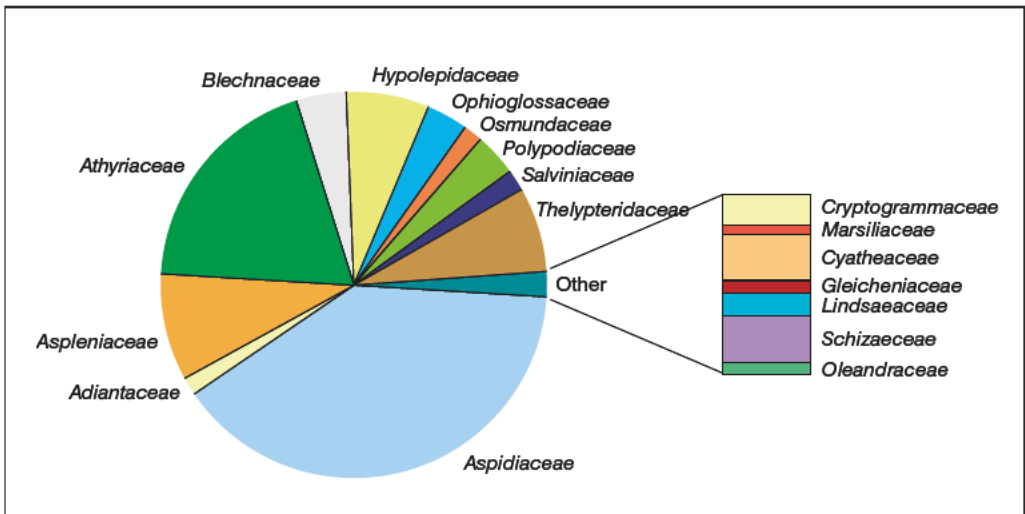


Fig. 5. Percentage of specimens from *Polypodiophyta* families in collection of KTU – Herbarium.

**Table 2.** List of *Lycopodiophyta* genera and species in collection of KTU – Herbarium (species signed \* represent Cuban flora collection).

| GENUS (No. OF SPECIES) AND SPECIES NAMES   | No. of specimens |
|--|------------------|
| <b>Genus <i>Diphasiastrum</i> HOLUB (5)</b>  |                  |
| 1. <i>Diphasiastrum alpinum</i> (L.) HOLUB   | 7                |
| 2. <i>Diphasiastrum complanatum</i> (L.) HOLUB   | 9                |
| 3. <i>Diphasiastrum complanatum</i> (L.) HOLUB<br>subsp. <i>chamaecyparissus</i> (A. BRAUN) KUKKONEN | 1                |
| 4. <i>Diphasiastrum issleri</i> (ROUY) HOLUB   | 1                |
| 5. <i>Diphasiastrum tristachyum</i> (PURSH) HOLUB  | 2                |
| <b>Genus <i>Huperzia</i> BERNH. (1)</b>  |                  |
| 6. <i>Huperzia selago</i> (L.) BERNH. ex SCHRANK & MART.   | 24               |
| <b>Genus <i>Isoetes</i> L. (1)</b>   |                  |
| 7. <i>Isoetes lacustris</i> L.   | 6                |
| <b>Genus <i>Lycopodiella</i> HOLUB (1)</b>   |                  |
| 8. <i>Lycopodiella inundata</i> (L.) HOLUB   | 13               |
| <b>Genus <i>Lycopodium</i> L. (6)</b>  |                  |
| 9. <i>Lycopodium annotinum</i> L.  | 35               |
| 10. <i>Lycopodium clavatum</i> L.  | 69               |
| 11. * <i>Lycopodium cernuum</i> L.   | 3                |
| 12. * <i>Lycopodium lucidulum</i> MICHAUX  | 1                |
| 13. * <i>Lycopodium obscurum</i> L.  | 2                |
| 14. * <i>Lycopodium sabinifolium</i> var. <i>stichensis</i> WILLD.                                   | 1                |
| <b>Genus <i>Selaginella</i> P. BEAUV (4)</b>   |                  |
| 15. <i>Selaginella helvetica</i> (L.) SPRING   | 4                |
| 16. * <i>Selaginella lepidophylla</i> (HOOK. & GREV.) SPRING.  | 1                |
| 17. <i>Selaginella selaginoides</i> (L.) P. BEAUV. ex SCHRANK & MART                                 | 3                |
| 18. <i>Selaginella</i> sp.   | 3                |
| <b>Total number of specimens</b>   | <b>185</b>       |

tions of the Jardín Botánico Nacional in La Habana to various regions of Cuba. They are represented by some species belonging to the following genera (tab. 3): *Acrostichum*, *Alsophila*, *Anemia*, *Campyloneurum*, *Cnemidaria*, *Cyathea*, *Dicranopteris*, *Lygodium*, *Microgramma*, *Nephrolepis*, *Odontosoria*, *Phlebodium*, *Pityrogramma* and *Pteris*.

Predominantly good conditions of storage and accessibility of collections provide the opportunity of convenient access to the resources of the herbarium on site, therefore we may turn researches with an appeal and invitation to visit our collection.

**Fig. 6.** *Adiantum trapeziforme* L. herbarium specimen.

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**Table 3.** List of ferns (*Polypodiophyta*) genera and species in the Scientific Herbarium of the University of Silesia (KTU) (genera and species signed \* represent Cuban flora collection).

| GENUS (No. OF SPECIES) AND SPECIES NAMES                             | No. of specimens |
|--|------------------|
| <b>* Genus <i>Acrostichum</i> L. (1)</b>                             |                  |
| 1. * <i>Acrostichum aureum</i> L.                                    | 2                |
| <b>Genus <i>Adiantum</i> L. (8)</b>                                  |                  |
| 2. <i>Adiantum capillus-veneris</i> L.                               | 1                |
| 3. * <i>Adiantum latifolium</i> LAM.                                 | 1                |
| 4. * <i>Adiantum martinicensis</i> CAV.                              | 1                |
| 5. * <i>Adiantum melanoleucum</i> WILLD.                             | 2                |
| 6. * <i>Adiantum tenerum</i> SW.                                     | 2                |
| 7. * <i>Adiantum pyramidale</i> (L.) WILLD.                          | 2                |
| 8. * <i>Adiantum pedatum</i> L.                                      | 1                |
| 9. * <i>Adiantum trapeziforme</i> L.                                 | 2                |
| <b>* Genus <i>Alsophila</i> R.BR. (2)</b>                            |                  |
| 10. * <i>Alsophila melanopus</i> HOOK (= <i>Adiantum melanopus</i> ) | 1                |
| 11. * <i>Alsophila pectinata</i> FÉE (= <i>Adiantum pectinatum</i> ) | 2                |
| <b>* Genus <i>Anemia</i> SWARTZ (2)</b>                              |                  |
| 12. * <i>Anemia adiantifolia</i> (L.) Sw.                            | 6                |
| 13. * <i>Anemia coriacea</i> Griseb                                  | 1                |
| <b>Genus <i>Asplenium</i> L. (11)</b>                                |                  |
| 14. <i>Asplenium adiantum-nigrum</i> L.                              | 3                |
| 15. * <i>Asplenium adiantum-nigrum</i> L. <i>subsp. onoperis</i>     | 2                |
| 16. <i>Asplenium cuneifolium</i> VIV.                                | 4                |
| 17. <i>Asplenium fissum</i> KIT. ex WILLD.                           | 1                |
| 18. * <i>Asplenium heterochroum</i> KUNZE                            | 1                |
| 19. <i>Asplenium ruta-muraria</i> L.                                 | 47               |
| 20. <i>Asplenium septentrionale</i> (L.) HOFFM.                      | 1                |
| 21. <i>Asplenium trichomanes</i> L.                                  | 30               |
| 22. <i>Asplenium viride</i> HUDS.                                    | 14               |
| 23. <i>Asplenium x alternifolium</i> WULFEN                          | 2                |
| 24. * <i>Asplenium</i> sp.   | 3                |
| <b>Genus <i>Athyrium</i> ROTH (3)</b>                                |                  |
| 25. <i>Athyrium distentifolium</i> TAUSCH ex OPIZ                    | 20               |
| 26. <i>Athyrium filix-femina</i> (L.) ROTH                           | 161              |
| 27. * <i>Athyrium thelypteroides</i> L. var. <i>pubescens</i>        | 1                |

| GENUS (No. OF SPECIES) AND SPECIES NAMES                                      | No. of specimens |
|---|------------------|
| <b>Genus <i>Blechnum</i> L. (3)</b>   |                  |
| 28. * <i>Blechnum occidentale</i> L.  | 4                |
| 29. * <i>Blechnum serrulatum</i> RICH.  | 2                |
| 30. <i>Blechnum spicant</i> (L.) ROTH   | 48               |
| <b>Genus <i>Botrychium</i> SWARTZ (1)</b>                                     |                  |
| 31. <i>Botrychium lunaria</i> (L.) SW.  | 32               |
| <b>Genus <i>Ceterach</i> DC. (1)</b>  |                  |
| 32. <i>Ceterach officinarum</i> D.C.  | 7                |
| <b>* Genus <i>Campyloneurum</i> C. PRESL (2)</b>                              |                  |
| 33. * <i>Campyloneurum phyllitidis</i> (L.) PRESL.                            | 1                |
| 34. * <i>Campyloneurum</i> sp.  | 1                |
| <b>* Genus <i>Cnemidaria</i> PRESL (1)</b>                                    |                  |
| 35. * <i>Cnemidaria horrida</i> (L.) PRESL.                                   | 1                |
| <b>Genus <i>Cryptogramma</i> R.BR. (1)</b>                                    |                  |
| 36. <i>Cryptogramma crispa</i> (L.) R. BR.                                    | 5                |
| <b>* Genus <i>Cyathea</i> SM. (3)</b>   |                  |
| 37. * <i>Cyathea aquiline</i> (CHRIST) DOMIN                                  | 2                |
| 38. * <i>Cyathea caracasana</i> (KLOTZSCH) DOMI                               | 1                |
| 39. * <i>Cyathea</i> sp.  | 4                |
| <b>Genus <i>Cystopteris</i> BRENH. (4)</b>                                    |                  |
| 40. <i>Cystopteris alpina</i> (LAM.) DESV.                                    | 1                |
| 41. <i>Cystopteris fragilis</i> (L.) BERNH.                                   | 38               |
| 42. <i>Cystopteris montana</i> (LAMK.) DESV.                                  | 1                |
| 43. <i>Cystopteris sudetica</i> A. BRAUN & MILDE                              | 1                |
| <b>* Genus <i>Dicranopteris</i> BERNHARDI (1)</b>                             |                  |
| 44. * <i>Dicranopteris dichotoma</i> (THUNB.) BERNH.                          | 1                |
| <b>Genus <i>Dryopteris</i> ADANS. (8)</b>                                     |                  |
| 45. <i>Dryopteris affinis</i> (LOWE) FRASER – JENK.                           | 5                |
| 46. <i>Dryopteris carthusiana</i> (VILL.) H.P.FUCHS                           | 153              |
| 47. <i>Dryopteris carthusiana</i> (VILL.) H.P.FUCHS var. <i>elevata</i> A.BR. | 5                |
| 48. <i>Dryopteris cristata</i> (L.) A. GRAY                                   | 5                |
| 49. <i>Dryopteris dilatata</i> (HOFFM.) A.GRAY                                | 102              |
| 50. <i>Dryopteris expansa</i> (C.PRESL) FRASER-JENK.& JERMY                   | 8                |
| 51. <i>Dryopteris filix-mas</i> (L.) SCHOTT                                   | 131              |
| 52. * <i>Dryopteris serra</i> Sw.   | 3                |
| <b>Genus <i>Gymnocarpium</i> NEWMAN (2)</b>                                   |                  |
| 53. <i>Gymnocarpium dryopteris</i> (L.) NEWMAN                                | 44               |
| 54. <i>Gymnocarpium robertianum</i> (HOFFM.) NEWMAN                           | 23               |
| <b>* Genus <i>Lygodium</i> SWARTZ (1)</b>                                     |                  |
| 55. * <i>Lygodium venustum</i> SW.  | 1                |
| <b>Genus <i>Marsilea</i> L. (1)</b>   |                  |
| 56. <i>Marsilea quadrifolia</i> L.  | 1                |
| <b>Genus <i>Matteucia</i> TOD. (1)</b>  |                  |
| 57. <i>Matteucia struthiopteris</i> (L.) TOD                                  | 23               |
| <b>* Genus <i>Microgramma</i> C. PRESL (1)</b>                                |                  |
| 58. * <i>Microgramma heterophylla</i> (L.) WHERRY                             | 2                |
| <b>* Genus <i>Nephrolepis</i> SCHOTT (2)</b>                                  |                  |
| 59. * <i>Nephrolepis biserrata</i> (SW.) SCHOTT                               | 1                |
| 60. * <i>Nephrolepis exaltata</i> (L.) SCHOTT                                 | 1                |

| GENUS (No. OF SPECIES) AND SPECIES NAMES   | No. of specimens |
|--|------------------|
| <b>* Genus <i>Odontosoria</i> FEÉ (2)</b>  |                  |
| 61. * <i>Odontosoria aculeata</i> (L.) J. SMITH.   | 1                |
| 62. * <i>Odontosoria wrightiana</i> MAXON  | 2                |
| <b>Genus <i>Ophioglossum</i> L. (1)</b>  |                  |
| 63. <i>Ophioglossum vulgatum</i> L.  | 15               |
| <b>Genus <i>Oreopteris</i> HOLUB (1)</b>   |                  |
| 64. <i>Oreopteris limbosperma</i> (BELLARDI ex ALL.) HOLUB<br>(= <i>Thelypteris limbosperma</i> (ALL.) H.P.FUCHS ) | 35               |
| <b>Genus <i>Osmunda</i> L. (4)</b>   |                  |
| 65. * <i>Osmunda cinnamomea</i> L.   | 1                |
| 66. * <i>Osmunda claytoniana</i> L.  | 1                |
| 67. <i>Osmunda regalis</i> L.  | 13               |
| 68. <i>Osmunda regalis</i> L. var. <i>spectabilis</i>  | 1                |
| <b>Genus <i>Phegopteris</i> (C.PRESL) FÉE (1)</b>  |                  |
| 69. <i>Phegopteris connectilis</i> (MICHX.) WATT   | 43               |
| <b>* Genus <i>Phlebodium</i> (R. BR.) J. SMITH (1)</b>   |                  |
| 70. * <i>Phlebodium aureum</i> (L.) J. SMITH   | 1                |
| <b>Genus <i>Phyllitis</i> HILL (1)</b>   |                  |
| 71. <i>Phyllitis scolopendrium</i> (L.) NEWMAN   | 2                |
| <b>* Genus <i>Pityrogramma</i> LINK (1)</b>  |                  |
| 72. * <i>Pityrogramma calomelanos</i> (L.) LINK.   | 3                |
| <b>Genus <i>Polypodium</i> L. (8)</b>  |                  |
| 73. <i>Polypodium interjectum</i> SHIVAS   | 1                |
| 74. * <i>Polypodium pectinatum</i> L.  | 1                |
| 75. * <i>Polypodium</i> sp.  | 1                |
| 76. <i>Polypodium vulgare</i> L. f. <i>megalophyllum</i>   | 1                |
| 77. <i>Polypodium vulgare</i> L.   | 38               |
| 78. <i>Polypodium vulgare</i> var. <i>obtusum</i> WALLR.   | 1                |
| 79. <i>Polypodium vulgare</i> var. <i>Oppositum</i> WIRTGEN  | 1                |
| 80. <i>Polypodium vulgare</i> var. <i>angustum</i> HAUSM.  | 1                |
| <b>Genus <i>Polystichum</i> ROTH (3)</b>   |                  |
| 81. <i>Polystichum aculeatum</i> (L.) ROTH   | 31               |
| 82. <i>Polystichum braunii</i> (SPENN.) FÉE  | 3                |
| 83. <i>Polystichum lonchitis</i> (L.) ROTH   | 6                |
| <b>Genus <i>Pteridium</i> SCOP. (2)</b>  |                  |
| 84. <i>Pteridium aquilinum</i> (L.) KUHN   | 79               |
| 85. <i>Pteridium aquilinum</i> (L.) KUHN var. <i>caudatum</i> (L.) SADEB.  | 1                |
| <b>* Genus <i>Pteris</i> GLED. EX SCOP. (3)</b>  |                  |
| 86. * <i>Pteris grandifolia</i> L.   | 2                |
| 87. * <i>Pteris longifolia</i> L.  | 3                |
| 88. * <i>Pteris</i> sp.  | 1                |
| <b>Genus <i>Salvinia</i> ADANSON (2)</b>   |                  |
| 89. <i>Salvinia natans</i> (L.) ALL.   | 20               |
| 90. <i>Salvinia</i> sp.  | 1                |
| <b>Genus <i>Thelypteris</i> SCHMIDEL(3)</b>  |                  |
| 91. * <i>Thelypteris sevra</i> (SW. R.P.) ST.JOHN IN SMALL   | 1                |
| 92. <i>Thelypteris palustris</i> SCHOTT  | 13               |
| 93. * <i>Thelypteris</i> sp.   | 1                |
| <b>TOTAL NUMBER OF SPECIMENS</b>   | <b>1299</b>      |