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Survey of the Vascular Flora of Poinsett County, Arkansas

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Daniel L. Marsh

plants will be essential to a further investigation of flowering, and an experimental program including controlled temperature and injury as well as continued field investigations is projected from the present time through the following spring.

That some of the observed cane populations of Arkansas could represent unusual gene pools is a possibility which must be considered. Flowering occurs much more regularly in some species of Arundinaria than is known in our native A. gigantea. McClure (1966, p. 202) has expressed the potential importance of unusual clones of bamboos as follows:

The economic success of large-scale exploitation will depend on an important extent on the cultivation of elite bamboos, selected for outstanding quality and high productivity. Such traits will be found associated only in an occasional individual clone.

Fernald and Kinsey (1958) have discussed the value of both the grain and the young shoots of Arundinaria for human consumption, and Gould (1958, p. 5) has pointed out its use as a valuable livestock forage. McClure (1966, p. 147 ff.) has emphasized the need of more comprehensive studies of the bamboos not only for purely scientific purposes but also to select and introduce bamboos for agriculture, domestic industries (such as pulp for paper-making) and conservation.

The finding either of a reliable way to induce flowering in the native Arundinaria or of an annually reproducing race would enhance the possible domestication of this species.

LITERATURE CITED


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A Survey of the Vascular Flora of Poinsett County, Arkansas

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ABSTRACT

A survey of the vascular flora of Poinsett County, Arkansas was made over a period of 13 months. The fifteen field trips taken were planned to include representative soil associations and geographic areas within the county. Three hundred sixty-three species and varieties from eighty-three families were collected or examined.

Poinsett County has a long growing season, with an average frost-free period of 231 days extending from March 18 to November 4. The average yearly rainfall is 49.94 inches and is usually well distributed throughout the year (U.S. Dept. of Commerce, Environmental Science Service Bureau, 1967-68).

The St. Francis River is a meandering alluvial waterway with a large floodplain (U.S. Dept. of Agriculture, Soil Conservation Service, 1963). It drains Poinsett County east of Crowley's Ridge. West of Crowleys Ridge, the relatively level land is drained by a series of ditches which empties into the L'Anguille River or the Bayou DeView. Several large reservoirs are present to control possible floodwaters.

The lowest point (200 feet) in Poinsett County occurs in the St. Francis flood plain (35°30' North, 90°30' West), while the highest point (440 feet) is located on Crowleys Ridge (35°29' North, 90°42' West).

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*Rewritten from a thesis submitted to the faculty of the graduate school of Memphis State University in partial fulfillment of the requirements for the Degree Master of Science. Present address 3438 Sophia, Memphis, Tennessee 38118.
SURVEY

Representative sampling stations were selected in the county with respect to soil type, exposure, water availability, altitude and relationship to man’s interference. Fifteen field trips were made from September, 1967 through October, 1968. Over 3,000 miles were covered during the trips, but because of the size of the county it was not possible to visit all sampling stations on every trip. In general, trips were made every two weeks during the growing season. Specimens were deposited in the Memphis State University Herbarium, Memphis, Tennessee.

After a species had been found it usually was not collected again. Therefore, distribution of a species within the county is probably more general than indicated. Data on soil association was also noted but is not included in this paper.

The specimens are listed below, including the area of the county in which the collection was made (Fig. 1). Specimens were identified using keys of Duncan (1967); Fernald (1950); Gleason (1952); Gleason and Cronquist (1963); Radford, Ahles, Bell (1964); and Shanks and Sharp (1963). The nomenclature and arrangement of families for this study follows Radford, Ahles, Bell (1964) except in cases of more recent adoption. Genera are arranged alphabetically in each family. Species are also alphabetically arranged within a genus.

ACKNOWLEDGEMENTS

I wish to express appreciation to Dr. Edward T. Browne, Jr. under whose direction this study was made. Special thanks is extended to Dr. Edwin B. Smith of the University of Arkansas for his professional assistance, and to Dr. Edward L. Richards of Arkansas State University for his assistance in the University’s herbarium.

PTERIDOPHYTA
Equisetaceae
Equisetum hyemale L. St. Francis River Floodplain.
Aspidiaceae
Cystopteris fragilis (L.) Bernh. Crowleys Ridge.
Polystichum acrostichoides (Michx.) Schott. Crowleys Ridge
Aspleniaceae

SPERMATOPHYTA
GYMNOSPERMAE
Pinaceae

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**Cupressaceae**


**ANGIOSPERMAE**

**MONOCOTYLEDONEAE**

**Typhaceae**

*Typha latifolia* L. St. Francis River Floodplain.

**Alismataceae**


**Poaceae**

*Andropogon virginicus* L. East Slope of Crowleys Ridge.


*Aristida oligantha* Michx. West Slope of Crowleys Ridge.

*Aristida ramosissima* Engelm. Crowleys Ridge.


*Bromus racemosus* L. St. Francis River Floodplain.


*Digitaria ischaemum* (Schreb.) Schreb. ex Muhl. Crowleys Ridge.


*Elymus virginicus* L. St. Francis River Floodplain.

*Elymus virginicus* L. var. glabriflorus *Vasey*. L'Anguille River Runoff System.

*Eriophorum strictum* Baldw. L'Anguille River Runoff System

*Hordeum pusillum* Nutt. St. Francis River Floodplain.

*Leersia oryzoides* (L.) Swartz. St. Francis River Floodplain.

*Leptochloa filiformis* (Lam.) Beauv. West Slope of Crowleys Ridge.

*Lolium temulentum* L. L'Anguille River Runoff System.


*Oryza sativa* L. L'Anguille River Runoff System.


*Panicum lanuginosum* Ell. West Slope of Crowleys Ridge.

*Panicum laxiflorum* Lam. West Slope of Crowleys Ridge.

*Panicum nitidum* Lam. West Slope of Crowleys Ridge.

*Panicum perlongum* Nash. West Slope of Crowleys Ridge.

*Panicum scoparium* Lam. L'Anguille River Runoff System.


*Paspalum laeve* Michx. L'Anguille River Runoff System.


*Phalaris canariensis* L. L'Anguille River Runoff System.


*Sporobolus asper* (Michx.) Kunth. West Slope of Crowleys Ridge.

*Tridens flavus* (L.) Hitchc. West Slope of Crowleys Ridge.

*Tridens strictus* (Nutt.) Nash. West Slope of Crowleys Ridge.

**Cyperaceae**

*Carex sp.* Crowleys Ridge.

*Carex sp.* Bayou DeView Runoff System.

*Carex sp.* Crowleys Ridge.

*Cyperus erythrorhizos* Muhl. L'Anguille River Runoff System.

*Arkansas State University Herbarium Specimen*
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Cyperus flavescens L. L'Anguille River Runoff System.
Cyperus iria L. East Slope of Crowleys Ridge.
Cyperus ovularis (Michx.) Torr. Crowleys Ridge.
Cyperus strigosus L. Crowleys Ridge.
Eleocharis obtusa (Willd.) Schult. Crowleys Ridge.
Scirpus cyperinus (L.) Kunth. L'Anguille River Runoff System.

Commelinaceae
Tradescantia subaspera Ker. West Slope of Crowleys Ridge.
Tradescantia virginiana L. Bayou DeView Runoff System.

Juncaceae
Juncus effusus L. Bayou DeView Runoff System.
Luzula campestris (L.) DC. Crowleys Ridge.

Lilaceae
Allium bivalve (L.) Kuntz. L'Anguille River Runoff System.
Allium vineale L. St. Francis River Floodplain.
Smilax hispida Muhl. St. Francis River Floodplain.
Trillium recurvatum Beck. West Slope of Crowleys Ridge.

Dioscoreaceae
Dioscorea villosa L. L'Anguille River Runoff System.

Amaryllidaceae
Agave virginica L. Crowleys Ridge.

Hymenocallis coronaria (LeConte) Kunth. L'Anguille River Runoff System.
Narcissus incomparabilis Mill. St. Francis River Floodplain.

Iridaceae

Orchidaceae

ANGIOSPERMAE
DICOTYLEDONEAE
Salicaceae
Populus alba L. West Slope of Crowleys Ridge.
Salix interior Rowlee. St. Francis River Floodplain.
Salix nigra Marsh. West Slope of Crowleys Ridge.

Juglandaceae
Carya aquatica (Michx. f.) Nutt. L'Anguille River Runoff System.
Carya glabra (Mill.) Sweet. Crowleys Ridge.
Carya tomentosa (Poir.) Nutt. East Slope of Crowleys Ridge.

Betulaceae
Fagus grandifolia Ehrh. var. caroliniana (Loud.) Fern & Rehd. East Slope of Crowleys Ridge.
Quercus alba L. var. latifolia Sarg. East Slope of Crowleys Ridge.
Quercus lyrata Walt. L'Anguille River Runoff System.
Quercus macrocarpa Michx. East Slope of Crowleys Ridge.


Quercus nigra L. West Slope of Crowleys Ridge.

Quercus palustris Muenchh. Crowleys Ridge.

Quercus phellos L. Crowleys Ridge.


Quercus velutina Lam. East Slope of Crowleys Ridge.

Ulmaceae


Planera aquatica Gmel. L'Anguille River Runoff System.


Ulmus americana L. East Slope of Crowleys Ridge.

Ulmus rubra Muhl. West Slope of Crowleys Ridge.

Moraceae


Urticaceae

Loportea canadensis (L.) Gaud. West Slope of Crowleys Ridge.

Pilea pumila (L.) Gray. West Slope of Crowleys Ridge.

Loranthaceae

Phoradendron serotinum (Raf.) M. C. Johnst. L'Anguille River Runoff System.

Polygonaceae

Brunichia cirrhosa Banks ex Gaertn. St. Francis River Floodplain.


Polygonum scandens L. St. Francis River Floodplain. West Slope of Crowleys Ridge.

Rumex acetosella L. St. Francis River Floodplain.


Tovara virginiana (L.) Raf. West Slope of Crowleys Ridge.

Chenopodiaceae

Chenopodium album L. West Slope of Crowleys Ridge.

Chenopodium ambrosioides L. West Slope of Crowleys Ridge.

Chenopodium leptophyllum Nutt. Crowleys Ridge.

Amaranthaceae

Amaranthus hybridus L. West Slope of Crowleys Ridge.

Nyctaginaceae

Mirabilis nyctaginea (Michx.) MacM. West Slope of Crowleys Ridge.

Phytolaccaceae


Portulacaceae


Caryophyllaceae

Cerastium semidecandrum L. East Slope of Crowleys Ridge.

Stellaria media (L.) Cyrill. St. Francis River Floodplain.

Ranunculaceae

Ranunculus abortivus L. St. Francis River Floodplain.

Ranunculus septentrionalis Poir. Bayou DeView Runoff System.

Berberidaceae

Podophyllum peltatum L. Crowleys Ridge.

Menispermaceae

Cocculus carolinus (L.) DC. West Slope of Crowleys Ridge.

Magnoliaceae

Annonaceae
Asimina triloba (L.) Dunal. West Slope of Crowleys Ridge.

Lauraceae
Sassafras albidum (Nutt.) Nees. var. molle (Raf.) Fern. Crowleys Ridge.

Brassicaceae
Brassica napus L. L’Anguille River Runoff System.
Cardamine parviflora (L.) Crowleys Ridge.

Hamamelidaceae

Platanaceae
Platanus occidentalis L. Crowleys Ridge.

Rosaceae
Crataegus calpodendron (Ehrh.) Medic. L’Anguille River Runoff System.
Crataegus marshallii Eggl. West Slope of Crowleys Ridge.
Potentilla simplex Michx. Bayou DeView Runoff System.
Prunus angustifolia Marsh. West Slope of Crowleys Ridge.
Prunus hortulana Bailey. West Slope of Crowleys Ridge.
Prunus persica (L.) Batsch. St. Francis River Floodplain.
Prunus serotina Ehrh. Crowleys Ridge.
Rosa gallica L. East Slope of Crowleys Ridge
Rosa multiflora Thunb. St. Francis River Floodplain.
Rosa setigera Michx. West Slope of Crowleys Ridge.
Rubus bifrons Vest. St. Francis River Floodplain.
Rubus flagellaris Willd. Bayou DeView Runoff System.
Rubus ostryfollius Rydb. Crowleys Ridge.

Fabaceae
Amorpha fruticosa L. St. Francis River Floodplain.
Apios americana Medic. West Slope of Crowleys Ridge.
Baptisia leucophaea Nutt. L’Anguille River Runoff System.
Cercis canadensis L. St. Francis River Floodplain.
Desmanthus illinoensis (Michx.) MacM. St. Francis River Floodplain. Crowleys Ridge.
Desmodium lineatum DC. Crowleys Ridge.
Desmodium marilandicum (L.) DC. Crowleys Ridge.
Gleditsia triacanthos L. East Slope of Crowleys Ridge.
Lathyrus hirsutus L. St. Francis River Floodplain.
Lespedeza repens (L.) Bart. West Slope of Crowleys Ridge.
Lespedeza stuevei Nutt. West Slope of Crowleys Ridge.
Melilotus officinalis (L.) Lam. St. Francis River Floodplain.
Pueraria lobata (Willd.) Ohwi. Crowleys Ridge.
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Sesbania exaltata (Raf.) A. W. Hill. St. Francis River Floodplain.

Stylosanthes biflora (L.) BSP. Crowleys Ridge.


*Trifolium arvense L. Bayou DeView Runoff System.

Trifolium incarnatum L. L’Anguille River Runoff System.

Trifolium pratense L. St. Francis River Floodplain.

Trifolium pratense L. St. Francis River Floodplain.


Vicia villosa Roth. St. Francis River Floodplain.

Oxalidaceae

Oxalis corniculata L. West Slope of Crowleys Ridge.


Oxalis violacea L. West Slope of Crowleys Ridge. L’Anguille River Runoff System.

Geraniaceae


Geranium carolinianum L. var. confertiflorum Fern. St. Francis River Floodplain.

Euphorbiaceae


Acalpyha virginica L. West Slope of Crowleys Ridge.


Crotonopsis linearis Michx. West Slope of Crowleys Ridge.

Euphorbia maculata L. West Slope of Crowleys Ridge.

Anacardiaceae

Rhus copallina L. West Slope of Crowleys Ridge.

Rhus glabra L. Crowleys Ridge.


Aquifoliaceae


Staphyleaceae

Staphylea trifolia L. West Slope of Crowleys Ridge.

Aceraceae


Acer rubrum L. Crowleys Ridge.


Hippocastanaceae


Rhamnaceae

Rhamnus caroliniana Walt. West Slope of Crowleys Ridge.

Vitaceae


Malvaceae

Gossypium hirsutum L. Crowleys Ridge.

Hibiscus lasiocarpus Cav. West Slope of Crowleys Ridge.

Hibiscus militaris Cav. L’Anguille River Runoff System.

Hibiscus moscheutos L. East Slope of Crowleys Ridge.


Hypericaceae

Hypericum densiflorum Pursh. Bayou DeView Runoff System.

Hypericum drummondii (Grev. & Hook.) T. & G. West

*Arkansas State University Herbarium Specimen

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Slope of Crowleys Ridge.


Hypericum stragulum Adams & Robson. Crowleys Ridge.

Violaceae

Viola eriocarpa Schwein. var. leiocarpa Fern. & Weig. West Slope of Crowleys Ridge.


Viola pedata L. West Slope of Crowleys Ridge.

Viola rafinesquii Greene. St. Francis River Floodplain.

Viola triloba. (Schwein) Ging. West Slope of Crowleys Ridge.

Passifloraceae

Pasiflora incarnata L. West Slope of Crowleys Ridge.

Lythraceae


Onagraceae

Ludwigia adscendens (L.) H. Hara. Crowleys Ridge.

Oenothera biennis L. Crowleys Ridge.

Oenothera laciniata Hill. Bayou DeVie View Runoff System.


Araliaceae

Aralia spinosa L. West Slope of Crowleys Ridge.

Apocynaceae

Amsonia tabernaemontana Walt. Bayou DeView Runoff System.


Asclepiadaceae

Asclepias variegata L. St. Francis River Floodplain.

Asclepias viridis Walt. East Slope of Crowleys Ridge.

Matelea gonocarpa (Walt.) Shinners. West Slope of Crowleys Ridge.

Convolvulaceae

Calystegia sepium (L.) R. Br. West Slope of Crowleys Ridge.


Ipomoea pandurata (L.) G.F.W. Meyer Crowleys Ridge.

Polemoniaceae

Phlox pilsoa L. Bayou DeView Runoff System.
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Hydrophyllaceae


Phacelia dubia (L.) Trel. L'Anguille River Runoff System.

Phacelia ranunculacea (Nutt.) Const. Crowleys Ridge.

Verbenaceae

Lippia lanceolata Michx. Crowleys Ridge.

Laminaceae

Lamium amplexicaule L. St. Francis River Floodplain.


Perilla frutescens (L.) Britt. West Slope of Crowleys Ridge.

Prunella vulgaris L. var. lanceolata (Bart.) Fern. West Slope of Crowleys Ridge.

Pycnanthemum flexuosum (Walt.) BSP. West Slope of Crowleys Ridge.


Scutellaria parvula Michx. L'Anguilla River Runoff System.

Solaneae


Physalis pubescens L. var. grisea Waterfall. Crowleys Ridge.


Solanum carolinense L. Crowleys Ridge.

Solanum tuberosum L. West Slope of Crowleys Ridge.

Scrophulariaceae


Penstemon tubaeflorus Nutt. St. Francis River Floodplain.

Verbascum blattaria L. St. Francis River Floodplain.

Verbascum thapsus L. West Slope of Crowleys Ridge.

Bignoniaceae


Acanthaceae

Ruella humilis Nutt. West Slope of Crowleys Ridge.


Plantaginaceae

Plantago aristata Michx. St. Francis River Floodplain.

Rubiaceae

Cephalanthus occidentalis L. East Slope of Crowleys Ridge.

Diodia virginia L. Crowleys Ridge.

Galium aparine L. St. Francis River Floodplain.


Houstonia tenuifolia Nutt. St. Francis River Floodplain.

Caprifoliaceae

Lonicera japonica Thunb. West Slope of Crowleys Ridge.

Sambucus canadensis L. West Slope of Crowleys Ridge.

Valerianaceae


Valerianella radiata (L.) Dufr. St. Francis River Floodplain.

Cucurbitaceae

Melothria pendula L. East Slope of Crowleys Ridge.

Sicyos angulatus L. St. Francis River Floodplain.

Campanulaceae

Campanula americana L. Bayou DeView Runoff System.


Specularia perfoliata (L.) A. DC. St. Francis River Floodplain.

Lobelia cardinalis L. Crowleys Ridge.

Lobelia inflata L. Crowleys Ridge.

Asteraceae

Achillea millefolium L. East Slope of Crowleys Ridge.
Ambrosia artemisifolia L. East Slope of Crowleys Ridge.
Ambrosia trifida L. St. Francis River Floodplain.

Aster lateriflorus (L.) Britt. Crowleys Ridge.
Aster vimentus Lam. Crowleys Ridge.


Aster sp. West Slope of Crowleys Ridge.
Bidens bipinnata L. West Slope of Crowleys Ridge.


Boltonia diffusa Ell. Crowleys Ridge.

Carduus altissimus L. East Slope of Crowleys Ridge.
Carduus spinosissimus Walt. L'Anguille River Runoff System.


Eclipta alba (L.) Hassk. St. Francis River Floodplain.


Eupatorium coelestinum L. West Slope of Crowleys Ridge.

Eupatorium rugosum Houtt. West Slope of Crowleys Ridge.


Gnaphalium obtusifolium L. Crowleys Ridge.


Helianthus annuus L. Crowleys Ridge.

Helianthus divaricatus L. Crowleys Ridge.

Helianthus microcephalus T. & G. Crowleys Ridge.

Iva annua L. St. Francis River Floodplain.

Krigia dandelion (L.) Nutt. Bayou DeView Runoff System.


Lactuca floridana (L.) Gaertn. West Slope of Crowleys Ridge.


Polymnia uvedalia L. West Slope of Crowleys Ridge.

Pyrrhopappus carolinianus (Walt.) DC. St. Francis River Floodplain. Crowleys Ridge.

Rudbeckia hirta L. East Slope of Crowleys Ridge.

Senecio glabellus Poir. St. Francis River Floodplain.

Solidago altissima L. West Slope of Crowleys Ridge.

Solidago erecta Pursh. Crowleys Ridge.

Solidago graminifolia (L.) Salisb. Crowleys Ridge.

Solidago missouriensis Nutt. L'Anguille River Runoff System.

Solidago odora Ait. Crowleys Ridge.

Solidago radula Nutt. West Slope of Crowleys Ridge.

Solidago rugosa Mill. St. Francis River Floodplain.

Taraxacum officinale Wiggers. St. Francis River Floodplain.


LITERATURE CITED


The Effects of Urethan on Fish Epithelial And Fibroblast Cells in Vitro

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ABSTRACT

The effects of urethan on RTG-2 and FHM cells were studied in vitro. by using the mitotic index, it was determined that 0.3 percent urethan caused an increase in the rate of cell division while higher concentrations (0.6, 0.9, 1.2, and 1.5 percent) caused either a decrease in the rate or a cessation of cell division. Concentrations of urethan higher than 1.5 percent killed the cells. The mitotic index data also indicated that epithelial cells continued to divide at a higher concentration of urethan than did the fibroblast cells.

The morphological effects of urethan on the two cell lines were also investigated. These effects included vacuolization of the cytoplasm, lobed and enlarged nuclei, and in some cells the cytoplasm almost completely disappeared and the nucleus developed a thick membrane around it so that the cells resembled small lymphocytes.

INTRODUCTION

Research on urethan is not new. Ever since it was first found to be carcinogenic (Nettleship and Henshaw, 1943), much work has been done with this compound. However, to the author's knowledge no research with urethan has been done at the cellular level. Tissues have been examined histologically in vivo and different cell types have been studied using tissue explants in vitro. Therefore, this problem was undertaken to see if the effects of urethan in vivo can be duplicated in vitro. Also, the author wanted to ascertain if urethan had the same effect on fish cells as it did on mammalian cells.