VOLUME 6 1985 NUMBER 2

Missouriensis

JOURNAL OF THE

MISSOURI NATIVE PLANT SOCIETY

Contents

Missouriensis is the official publication of the Missouri Native Plant Society. Founded in 1979 as a non-profit corporation, the Society is devoted to the conservation and study of the plants growing wild in Missouri, to the education of the public about the significance of the native flora and its habitat, and to the publication of related information.

MINUTES OF THE MISSOURI NATIVE PLANT SOCIETY ANNUAL BOARD OF DIRECTORS' MEETING JUNE 8, 1985

Call to Order: The meeting was called to order by President Melvin Conrad at Alley Springs Center at 10:00 a.m. Other Board Members present: John Doggett, Jay Reveill, Joanna Turner, Ginny Wallace, and Wally Weber. Guests present at the meeting and/or other activities: Doug Ladd; Linda, Paul, Heather, and Travis Nelson; Sherry Morgan; Jim H. Wilson; Karen, Al, Angela, and Chris Haller; Mervin Wallace; Art Christ; Wanda and Rod Doolen; Patrick DeLozier; Pat Grace; Eula Conrad; Bill Summers; Marge and Jim Ruschill; Dolly and Carl Darigo; John E. Wylie; Lester Buch; Judy Eberly; Larry Houf; Sue Hollis; Mike Skinner; Susan and Dick Russell; Larry Wegmann; Linda Ellis; Mike Sweet; Jim Turner.

Minutes: The minutes from the preceding meeting, held April 27, 1985 at Springfield, were approved as read by J. Turner in the absence of Secretary Jean Webdell.

Treasurer's Report: The treasurer's report was made by Paul Nelson in the absence of Treasurer John Karel. Balance on hand on 4-26-85 was $5,369.49. Income (from membership dues) was $30.00 and the only disbursement was a $50.00 donation to Washington University Tyson Research Center in memory of Erna Eisendrath. Balance on hand on 6-7-85 was $5,349.49. The report was accepted as presented.

Nelson reported Karel's expression of gratitude for having served as treasurer of MONPS and pointed out several of his accomplishments: the membership file has been converted to coincide with the calendar year; the treasurer cooperated with the St. Louis Chapter in collecting dues for both the chapter and the parent organization; the membership file and mailing list are up to date. Nelson proposed that consideration be given to earning interest on our funds, either through an interest-bearing checking account or a money market fund. He also suggested we consider using some of the balance for special projects. There was a discussion of whether the account would have to be transferred to a different bank in view of the change of treasurers or if just a change in signatures would suffice. President Conrad raised the question of an audit, and P. Nelson and Jim H. Wilson were appointed to an ad hoc auditing committee. The results are to be sent to Conrad and he will write the outgoing and incoming treasurers with the report.

Eisendrath Memorial: M. Conrad read a letter from Dick Coles, Director of Tyson Research Center, thanking the Society for its gift in memory of Erna Eisendrath. A fund has been established at Tyson in her honor.

Election Results: Jim H. Wilson, after repeating his plea to be replaced as chair of the Nominating Committee, announced the results of the recent election: President, David Castaner; Vice President, Sherry Morgan; Secretary, Joanna Turner; Treasurer, Mervin Wallace. Members of the Board (term expiring June 1988): Karen Haller and James Key. The Board

voted to appoint Douglas Ladd to fill the term of Steve Chaplin which expires June 1987 (Chaplin resigned because he moved out of state).

Awards Committee: Ginny Wallace reported on the May 30th meeting of the Awards Committee, consisting of Wallace, Paul Nelson, and Gary Reese. They recommend that four major awards be established: the Erna R. Eisendrath Memorial Education Award; an unnamed research award; a Plant Stewardship Award; and the Julian A. Steyermark Award. The committee felt these awards were expressive of the major goals of the Society: education, research, and preservation. In addition, they propose that the following Certificates of Recognition be awarded: (1) for the five most significant plant discoveries of the year; (2) to the three individuals who have most actively contributed voucher specimens of Missouri plants to regional herbaria; and (3) to individuals who allow organized MONPS activities on their property.

Most of the discussion that followed centered on the award for collecting voucher specimens. The problem of collecting just for numbers was raised - and, not entirely in jest, a demerit award for such collecting was proposed. The general opinion was that this award might interest more people in collecting for the Inventory, thus increasing our knowledge of Missouri plants. Criteria would have to be established; e.g., rare and endangered species would not be accepted unless the collector has special permission. The Committee thought curators could be surveyed to determine the recipients and that the guideline would emphasize quality, not quantity. W. Weber suggested giving two awards under this category, one for professional and one for amateur. The problem for the curator of keeping track of all this information was brought out, as only county records are usually recorded. A form for the curator to sign when the collector deposits specimens is a possible solution. Wallace suggested leaving the awards as proposed and making adjustments later if needed. The Board voted to accept the awards as recommended by the Committee, with the first awards to be given at the Annual Board Meeting in June 1986 for recognition of achievements during the calendar year 1985. (It was pointed out some awards could be made for contributions in previous years.) The Awards Committee proposed that, working in conjunction with the Nominating Committee, they solicit nominations through Missouriensis and submit their recommendations for the awards to the Executive Board. The next steps are for the Committee to publish full details about the awards in Missouriensis, along with forms for nominations and, if needed, for verification of collections by curators, and also to notify the appropriate herbaria about the awards.

Post Office Box: G. Wallace reported on her investigation of securing a post office box for the Society. A box can be obtained at the Capital Mall in Jefferson City for $22.00 per year plus $1.00 per key. The Board approved having Wallace get the box and she will notify members of the number. She had no report on new brochures as work on this has to await the new P. O. Box number. The cost of business reply cards will be reported at the next meeting.

More on New Zealand: It was reported that Sue Taylor has photocopied the material requested by Dr. B. R. Cook and will send it to him in New Zealand.

Garden Club Meeting in St. Louis: Karen Haller reported on the progress of the St. Louis Chapter in organizing a booth for the Garden Club Meeting next September. The MONPS Display Board is being refurbished, new brochures should be ready, Edgar Denison and Bill Summers might be on hand to autograph their books, and seeds from the Missouri Prairie Foundation and prairie plants from the Arboretum might also be available. Also, a video tape from Drs. Redfearn and Weber will probably be used.

Registration as Non-Profit Agency: M. Conrad reported the receipt of a notice that MONPS needs to register as a non-profit agency each year with the Secretary of State, with a form to be sent along with a $1.00 fee before the end of August.

Future Meetings: The next meeting will be held at Ha Ha Tonka State Park on September 7, with lodging in the Lake of the Ozarks area. The December 7 meeting will be in the Kansas City area.

Weber's Buttons: Wally Weber announced the sale of several of his buttons, the profits from which he will donate to the Society. Members can send Weber a favorite photo and he will make up a button for them. Linda Ellis has volunteered to make line drawings of orchids to be used for this.

More on Awards: W. Weber, enlarging on P. Nelson's earlier suggestion, proposed the Society consider giving a monetary award in the future for a special project or research. If our funds are put into an interest-bearing account, the income could be used for this, and also people could donate to the fund for memorials. Weber pointed out that education is one of our objectives, but we have no education committee, and he suggested broadening the environmental action committee to include education. Projects that could be considered: video tapes to send to schools and various groups, and talks such as those given by John Wylie and Dr. Baumgardt in connection with this meeting could be given wider exposure. These suggestions are to be passed on to the new president.

Steyermark Photo Archives Project: Pat Grace reported for the committee in the absence of Gary Reese. The black/white photos have been located and Reese has started selecting those he feels will be useful for research. Betty Nellums has offered to help in filing the negatives with the corresponding prints. Reese will be asked to report on his progress and proposals at the next meeting so the best long-term use for the material after the archive work is done can be determined.

Media exposure: Jim H. Wilson asked if there was interest in spending money for public service announcements to be produced professionally and made available to TV in metro areas of the state, giving the new MONPS

P. O. Box number. Weber pointed out that cable TV in Springfield is obligated to present such announcements at low cost. President Conrad suggested the proposed education committee look into this and that the incoming president should review all the standing committees and decide what to do about an education committee.

Adjournment: The meeting was adjourned shortly after 12:00 noon.

Respectfully submitted,

Joanna Turner, Secretary pro tem

Special thanks are extended to everyone involved in making this meeting so successful: Dave Foster, John Wylie, Dr. John Baumgardt, Wally Weber, Rick Thom, Ginny and Merv Wallace, and Sherry Morgan.

MINUTES OF THE MISSOURI NATIVE PLANT SOCIETY BOARD OF DIRECTORS' MEETING SEPTEMBER 7 1985

Call to Order: The meeting was called to order by President David Castaner at the Grand Glaize Picnic Shelter, Lake of the Ozarks State Park, at 9:15 a.m. Other board members present were: John Doggett, Karen Haller, James Key, John Molyneaux, Sherry Morgan, Joanna Turner, Ginny Wallace, Mervin Wallace, and Wallace Weber. Other members and guests present for the meeting and/or field trips were: Linda, Paul, and Travis Nelson; Mike Skinner; Catherine Filla; dorris Meibaum; David LaPlante; Marilyn Groves; Gary Reese; Donna Key; Rev. James Sullivan; Don Nagel; Bill Summers; Sue Hollis; Ken Olson, Pat Grace; Jim Vadh; Bill Gant; Carol Fuller; Lynda Richards; Jean Love; Patrick DeLozier; Linda Ellis; Larry Wegmann; Adrienne and Paul Biesterfeldt; and Jim Vandike.

Minutes: Minutes from the proceeding meeting, held June 8 at Alley Springs, were approved as read.

Treasurer's Report: Treasurer Merv Wallace gave the following operating statement: balance on hand 6-7-85, $5,349.49; income from membership dues and contributions, $79.50; for a total of $5,428.99. Disbursements: $1,004.00 to Missouri Botanical Garden for Missouriensis and other mailing expenses, $24.00 for new P. O. Box, $66.00 for stamps, and $2.00 for annual registration as a non-profit organization, for a total of $1,096.00. Balance on hand 9-3-85, $4,327.99. Dues notices are to be mailed in November, 1985, and the cut-off date for renewals will be March, 1986.

Committee Reports: Field Trip, Environmental Action, and Membership committees had no report. State Inventory Committee: Wally Weber reported that Jay Reveill has moved to Illinois but will continue serving as chairman of the committee. More records are forthcoming and Jay will write a progress report on the Missouri Flora Update for the next issue of Missourisensis. Steyermark Archives Committee: Gary Reese announced that he has examined 1400 black/white prints taken by Dr. Steyermark in the 1930s and '40s. All prints have been numbered and those of research value were marked. Gary met with Dr. Steyermark in August and secured captions for many of the prints, and by next year the prints and slides made from the negatives should be available to interested persons. Help is needed in matching the negatives with the prints. Awards Committee: Ginny Wallace had no report but suggested that information on the awards could be mailed out with the renewal notices in November. Also, details of the December meeting could be included in this mailing. Missouriensis: Sherry Morgan announced that lack of material for the journal is a problem and articles are needed. President Castaner suggested that a broader editorial committee, made up of professionals who have time to review articles prior to publication, might be considered, and he asked interested persons to contact him. S. Morgan proposed discussing this at the December meeting, and Castaner will look into having an ex-officio meeting before then.

Brochures: G. Wallace showed samples of the new brochures made up in limited quantity for the use of the St. Louis Chapter for the upcoming garden club show. She proposed a committee to look into the cost of a more professional brochure which might sell the Society better. A permanent committee consisting of G. Wallace, W. Weber, and Dotty Epstein was appointed. Weber is also to look into forming a publicity committee.

Future Meetings: The next meeting will be held December 7, 1985, at the Burr Oak Woods Nature Center at Blue Springs, near Kansas City. A motion was passed to postpone the March, 1986 meeting so that it can be held in conjunction with the Academy of Science meeting April 25-26 at Warrensburg. The idea of reducing the number of meetings to three a year was revived, with a suggestion of having the annual meeting in the fall, a January meeting for discussing issues, and a third meeting in the spring. This is another subject that will be discussed in December.

Orchid Salvage Operation: Paul Nelson reported that an area bordering the lake at Iron Mt. Lake City Park, Iron County, is to be developed, thus destroying a population of purple fringeless orchids (Habenaria peramoena Grey). S. Morgan has notified those involved that the plant is on the rare and endangered species list, but technically this is not a violation of the law, even though federal funds are involved. G. Wallace offered the services on MONPS volunteers to move the plants, apparently the only solution. A committee consisting of Merv Wallace, Bill Summers, Karen Haller, John Molyneaux, and Pat Grace was appointed to look into moving the 15 or 20 plants.

Financial Matters: M. Wallace reported on his exploration of ways to earn interest on MONPS funds, as discussed at the June meeting. He presented a number of options, including dividing the money, some to go into an interest-bearing checking account and the rest into a long-term account with a higher interest. Since there is little difference in current interest rates, it was decided for the present to put all funds into the Conservation Department Employees' Credit Union in Jefferson City, which pays 7.5%. Ideas presented for the use of our funds: spending some for a new brochure, educational programs, research grants, making video tapes and slides available to libraries. This subject is also to be discussed at the next meeting, and detailed proposals for our future role in education will be solicited in Missouriensis. If the next issue will not be published in time for the December meeting, President Castaner will contact the membership committee and have a brief notice included with the meeting announcement, along with the other items previously discussed.

Environmental Action: Several members requested that this committee become more active. A motion was carried that the Society support listing of pond berry (Lindera melissaefolium [Welt.] Blume) as an endangered species. John Doggett was appointed chairman of the committee.

New Publications: P. Nelson announced the availability of his new publication, The Terrestrial Natural Communities of Missouri, produced

for the Missouri Natural Areas Committee. S. Morgan announced the printing of a 1986 Natural Events Calendar by the Department of Conservation.

Adjournment: The meeting was adjourned at 11:00 a.m.

Respectfully submitted,

Joanna Turner, Secretary

Notes on the Fall Meeting

Following the board meeting we were welcomed to Ha Ha Tonka State Park by Roma France, who presented an interesting history of the area. This was followed by an equally interesting description of the geology of the area by Jim Vandike, Geologist with the Department of Natural Resources. In the afternoon, Jim Vandike led a trip to the Ha Ha Tonka Natural Area, a classic example of Karst topography with several caves and sink holes and a natural bridge. Paul Nelson, Tom Nagel, and Mike Skinner led the other group to Turkey Pen Hollow Savanna, a transition area between Ozark forest and grassland prairie which has an unusual open forest with widely spaced oaks and a groundcover of prairie grasses and wildflowers. In addition, this group visited the Red Sink Natural Area. Many thanks to all involved. Our field trip committee chaired by Ginny Wallace does a truly outstanding job in arranging diverse and excellent outings for MONPS meetings.

Nature Calendar Available: The Missouri Department of Conservation has printed a 1986 Natural Events Calendar that is filled with interesting bits of information, such as when Witch-hazels begin blooming, when to begin looking for morels, and when to harvest wild strawberries. Almost every date on the calendar has an entry concerning plant, animal, or insect life. It would be hard to think of a better Christmas gift for nature lovers. The calendar can be purchased at the Department of Conservation metro offices in Kansas City, Springfield, St. Louis, or Jefferson City, or can be ordered by mail by sending a check for $3.68 to: The Calendar, Missouri Department of Conservation, P. O. Box 180, Jefferson City, MO 65102.

LETTERS TO THE EDITOR

Dear Editor:

I was rather dismayed to read the recent article "Confusion of Terms" (Missouriensis 6(1): 34-35), in which Webster's new 20th Century Dictionary and Encyclopedia Americana were the only cited sources supporting Mr. Denison's criticism of certain natural community classification terms. There is a wealth of recent literature, including very appropriate works by some of the "local ecologists" he presumably refers to (e.g., Iffrig and Nelson, 1983; Nelson, 1980; and Orzell, 1983a, 1983b), that should have been directly addressed by Mr. Denison in his critique. Furthermore, reference to "The Fens" (albeit of England) is made in at least a late edition of the Encyclopedia Americana, contrary to the author's statement to the contrary.

I specifically want to address the author's comment that "It is hard to understand what all this work of inventorying and tabulating will accomplish." The inventory process is basic to the establishment of a well represented system of natural areas and natural feature sites within a state. Without knowledge of what natural communities are present in a state or region, of how much remains, and of what the quality of the remaining examples are, we cannot hope to preserve, except through luck, the largest of the most common communities and the best of the rest. Inventories to accomplish this goal have been underway in Missouri since the early 1970s. These inventories have led to a much better understanding of rare and little known natural communities, such as wet prairies, chert cliffs, saline marshes or seeps, various types of fens, and others recognized in Nelson's (1985) classification system.

Finally, I wish to comment on Mr. Denison's discussion of the term "tundra" in the same article. I feel that Missouriensis is an inappropriate vehicle to criticize terminology which is not germane to Missouri or surrounding states. Fully 25% of the article dealt with this term.

I would hope that in future issues of Missouriensis we will see more thorough, scholarly, and germane commentaries on issues and subjects relating to our regional flora.

Sincerely,
Gary A. Reese
Natural History Inventory Coord.
Missouri Department of Conservation

News from the St. Louis Chapter

Laclede's Landing Flower Festivel Report: "St. Louis in Bloom." Last January I received a letter from Dr. Nancy Morin, Administrative Curator of the Herbarium at the Missouri Botanical Garden and a member of the St. Louis Chapter of MONPS, asking if our chapter would participate and be responsible for a booth in the Garden Clubs of America Flower Show to be held in St. Louis on September 12-14. I immediately responded that we would participate as I felt that this was the type of public exposure our organization needed.

Since that time, we have been "putting our act together" and I am happy to report that the Festival was a success for MONPS. The Festival had a disappointingly poor attendance due to the other events St. Louisians and tourists had to choose from (the hot air balloon race, for one) but I was especially pleased with the many comments we received and continue to receive on our booth and displays. A lot of hard work and planning went into this event and I want to acknowledge those who participated as well as to inform our members as to just what is happening in our organization.

Bill Davit, of the Missouri Botanical Garden Arboretum, showed up early Thursday morning (12 September) with 15-20 pots of prairie wildflowers he had been propagating since early spring - some of these he had coaxed into blooming! These plants were an excellent visual addition to the booth as well as informative to the visitors, eliciting much comment and discussion. Bill helped in setting up the booth; also, he brought along informational literature from the Arboretum and the Missouri Botanical Garden for handouts.

Edgar Denison was present on 12 and 13 September to autograph and sell his "Wildflowers of Missouri" book, published by the Missouri Department of Conservation. Edgar and Joanna Turner had arranged through Herbert Schwartz, at the Conservation Department office in St. Louis, to have a number of Edgar's book on hand for the Festival. Since publication of the first edition of Edgar's book in 1972, 60,000 copies have been sold! Edgar brought in, for display in the booth, two absolutely beautiful bouquets of wildflowers from his garden - including the rare Chelone obliqua var. speciosa (Turtlehead).

Karen Haller served in the booth on Friday afternoon, 13 September. She and Joanna Turner picked up the VCR tape from Paul Redfearn and the state brochures from Ginny Wallace at the state meeting 7 September at Ha Ha Tonka State Park and brought these to St. Louis for use at the Festival.

Naomi Miller helped in the booth on Saturday, 14 September and was helpful in dismantling the booth that afternoon. She has been active in

[1] Excerpted from the MONPS St. Louis Chapter Newsletter 2(5), October-December 1985.

publicizing our activities and meeting.

John Molyneaux helped in the booth on Friday afternoon, 13 September.

Paul Redfearn, Professor of Botany at Southwestern Missouri State University at Springfield, kindly trusted us with his VCR tape of Missouri wildflowers. This is a tape that Paul put together from his own photographic slides taken throughout the years, with the addition of audio-classical music. Those of you who have seen and heard this tape will know of our disappointment when we were unable to get a clear picture. Paul has given me permission to copy this tape so we will have an opportunity to show it at a later date.

Susan Russell was on hand Friday to help in the booth - talking with the visitors and discussing the informational literature we had on hand.

Bill Summers was present on Saturday, 13 September, to discuss, autograph, and sell his book "Orchids of Missouri," published by the Missouri Department of Conservation. Bill also had photographs of his recent addition to the orchids of Missouri - the white fringeless orchid.

Sue Taylor, Herbarium Assistant at Missouri Botanical Garden, and MONPS state and chapter member, was responsible for our new chapter information handout. She composed, arranged for printing, etc., in time to include it with the handouts at the Festival. This chapter information will be inserted in the new State brochure in the St. Louis area as well as in the brochure when inquiries are received in Jefferson City at the Society's new P. O. Box. Sue helped in the booth on Saturday, 14 September, and arranged for the loan of the TV and VCR from the Missouri Botanical Garden (courtesy of Chris King, AudioVisual Department).

Timon Primm became (unofficially) an interested, informative participant around our booth. Officially, he was there to help Nancy Primm, Chairperson of the Festival, representing the Garden Clubs of America. Timon is very knowledgeable concerning the flowers of Missouri - we are appreciative of his help in this area as well as his help in dismantling our booth on Saturday, 14 September.

Joanna and Jim Turner, who are also active in the Missouri Prairie Foundation, prepared packets of prairie flower seeds, stapled to a Prairie Foundation informational pamphlet for a free handout at the Festival. The Prairie Foundation contributed the seed in bulk - Liatris spp. These seeds, along with Bill Davit's live prairie plants, were a sensation at the Festival. In addition, Joanna was a faithful helper in the booth on 12, 13, and 14 September.

Ginny Wallace, botanist with the Missouri Department of Conservation and an active member of MONPS, arranged for us to have a new supply of state brochures to hand out at the Festival. The format of the brochure is familiar but the coloring is new - white paper with green printing - and

the brochure now has the new MONPS P. O. Box on the back. The brochure is in the process of being reworded and updated, hopefully with color and photographs.

The benefits derived from the Festival are numerous. We hope that we aroused some further interest in the preservation and conservation of our native flora and natural communities. This, of course, is the continuing objective of our Society.

--Doris (Dotty) Epstein, President, St. Louis Chapter, Missouri Native Plant Society.

Kudos: In the Festival Report above, Dotty neglects to mention her own enormous contribution to MONPS efforts. She almost singlehandedly corralled all participants, scheduled booth hours, designated responsibilities, arranged for all handouts and display materials to be made available on time, and inspired all the workers with her enthusiasm and encouragement. Without her unflagging energy, we could not have had such a great event. It must also be reported that Dotty's BA Honor's Thesis on smoking materials of the Native Americans will soon be published by the Illinois State Museum. Congratulations, Dotty!

Points of View

Fens and Savannas of Missouri - Household Words?

Paul W. Nelson[1]

In the Vol. 6, no. 1 1985 issue of Missouriensis, Edgar Denison refuted the use of terms in an article entitled "Confusion of Terms." He stated that "tundra, fen, and savanna" were terms created by "local" ecologists and should not apply to Missouri landscape. As the author of a newly published book that describes presettlement landscapes, I would like to offer an opposing viewpoint.

First, by nature of the way in which we as botanists describe the relationship between plant species and their environment, most of us are ecologists. We name parts of the environment to describe habitats for various plant species and associates. They include forest, prairie, glade, bluff, acid seeps, marsh, gravel wash, sand bar, old field, etc. Previous issues of Missouriensis, presentations, reports, and field trips have centered on habitats referred to as "fens" and "savanna." I agree with Edgar that tundra does not exist in Missouri.

Fen and savanna are words applied nationwide by naturalists, ecologists, botanists, and educators. Foremost, the terms are used for scientific purposes, particularly in state and federal natural area programs where applied to classification systems. Numerous Natural Heritage Inventory Programs established through the cooperative efforts of The Nature Conservancy and state agencies or universities use these terms. These words are not "pushed" into being but, like other terms used, are used by people involved in efforts to protect and preserve the full spectrum of our nation's natural heritage. Their scientific descriptions and refinements appear in scientific journals, not dictionaries.

In Missouri, fens and savannas are included among descriptions of 89 natural communities in a classification system entitled The Terrestrial Natural Communities of Missouri (Nelson, 1985). The Missouri Natural Areas Committee uses this classification system to inventory, select, and preserve the best remaining examples of each of these natural communities. When the classification system was developed in 1979, I gathered references and information to support the descriptions, then asked select experts to participate in its development. Many sources were used to show that savannas and fens were part of presettlement Missouri, including historical accounts, early land survey records, soil characteristics, and reconstruction from existing vegetation.

[1] Missouri Department of Natural Resources, P. O. Box 176, Jefferson City, MO 65102.

I believe the best strategy in presenting and selling new information is to consult with as many potential sources as possible, seek corroboration among the sources, and to integrate qualitative and quantitative information about these landscape types based on known examples. Our models for the use of the terms fen and savanna and their presettlement nature (to whatever end we might employ them) should be both accurate and comprehensive. I believe they are.

In summary, I offer two thoughts. First, with respect to Edgar's article, disagreement stimulates further thought and the seeking of more information. In the context of science, much of what we know (and don't know) is based on observation and building a hypothesis. We have much more to learn in our study of the natural world and should not close the door to the scientific process. Scientific thinking must include accepting that neither the natural world we live in, nor the words we use to describe it are static. Rather, many members of our society (and a few ecologists included) are well-intentioned, open-minded people who desire to use new and better words to expand knowledge about Missouri's environments. Doing so is challenging, stimulating, and vital.

Second, whether we choose to call them fens or calcareous wet meadows; and savannas, oak openings, or oak barrens, an enormous amount of information and existing examples support the hypothesis that these landscape types did exist in Missouri.

Henry Rowe Schoolcraft was one of the earliest white explorers in Missouri. After exploring the Ozark region in 1819, he wrote in his journal,

> "a tall, thick, and rank growth of wild grass covers the whole country, in which the oaks are standing interspersed, like fruit trees in some well-cultivated orchard, and giving to the scenery the most novel, pleasing and picturesque appearance."

Whatever we interpret of Schoolcraft's description and call it, experiencing such a landscape is truly unforgettable. Fortunately, we can feel the spirit of Schoolcraft at both Bennett Spring Savanna, Bennett Spring State Park, and Turkey Pen Hollow Savanna, Ha Ha Tonka State Park. Whether it be disputed ecology, unique floral displays, or the recorded historical writings about these "beautiful oak openings," it is a landscape worth recognizing and preserving. And so I speak of our fens as well.

*To better understand savanna landscape and its application to Missouri studies, I will present an article on savanna natural communities of Missouri in a future issue of Missouriensis.

Literature Cited

Nelson, Paul W. 1985. The Terrestrial Natural Communities of Missouri. Missouri Dept. of Natural Resources, Jefferson City, Missouri.

New Publication: The newly published Terrestrial Natural Communities of Missouri was presented by author Paul W. Nelson at the September board meeting. The book is used by the Missouri Natural Areas Committee to identify and protect our state's full spectrum of natural diversity in a system of natural areas. Society members should find the book useful as it offers a standard means of naming our state's variety of plant habitats. Featured are descriptions for 89 terrestrial natural communities, numerous references, over 60 black and white photos, a key to the natural communities, and distribution maps. General discussions of Missouri's characteristic, as well as special, natural landscapes are given. Each natural community description includes vegetative structure, environmental features, characteristic and dominant plants, and examples of locations. Book size is 8 1/2 x 11, 200 pages, and is bound by a full color cover. The book is available for $4 (shipping included) through the Missouri Department of Natural Resources, P. O. Box 176, Jefferson City, MO 65102. Make checks payable to Missouri Department of Natural Resources.

CONFUSION OF TERMS - A REPLY

Paul L. Redfearn, Jr.[1]

I can certainly sympathize with Edgar Denison's (1985) concerns about the use of certain terms used to describe plant communities. However, each of the terms he discusses, tundra, fen, and savanna (savannah) are now in standard usage in ecological and geographical literature, albeit they may be misused.

Tundra is defined by Hanson (1962) as "treeless land in arctic and alpine regions, varying from bare areas to various types of vegetation consisting of grasses, sedges, forbs, dwarf shrubs, mosses, and lichens." Gleason and Cronquist (1964) included alpine and arctic tundra in their Tundra Province. Vankat (1979) noted that the most striking aspect of tundra vegetation is the lack of trees. He noted that "where soils moisture is not limiting, the herbaceous cover is well developed and in very wet sites, grass-sedge bogs and meadows are common." For extremely rocky areas in alpine tundra, the term "fell field" is applied (Cain, 1943). The similarity of the floras of alpine and arctic tundra suggests that arctic and alpine floras have a common origin. For example, 45% of the species in Rocky Mountain tundra in Montana and 75% of the species in alpine tundra in New Hampshire are also found in arctic tundra (Vankat, 1979).

Fen is defined by Hanson (1962) as "a tract of low, marshy ground containing peat, relatively rich in mineral salts, alkaline in reaction, situated in upper parts of old estuaries and around fresh-water lakes, vegetationally distinct from moors." In contrast, a bog is defined as "an undrained or imperfectly drained area with a vegetation complex composed of sedges, shrubs, (Ericaceous specifically) and spaghnum mosses, typically with peat formation; often with open water. Frequently used in various meanings, in the sense of Marsh, Swamp, Moor, Fen, cf. Muskeg, Heath, Raised bog." In Missouri fens have been described by Conard (1958), Nelson (1982), Orzell and Wallace (1983), and Orzell (1984).

Savanna (savannah) is defined by Hanson (1962) as "an area of grassland in which are scattered trees or shrubs but little or no breaks in the continuity of grassland cover." Vankat (1979) noted that the use of the term savanna is often restricted to "tropical vegetation with a dense, grass-dominated herbaceous layer and a tree layer whose canopy is less than 30%" and that "others also apply the term to temperate vegetation with similar appearance." Vankat noted that it is in this latter sense

[1] Department of Biology, Southwest Missouri State University, Springfield, MO 65084-0095

that the term is applied to the grassland deciduous forest transition of the central United States. In Missouri Nelson (1981) described three types of savannas (savanna, shrub savanna, and glade savanna) as natural plant communities. However, the distinctions between shrub savanna and glade savanna and his glade communities are very weak and I suggest in these cases the term savanna is misapplied. Also, the recent use of savanna to describe a 1000 acre site in Ha Ha Tonka State Park is, I believe, incorrect.

The use of terms to describe plant communities is necessary. Each term should be a short-hand symbol for the complex floristic structure of a community as well as its physical parameters (soil and climate). Names of plant communities should, whenever possible, indicate communities, no matter where they occur, that have had a similar developmental history or historical phytogeographic relationships.

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Notes from a Naturalist

WHAT HABITAT?

Edgar Denison[1]

Those nature enthusiasts who stalk the fields and woods to enjoy wildflowers develop the faculty of anticipating just what plant will be or should be found in a specific habitat. This game involves a rather strange phenomenon. We tell ourselves we should find such and such a plant in this setting, and before you can say "Jack Robinson" there is the item of our postulate in front of us. Did our unconscious perceive the species before the conscious mind received the electrical impulses for recognition? Maybe so, but such speculation is outside the theme of these lines.

This article deals with plants, which we associate with a definitive habitat but which defy our expectations at times. The Arboretum of the Missouri Botanical Garden contributes the first four examples.

Blue Star, Amsonia tabernaemontana, is primarily a dweller of "river banks, along ditches, and moist thickets," but also of "woodland, rocky open slopes" (Steyermark, 1963). Years back the Blue Star appeared on a gravel path near the summit from which it descends to the Meramec valley. A few plants became established and flourished. Today, they have multiplied into a sizeable display when in bloom. Almost necessarily, the seeds were brought to the upland situation with gravel from the river. In years when the large gravel bars in the Meramec are not exposed to major floods, Amsonia usually makes a fine show on the gravel. It is a far cry from the wet gravel bar of the river to the dry, glade-like habitat Amsonia has accepted.

Hepatica triloba was introduced over 50 years ago into the Arboretum on a south-facing rock outcropping. In nature, Hepatica, according to my experience, is restricted to north- and east-facing localities, never facing south. Yet, these transplants have survived, though not spread!

Trillium nivale, the lovely dwarf Snow Trillium, which flowers with regularity on St. Patrick's Day, was planted over a half century back in the Arboretum on the shoulder of a road in a broad valley. There it flowers year after year together with Primula veris and Narcissus. In its natural habitat it is found on "limestone or cherty limestone soils of steep eroded forested slopes bordering streams" (Steyermark, 1963). What a complete difference in habitat!

Stylophorum diphyllum, the Celandine Poppy, is a fairly common dweller of moist woodland bottomlands. At the Arboretum it was planted

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on a steep, west-facing slope on rocky, lightly wooded terrain with rich soil. The Poppy took over and covers now a large area, an outstanding floral display in Spring. When the seeds are sown in good garden soil, the Celandine Poppy forgets all about needing a shaded habitat and will do well in full sun, even producing flowers through July - something it never does in nature.

Trillium sessile, one of six species in Missouri with the undifferentiated name Wake Robin, is at home in the woods on hills and in valleys. A few years back I saw a strange display of this Trillium in a friend's garden: in full sun were several tightly packed masses, every stalk bearing a flower. I obtained a small portion of one of the clumps and transplanted the Trillium into my garden, again in full sun. Now in its second year, the small clump has spread to one square foot with twenty plants, each in flower. This is a growth habit that differs entirely from that of plants found in the wild: single plants, never in bunches, though sometimes growing close together.

This brings to mind a closely related species, Trillium viride, which at the Mark Twain State Park becomes the dominant plant of the Green River Valley, growing there in huge patches in full sun.

Asclepias incarnata and Lobelia cardinalis are both at home in wet situations, the Asclepias in the floodplains, the Lobelia along streams, in ditches and swampy places. Both do very well under much drier conditions in gardens when given "Lebensraum," space to live. They do need water during our yearly ordeal of prolonged summer droughts, one of two inhibitors to a richer Flora. It is worth speculating why these two species live in wet habitat when they do so well in places that are much drier.

Chelone obliqua, Rose Turtlehead, is an endangered species in Missouri. "Occurs in swampy meadows, margins of springs in calcareous open meadows, and low or swampy woods in valleys along or near streams" (Steyermark, 1963). The only habitat known to me near Hannibal does really not fit this description. The plants grew below north-facing bluffs of the Mississippi Valley, subject to severe competition from all kinds of vigorous, weedy plants. One morning, years ago, we found the entire stand of Chelone obliqua plowed under. We rescued many specimens by digging the entire plants from the deep furrows and transplanted them into our gardens, where they immediately began to sprout vigorously. The transplants spread their roots rapidly and three years later they were reintroduced into bottom lands belonging to the Department of Conservation. Again, a plant associated with a very wet habitat did very well under drier and different conditions.

These few examples, which certainly could be multiplied by other observers, stimulate our thoughts about the variability of habitat requirements.

Do these species have in their genes the ability to live under very different conditions? Was this ability developed under the influence of ever changing climatic conditions? We know that major climatic changes have occurred in recent earth history. Is the habitat of some plants dictated by the degree of competition more than by physical requirements? What are the practical applications of habitat versatility?

There is, of course, also the opposite of plants accepting different habitats, namely plants with narrowly circumscribed demands of an exacting nature. Our glorious Viola pedata, the Birds-foot Violet, seems to prefer drainage and care nothing about the nature or even the presence of soil. Why can it not be grown in gardens? I know of no gardener who was able to keep it longer than two seasons, but the reason for this escapes me.

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Show-Me Places

Virginia K. Wallace[1]

Pickles Springs - Ste. Genevieve County

Pickles Springs has long been known to botanists as a special place. It has been visited regularly since the 1920s by botanists such as Kellogg, Steyermark, and Jesse Greenman. Many college classes from the St. Louis area made the 60 mile trek from St. Louis, and it has been a favorite spot of many members of the Webster Groves Nature Study Society.

Pickles Springs is an incredibly diverse area for its size. The topography consists of several box canyons surrounded by mostly rolling ground. As you enter the area from Darlac road and walk east to the box canyon you will pass through several of the ten natural communities recorded for the area (Reese, 1985). First you cross a sandstone glade so thick with lichens that you can't walk without crushing them. Proceeding along the ridgetop you might find yourself surrounded by the Short-leaf Pine (Pinus echinata Mill), Winged Elm (Ulmus alata Michx.), and Blueberries (Vaccinium vacillans Torr.) of a sandstone savanna. As you start down the slope the surrounding vegetation changes yet again to White and Black Oaks (Quercus alba L. and Q. velutina Lam.) and Ironwood (Ostrya virginiana [Mill.] K. Koch), as well as hickories and other tree species. Here you might see Rattlesnake Orchids (Goodyera pubescens [Willd.] R. Br.) and, if you visit in early to mid-May, the showy Wild Azalea (Rhododendron roseum [Loisel.] Rehd.).

Approaching the bottom of the box canyon you enter a mesic sand forest dominated by a variety of deciduous tree species including White Oak, Sassafras (Sassafras albidum [Nutt.] Nees), Red Maple (Acer rubrum L.), Black Gum (Nyssa sylvatica Marsh.), Flowering Dogwood (Cornus florida L.), and Paw Paw (Asimina triloba [L.] Dunal). Many ferns grow along the stream and at the bases of the sandstone bluffs. Twenty-two species of ferns and club mosses have been reported from the area including the rare club mosses Lycopodium lucidulum Michx. and L. tristachyum Pursh and Hay-scented Fern (Dennstaedtia punctilobula [Michx.] Moore). Also along the creek you can find the Northern White Violet (Viola pallens [Banks] Brainerd), one of five northern plant species found in the area.

A total of 255 vascular plant species have been reported from the Pickles Springs area, seven of which are listed as rare or endangered by the state: Lycopodium tristachyum, L. selago L. var patens (Beauv.) Desv., Scleria nitida Willd., Viola pallens, Dennstaedtia punctilobula, Gaylussacia baccata (Wang.) K. Koch, and Isotria verticillata (Willd.) Raf. (which occurs just across the property boundary). In addition to

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the Isotria four other orchids occur here: Rattlesnake Orchid (Goodyera pubescens), Adder's Mouth Orchid (Malaxis unifolia Michx.), Ladies Tresses (Spiranthes tuberosa Raf.), and Nodding Pogonia (Triphora trianthophora [Sw.] Rydb.).

Pickles Springs is rich in geologic diversity as well. Formed in LaMotte sandstone, the area has a number of interesting features including moist and dry sandstone cliffs, sandstone talus, glades, and a recent natural rockfall. Several small arches occur to the west of the canyon, and sandstone hoodoos occur on the east side of the canyon above Pickles Springs. (A hoodoo, according to Webster, is a natural column or pinnacle of rock that results from weathering or erosion and occurs in varied and often fantastic forms. Webster also defines hoodoo as something that brings the occurrences of bad luck, i.e. jinx.).

Pickles Springs is named for William Pickles, who owned the land and was killed during the Civil War. (The correct name for the area is Pickles with an s, though the Conservation Commission approved the area name as Pickle.). D'Arcy and Porter (1977) cover the history of the area quite well in "The History and Botany of Pickles Springs, Missouri," so I will not cover it here.

Pickles Springs was closed to the public in 1973 partly because of over collecting and overuse. The Missouri Department of Conservation purchased a 180 acre portion of the area in the fall of 1984, and it is again open to the public. A portion of the area will soon be designated a Missouri Natural Area (part of the area is already a National Natural Landmark, designated in May of 1975).

Pickles Springs is 8 miles east of Farmington and can be reached by taking Highway 32 east from Farmington to Route AA, then approximately 1 1/2 miles east on AA to Darlac Road. Turn left (north) on Darlac Road about 1/8 mile. A survey of the area is not complete as of this writing, so boundary signs have not been placed. For more precise location information contact the MDC resource forester Ed Brown, 1109 Ste. Genevieve, Farmington, MO 63640, (314) 756-6488.

Since the Department does not own the entire box canyon, care must be taken to stay on public land while visiting the area. In order to protect this fragile area vehicles, camping, fires, and plant and animal collecting are not allowed. Hiking is encouraged.

If you would like a copy of the plant list, or have a plant to add to the list, please contact me at the Department of Conservation, P. O. Box 180, Jefferson City, MO 65102. (Special thanks to Bill Summers and Joanna Turner for providing us with their plant lists.)

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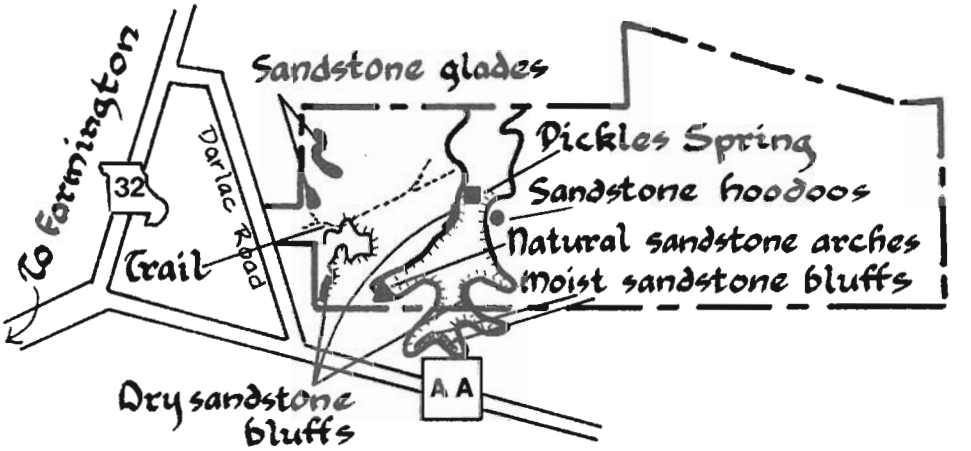

Request for Information

Dr. James Pringle of the Royal Botanic Gardens, Ontario, Canada, is seeking information on Anton Schaffranek.

Dr. Schaffranek lived in St. Charles, Missouri, from 1876 to 1879 and from 1892 until his death there 12 November 1923. His wife's maiden name was Bertha Gatzweiler.

Although Dr. Schaffranek took pride in his many memberships in scientific societies and had been president of the West Virginia Natural History Society while he lived in Wheeling, it appears that he was never a member of the Academy of Science of St. Louis. (Perhaps the personality conflicts that cause such problems in natural history societies today likewise prevailed around the turn of the century.) It does appear, however, that he was acquainted with Dr. Engelmann and got along well with him.

As of 1895, Dr. Schaffranek claimed that his collections included 30,000 specimens of seed plants; over 1000 specimens of ferns, lichens, and mosses; an unspecified number of marine algae; 1800 plates for his proposed illustrated flora "neatly arranged in folders;" large numbers of shells, insects, "Indian implements," and coins; and manuscripts for novels, books of poems, etc. The Cassino directories indicate that he continued to work on increasing his natural history collections for at least another ten years.

Dr. Schaffranek took such pride in these collections that it seems unlikely that he would have made no provision with regard to them upon his death. He lived to be 90 (or 88 or 89, depending on the source), so he did not die young and suddenly without realizing that such provision need be made soon. It appears that he had no surviving children, and his wife died only seven months after he did, so it seems unlikely that he would have stipulated that his collections remain in the family. It is not known whether his wife had any brothers or sisters who had children, but, if so, these in-laws would presumably have been the closest relatives. There are no Gatzweilers in the phone book now.

Since old friends identified as "hobbyists from St. Louis," who collected "bugs (sic), coins, Indian relics, etc." attended Dr. Schaffranek's funeral, it appears that he remained interested in his collections all his life, rather than throwing everything out in a fit of pique. The latter would seem very much out of character. If collections that had been regarded, with some justification, as being among St. Charles' greatest cultural assets had been destroyed in a spectacular fire, this is surely the sort of event that the Cosmos-Monitor would have been most likely to have mentioned in the obituary. Insects of various kinds could conceivably have devoured all the 30-40,000 herbarium specimens and the art work before being detected, but the mineral specimens, shells, coins, and most types of Indian relics would have remained unaffected.

It would seem, therefore, that there should be some Schaffranek collections of something somewhere. Even if everything did go straight to the St. Charles city dump (there was probably no euphemism in 1923), it would be of interest to know why.

If you have any information on Schaffranek or his collections, please write Dr. James S. Pringle, Royal Botanic Gardens, P. O. Box 399, Hamilton, Ontario, Canada L8N 3H8.

Book Review

The Terrestrial Natural Communities of Missouri--Paul W. Nelson. Missouri Natural Areas Committee. 1985. 197 pages. illus.

A prominent landmark can help us to orient ourselves - to determine where we are. This new publication promises to be a landmark for Missourians for years to come.

By careful reading we are able to gain a more precise awareness of where we are in Missouri. We can see more clearly the unique attributes of our favorite nature places. We can appreciate the rich diversity of our natural heritage statewide.

In a highly readable format, the author helps us to recognize the distinct natural community types in Missouri. Essential elements to look for include substrates, slopes, soil moisture, etc. Significant plants are also listed, not as essential elements, but as frequent and therefore characteristic manifestations of the distinct natural community types.

Any science needs consistency in its terminology. The author introduces us to a terminology for natural communities with which we can be consistent among ourselves, and with observers from outside our region. The terms used are complete with descriptions, examples, and illustrations. These natural community designations are not really new. They already enjoy wide usage as a result of the work of the Missouri Natural Areas Committee. The designations which they have adopted are firmly rooted in the ecological literature.

The author's background is obvious, and impressive. The "References Cited" spans six pages (175-180). Even more obvious is his field experience. He knows the sites; he knows the plants.

This analysis of the Missouri natural communities is already being employed for pinpointing the natural areas most in need of preservation throughout the state. It should greatly enrich our own appreciation of our natural heritage.

Missouri *Carex* Notes: I. *Carex aquatilis* in Missouri

David Castaner[1]

The following was presented in part to the Missouri Native Plant Society January 12, 1985, at the Missouri Botanical Garden.

Carex aquatilis is one of the more confusing species of *Carex*. It is assigned to the section *Acutae*, and in the United States it is usually divided into three varieties: *Carex aquatilis* var. *alterior* (Rydberg) Fernald; var. *stans* (Drej.) Boott; and the type variety *aquatilis*. The type variety has also been known as *C. substricta* (Kukenthal.) Mackenzie (Kartesz and Kartesz, 1980). These varieties all intergrade and in turn the species itself seems to be a central entity that intergrades into *C. scopulorum* Holm, *C. prionphylla* Holm, *C. sitchensis* Prescott, *C. eurycarpa* Holm, and sometimes into *C. lenticularis* Michx. (Hitchcock et al., 1969).

According to Hermann (1970), var. *aquatilis* has elliptical perigynia, broadest above the apex, less than 3 mm long and 1-1.75 mm wide; culms are obtusely angled and smooth; and finally the spikes are usually 1-4 cm long. On the other hand, *altior* has obovate perigynia, broadest at the apex, usually 3 mm long and 1.75-2.5 mm wide; culms are acutely angled and often scabrous above; spikes are 3-10 cm long.

On July 13, 1936, Julian Steyermark collected the only Missouri record of this species from Carter County along "alluvial banks" of Ten Mile Creek. This was first identified by F. J. Hermann, a leading expert in *Carex*, as *Carex substricta*. Later Steyermark (1963), in his Flora of Missouri, used a different status name for the specimen and reported it as *C. aquatilis* var. *altior*. According to Hermann, the typical variety is a northwestern variation whose closest occurrence is northern Michigan, while var. *altior* ranges from Newfoundland to Washington, south to New Jersey, Indiana, Nebraska, Wyoming and Colorado (Steyermark, 1963).

In 1981, Lisa A. Standley examined the specimen, *Steyermark 11735* and annotated the specimen to var. *aquatilis*. At this time, Dr. Standley is probably the nation's expert in the section. On this basis, I suggest that var. *altior* be removed from the species "list" of Missouri and var. *aquatilis* be listed in its place. One final comment: I have examined the specimen and I believe one can find evidence, if one is persistent enough, for identifying it as either variety. This is not unusual; one has merely to examine specimens of *C. aquatilis* in various herbaria throughout the country to realize the tremendous range in what is called this species.

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FAMILY SYNOPSIS FOR THE MISSOURI FLORA, 1

Aizoaceae, Anacardiaceae, Aquifoliaceae, Commelinaceae, Hydrocharitaceae, Molluginaceae

Mary S. Taylor[1] and Joanna Turner[2]
Missouri Botanical Garden
1985

Introduction

Since Steyermark published his monumental "Flora of Missouri" in 1963, numerous nomenclatural changes have been published. Monographs and revisions expressing current botanical opinion have appeared, necessitating a comprehensive update of our local plant names. This series of synonymized families are a result of research leading toward a planned supplement.

All taxa in Steyermark's flora have been compared with the taxa listed in Kartesz and Kartesz (1980). Kartesz is considered a baseline database, with all changes confirmed by canvassing the pertinent literature. Controversies or differences of opinion among botanical specialists are indicated. Complete bibliographic data are provided.

Kartesz and Kartesz do not include taxa under the rank of variety or subspecies. It is our opinion that the rank of forma is not useful, except in rare instances. Most variations described by formae can be accommodated by amplified taxa descriptions. In particular, describing formae based on color variation is unnecessary, because "flowers pink to white" in the description would be enough. Most formae are absorbed in these treatments, if not elevated in rank by the specialists.

Taxa are listed alphabetically by genus and species, followed by author, synonymy in brackets, common name, references, and notes where applicable. Page number in Steyermark are in parentheses by common name.

AIZOACEAE
Fig Marigold or Sea Purslane Family (630)

The genera Glinus and Mollugo, previously placed in this family, have been transferred to Fam. Molluginaceae and are to be found later in this paper.

a. Plants non-succulent; flowers hypogynous, sepals distinct; anthocyanins present, betalains absent **Molluginaceae**
a. Plants succulent; flowers perigynous or epigynous, sepals united; anthocyanins absent, betalains present **Aizoaceae**

1 Herbarium, Missouri Botanical Garden, P. O. Box 299, St. Louis, MO 63166
2 166 N. Brentwood, St. Louis, MO 63105

Trianthema portulacastrum L. Sea Purslane, Horse Purslane.

References: Cronquist 1981: 254 and Bogle 1970: 434-435 are our references. Other authorities agreeing with the division are: Hutchinson 1959, Friedrich 1955, Takhtajan 1959, Adamson 1960, and Eckardt 1964. Kartesz and Kartesz 1980, Mohlenbrock 1975, and Thieret 1966 do not accept the family split.

ANACARDIACEAE
Cashew Family (999)

a. Leaves undivided, simple
a. Leaves compound, divided into 3 or 5 to 31 leaflets **Cotinus**
   b. Poisonous resin present in phloem; fruiting inflorescence axillary and pendent; red glandular hairs lacking on pedicels and fruits **Toxicodendron**
   b. Poisonous resin lacking in phloem; fruiting inflorescences terminal and erect; red glandular hairs present on pedicels and fruits **Rhus**

Cotinus obovatus Raf. American Smoke Tree.
Rhus aromatica Ait. var. aromatica (Rhus aromatica Ait. var. illinoensis (Greene) Rehd.). Fragrant Sumac. References: Kartesz & Kartesz 1980: 30; Smith 1978: 7.
Rhus aromatica Ait. var. serotina (Greene) Rehd.
Rhus copallina L. var latifolia Engl. Dwarf Sumac, Winged Sumac, Shining Sumac. References: Kartesz and Kartesz 1980: 30. Note: Smith 1978: 7 does not accept the variety.
Rhus glabra L. Smooth Sumac.
Rhus typhina L. f. dissecta Rehd. Dissected Staghorn Sumac. Known only from cultivated sites in St. Louis County.

Toxicodendron P. Mill. was accepted by Cronquist 1981; Smith 1978; 9, and Gillis 1961. According to Gillis, the segregation of Rhus is appropriate because the several strong characters that separate it from all other Rhus species are greater in number and variety than those which separate other generally accepted segregates of Rhus. Gillis also pointed out that two genera of Pileoaria (rusts that are genus-specific) parasitize only Toxicodendron spp. and a third genus attacks only Rhus. Hybrids and crossings occur among Toxicodendron, but none between Toxicodendron and Rhus. Sullivan (1981: 14) pointed out that the sumac flea beetle (Blepherida rhois) feeds only on Rhus and Cotinus, not on Toxicodendron. However, another sumac-feeding flea beetle (Orthaltica copalina) feeds on both Rhus and Toxicodendron.

a. Fruits pubescent **T. toxicarium**
a. Fruits glabrous
   b. Hairs on lower surface of leaves scattered, pubescence appressed; lealets ovate and mostly notched. **T. radicans subsp. negundo**

b. Hairs on lower leaf surface dense, pubescence erect; leaflets broadly ovate and all notched or serrate
T. radicans subsp. *pubens*

Toxicodendron radicans (L.) Kuntze subsp. *negundo* (Greene) Gillis (*Rhus radicans* L. var. *radicans* fma. *hypomalaca* Fern.; *R. radicans* L. var. *vulgaris* (Michx.) DC. fma. *negundo* (Greene) Fern.). Poison Ivy. This is the most common taxa of the poison ivies in the state. It is known from the counties of Jefferson, St. Louis, Phelps, Adair, Jasper, Marion, St. Charles, Carter, Barry, Clark, Greene, Henry, McDonald, Stone, and Webster. (Note: *T. radicans* (L.) Kuntze subsp. *radicans* (*Rhus radicans* L. var. *vulgaris* fma. *intercursa* Fern. and *T. rydbergii* (Small ex Rydb.) Greene (*Rhus radicans* L. var. *vulgaris* (Michx.) DC.) are not present in Missouri. References: Gillis 1971: 190, 228; Kartesz and Kartesz 1980: 30; Smith 1978: 9.

Toxicodendron radicans (L.) Kuntze subsp. *pubens* (Englem. ex Wats.) Gillis Poison Ivy. Known only from Henry, Jackson, Carter, Iron, and St. Louis Counties. References: Gillis 1971: 218; Kartesz and Kartesz 1980: 30.

Toxicodendron radicans (L.) Kuntze subsp. *negundo* X *pubens*. A hybrid collected by Palmer in Ozark County and by Donahue in Ogden County. Very rare. References: Gillis 1971: 426-428.

Toxicodendron toxicarium (Salisb.) Gillis (*Rhus toxicodendron* L.; *R. toxicodendron* L. fma. *leiocarpa* Fern. and fma. *elobata* Fern.). Poison Oak. Uncommon; known only from Mississippi and Ozark Counties. It has mixed appressed and erect pubescence and broadly ovate leaflets. References: Gillis 1971; 402; Kartesz and Kartesz 1980: 31.

AQUIFOLIACEAE
Holly Family (1006)

Ilex decidua Walt. Possum Haw, Deciduous Holly.

Ilex opaca Ait. American Holly.

Ilex verticillata (L.) A. Gray (*I. verticillata* (L.) A. Gray var. *padifolia* (Willd.) Torr. and Gray). Winterberry, Black Alder. References: Kartesz and Kartesz 1980: 40; Smith 1978: 13; Mohlenbrock 1978: 11.

COMMELINACEAE
Spiderwort Family (392)

Commelina communis L. var *communis* Day-flower.

Commelina diffusa Burm. f. (*Commelina caroliniana* Walt.). Kartesz and Kartesz 1980: 164; Smith 1978: 387; Brashier 1966: 15).

Commelina erecta L. var. *erecta* (*C. erecta* L. var. *erecta* fma. *intercursa* Fern.). Day-flower.

Commelina erecta L. var. *angustifolia* (Michx.) Fern. (*C. erecta* L. var *angustifolia* fma. *crispa* (Woot.) Fern.).

Commelina erecta L. var. deamiana Fern. Note: Smith 1978: 387 says "varieties overlap morphologically and the forms are probably of little or no significance." Here we retain the varieties, but chose not to recognize formae as a taxonomic rank, preferring to instead note such morphological differences in a broader description of the taxa.
Commelina virginica L.

Tradescantia bracteata Small
Tradescantia ernestiana Anderson and Woodson
Tradescantia longipes Anderson and Woodson Wild Crocus.
Tradescantia ohiensis Raf. var. ohiensis
Tradescantia ozarkana Anderson and Woodson
Tradescantia subaspera Ker.-Gawl. var. subaspera
Tradescantia tharpii Anderson and Woodson
Tradescantia virginiana L.

References: Anderson and Sax 1936 and Woodson 1942 are basic sources for the family.

HYDROCHARITACEAE
Frogbit Family (66)

a. Leaves heart shaped and rounded, 30-70 mm wide **Limnobium**
a. Leaves ribbon-shaped, long and narrow, or short, small and linear to ovate, 0.3 to 20 mm wide
  b. Leaves long and ribbon-shaped, arising from the base of the plant **Vallisneria**
  b. Leaves short, in numerous whorls (circles) or 3 or more (sometimes only 2) opposite each other arising up and down the length of the stem
    c. Leaves in whorls of 3 to 6 (2-8), mostly 2 cm or more long, 1.6 to 2.8 wide; petals showy, 9 to 12 mm long **Egeria**
    c. Leaves opposite or in whorls of 3, mostly less than 2 cm long, 1.5 to 5 mm wide; petals tiny, to 5 mm long **Elodea**

Egeria densa Planch. (Anacharis densa (Rich.) Viet.) Waterweed. References: St. John 1961; 297; Kartesz and Kartesz 1980: 250; St. John 1965: 156; Correll and Correll 1972: 161-162; Godfrey and Wooten 1979: 76; Cook and Urmi-Konig 1984: 80. Not documented for Missouri, but to be expected as horticultural escape.

Elodea canadensis L. C. Rich. (Anacharis canadensis (Michx.) Planch.) Canadian Waterweed. References: St. John 1965: 293; Kartesz and Kartesz 1980: 250; Steyermark 1961 (errata): 1726; Mohlenbrock 1975: 92; Smith 1978: 477; Correll and Correll 1972: 165; Godfrey and Wooten 1979: 79.

Elodea nuttallii (Planch.) St. John. (Anacharis nuttallii Planch.) Nuttall's Waterweed. References: Cook and Urmi-Konig 1985: 141; St. John 1965: 6; Kartesz and Kartesz 1980: 250; Mohlenbrock 1975: 92; Smith 1978: 477; Correll and Correll 1972: 165; Godfrey and Wooten 1979: 79.

Limnobium spongia (Bosc) Steud. Frogbit. References: Kartesz and Kartesz 1980: 250; Cook and Urmi-Konig 1983: 19; Correll and Correll 1972: 159.

Vallisneria americana Michx. Eelgrass, Tapegrass, Wild Celery. References: Kartesz and Kartesz 1980: 250; Lowden 1982: 269-298; Correll and Correll 1972: 161.

MOLLUGINACEAE
Carpetweed Family (630)

Glinus lotoides L.
Mollugo verticillata L.

References: Cronquist 1981: 254 and Bogle 1970: 434-435 are our references. Other authorities agreeing with the division are: Hutchinson 1959, Friedrich 1955, Takhtajan 1959, Adamson 1960, and Eckardt 1964. Kartesz and Kartesz 1980 and Thieret 1966 do not accept the split.

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AWARDS OFFERED

by Awards Committee*

At their June meeting the MoNPS board voted to institute a system of awards as recommended by the awards committee. We tried to choose awards that would reflect the goals of the society and the varied interests of the members. We settled on four awards (each to receive an engraved plaque) and two Certificates of Recognition as follows:

1. Erna A. Eisendrath Memorial Education Award: To be awarded to an individual who, through teaching, writing or other forms, has significantly conveyed to others an appreciation and knowledge of Missouri's native flora. This award may be presented annually if merited.

2. Unnamed research award: To be awarded to an individual who has made a significant contribution toward furthering the knowledge of Missouri flora. This award may be presented annually if merited for accomplishments made during the award year.

3. Plant Stewardship Award: To be awarded to an individual or organization for presentation of important elements of Missouri's flora through purchase, registry and/or management practice. This award may be presented annually if merited.

4. Julian A. Steyermark Award: The Society's highest award to be presented to an individual who has made outstanding contributions to any or all aspects of Missouri botany. This award is to be given as merited for superior achievement.

Certificates

1. Certificates to the five most significant plant discoveries during the award year (Jan. 1 - Dec. 31) preceding the annual meeting. To qualify, contributors must submit a verifiable record of occurrence to the Missouri Natural Heritage Inventory (MoNHI). Final determinations will be made by the Awards Committee using criteria of rarity and distribution. Honorable mentions may also be awarded.

2. Certificates to the three individuals who have most actively contributed voucher specimens of Missouri plants to regional herbaria within the award year preceding the annual meeting. The Awards Committee will survey curators to determine certificate recipients.

These awards will be presented at next year's annual meeting for the first time. We know there are many deserving members out there, but we need nominations from you. Nominations need to be in to the nominating

* Paul Nelson, Gary Reese and Ginny Wallace

committee by February 1. If you want to submit a nomination, or if you have any questions, please write Ginny Wallace, P. O. Box 180, Jefferson City, MO 65102, (314) 751-4115 for a nomination form.

Do it now, so you'll have time to get your nomination in by the February 1 deadline. We look forward to hearing from you!

MEMBERSHIP APPLICATION

MISSOURI NATIVE PLANT SOCIETY
Dedicated to the Preservation of Missouri Native Flora

Name: _____

Address: _____

City/State: _____ Zip: _____

Telephone Number: ( ) _____

Membership Categories

_____ Student $2.50
_____ Regular (Individual or Family).... $5.00
_____ Contributing $15.00
_____ Sponsoring $50.00
_____ Sustaining $100.00
_____ Group $25.00

I wish to be affiliated with the Chapter indicated below. (Please note--a chapter will not be eligible for a portion of your dues unless you indicate your choice. Membership is not limited to one chapter, but $3 per affiliation must be paid to the treasurer of each chapter. Those requesting a chapter affiliation will receive the local newsletter, regardless of whether they live in the area or not; however, members not receiving the local newsletter are still welcome to participate in chapter activities and meetings).

_____ Chapter ..... Add $3 to above category.
_____ St. Louis Chapter
_____

In addition to my dues, I enclose a gift of $_____ to support MONPS activities. Please use my contribution for the preservation of Missouri native plants.

Total Enclosed: _____

Non-chapter affiliates mail application with contribution to:

Missouri Native Plant Society
c/o Mr. Mervin Wallace, Treasurer
Route 2,
Jefferson City, MO 65101

St. Louis Chapter affiliates mail application and dues to:

Ms. Katherine Chambers
MONPS -St Louis Chapter Treasurer
7024 Forsyth
St. Louis, MO 63105