

MISSOURI SPECIES AND COMMUNITIES* OF CONSERVATION CONCERN



CHECKLIST JANUARY 2006

*Terrestrial Natural Communities. Does not include aquatic, geologic or cave communities.

Cover illustrations: Mark Raithe

(clockwise from top)

Indiana bat

Ozark cave amphipod

Grotto salamander

Tumbling creek cavenail

Bristly cave crayfish

Ozark cavefish

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NOTICE: Please submit reports of all sightings of species and natural communities listed in this checklist on the forms provided in the back of this checklist. Special criteria apply to birds and reports should follow the guidelines listed in Appendix A.

INTRODUCTION

The Department of Conservation is charged with the protection and management of Missouri's fish, forest, and wildlife resources. In the brief time since the settlement of Missouri, many plants and animals have declined to levels of concern and some have disappeared entirely. The species cataloged in this checklist represent 18 percent of the native vascular plants, 14 percent of the nonvascular plants and 28 percent of the vertebrate animals in Missouri. Together, the animals, plants, and natural communities represent Missouri's biological diversity—a heritage worth protecting.

The Department maintains two references relating to the status of listed plants and animals in Missouri; the *Missouri Species of Conservation Concern Checklist* and the *Wildlife Code of Missouri*. **The *Missouri Species of Conservation Concern Checklist* possesses no legal authority and is utilized for planning and communication purposes.** All species in the State of Missouri are protected as biological diversity elements unless a method of legal harvest is described in the *Wildlife Code*. Species listed in the *Wildlife Code* under [3CSR10-4.111](#) are protected by [State Endangered Species Law 252.240](#). Some of the plants and animals in the checklist also appear in the *Wildlife Code* and are afforded special legal protection. All federally endangered and threatened plants and animals are protected by the Endangered Species Act of 1973 (ESA) and by Missouri State Endangered Species Law.

How to use the checklist

The checklist, developed with the cooperation of specialists throughout the state, is a list of plants, animals, and natural communities the Department of Conservation is particularly concerned about due to population declines or apparent vulnerability. The state rank (SRANK) shows the level of concern for each species' continued existence in Missouri. For each Element (i.e., species, subspecies or variety, or natural community type), at least 6 basic factors are considered when assigning an SRANK:

- the estimated number of Element Occurrences (EOs) throughout the Element's state range
- the estimated state abundance of the Element (measured by population, area, or stream length)
- the estimated size of the Element's state range
- the trend in the Element's distribution over its state range
- the estimated number of adequately protected EOs throughout the Element's state range
- the degree to which the Element is threatened in the state

The checklist also indicates, for each lichen, plant, and animal Element in the heritage inventory, information on the Element's global rank (i.e., its relative rarity or endangerment in the world). This is useful for understanding the relative rarity or endangerment of an Element from a global perspective (beyond state, national, or regional boundaries). Global ranks (i.e., GRANKS), are completed by the Heritage/Conservation Data Center personnel and/or NatureServe. For each Element, the same six factors listed above for SRANKS are considered when assigning GRANKS, but in a global context. Additionally, the fragility or susceptibility of the Element to intrusion or disturbance is considered when assigning a global rank.

The Global and State Ranking System methodology was developed and provided by The Nature Conservancy, Conservation Science Division, in association with the Network of Natural Heritage Programs and Conservation Data Centers. NatureServe 2005. NatureServe Central Databases. Arlington, Virginia. U.S.A.

The checklist is arranged by broad taxonomic groups (e.g., terrestrial natural communities, flowering plants, insects, fish, and mammals). Within each group, species are arranged alphabetically by their scientific names and terrestrial natural communities by community type. Each Element is identified by its scientific name, common name, federal status, state status, global rank, and state rank.

TERMS AND DEFINITIONS

FEDERAL STATUS

The federal status is derived from the provisions of the Endangered Species Act of 1973, as amended, which is administered by the U.S. Fish and Wildlife Service. Passage of the Endangered Species Act of 1973 gave the United States one of the most far-reaching laws ever enacted by any country to prevent the extinction of imperiled animals and plants. Protecting endangered and threatened species and restoring them to the point where their existence is no longer jeopardized is the primary objective of the Fish and Wildlife Service's Endangered Species Program.

E: Endangered: Any species which is in danger of extinction throughout all or a significant portion of its range.

T: Threatened: Any species which is likely to become endangered within the foreseeable future.

C: Candidate: Plants or animals which the Service is reviewing for possible addition to the list of endangered and threatened species.

PE: Proposed Endangered: Species officially proposed for listing as endangered; final ruling not yet made.

PT: Proposed Threatened: Species officially proposed for listing as threatened; final ruling not yet made.

STATE STATUS

Rule 3CSR10-4.111 of the *Wildlife Code of Missouri* and certain state statutes apply to state *Code* listed species.

E: "Endangered": Determined by the Department of Conservation under constitutional authority.

GLOBAL RANK

A numeric rank (G1 through G5) of relative endangerment based primarily on the number of occurrences of the Element (i.e., species, subspecies, or variety) globally. Other factors in addition to the number of occurrences are considered when assigning a rank, so the numbers of occurrences suggested for each numeric rank below are not absolute guidelines.

G1: Critically Imperiled: Critically imperiled globally because of extreme rarity or because of some factor(s) making it especially vulnerable to extinction. Typically 5 or fewer occurrences or very few remaining individuals (<1,000) or acres (<2000) or linear miles.

G2: Imperiled: Imperiled globally because of rarity or because of some factor(s) making it very vulnerable to extinction or elimination. Typically 6 to 20 occurrences or few remaining individuals (1,000 to 3,000) or acres (2,000 to 10,000) or linear miles (10 to 50).

GLOBAL RANK (Cont.)

G3: Vulnerable: Vulnerable globally either because very rare and local throughout its range, found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extinction or elimination. Typically 21 to 100 occurrences or between 3,000 and 10,000 individuals.

G4: Apparently Secure: Uncommon but not rare (although it may be rare in parts of its range, particularly on the periphery), and usually widespread. Apparently not vulnerable in most of its range, but possibly cause for long-term concern. Typically more than 100 occurrences and more than 10,000 individuals.

G5: Secure: Common; widespread and abundant (although it may be rare in parts of its range, particularly on the periphery). Not vulnerable in most of its range. Typically with considerably more than 100 occurrences and more than 10,000 individuals.

G#G#: **Range Rank:** A numeric range rank (e.g., G2G3) is used to indicate uncertainty about the exact status of a taxon. Ranges cannot skip more than one rank (e.g., GU should be used rather than G1G4).

GNR: Not Ranked: Status has not been assessed.

GU: Unrankable: Currently unrankable due to lack of information or due to substantially conflicting information about status or trends. Note: Whenever possible, the most likely rank is assigned and the question mark qualifier is added (e.g., G2?) to express uncertainty, or a range rank (e.g., G2G3) is used to delineate the limits (range) of uncertainty.

GH: Possibly Extinct/Extirpated: Known from only historical occurrences, but may nevertheless still be extant; further searching needed.

GX: Presumed Extinct: Believed to be extinct throughout its range. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.

SUBRANK:

T: Taxonomic Subdivision: Rank applies to a subspecies or variety.

QUALIFIERS:

?: Inexact Numeric Rank: Denotes inexact numeric rank. (The ? is not used in combination with range ranks.)

Q: Questionable Taxonomy: Distinctiveness of this entity as a taxon or community at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, inclusion of this taxon in another taxon, or inclusion of this community within another community, with the resulting Element having a lower-priority (numerically higher) conservation status rank.

STATE RANK

A numeric rank (S1 through S5) of relative endangerment based primarily on the number of occurrences of the Element (i.e., species, subspecies, or variety) within the state. Other factors considered when assigning a rank include: abundance, population trends, distribution, number of protected sites, degree of threat, suitable habitat trends, level of survey effort and life history. Thus, the number of occurrences suggested for each numeric rank below are not absolute guidelines. Missouri species of conservation concern typically do not fall within the range of S4-S5.

S1: Critically Imperiled: Critically imperiled in the nation or state because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state. Typically 5 or fewer occurrences or very few remaining individuals (<1,000).

S2: Imperiled: Imperiled in the nation or state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the nation or state (1,000 to 3,000). Typically 6 to 20 occurrences or few remaining individuals (1,000 to 3,000).

S3: Vulnerable: Vulnerable in the nation or state either because rare and uncommon, or found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extirpation. Typically 21 to 100 occurrences or between 3,000 and 10,000 individuals.

S4: Apparently Secure: Uncommon but not rare, and usually widespread in the nation or state. Possible cause of long-term concern. Usually more than 100 occurrences and more than 10,000 individuals.

S5: Secure: Common, widespread, and abundant in the nation or state. Essentially ineradicable under present conditions. Typically with considerably more than 100 occurrences and more than 10,000 individuals.

S#S#: Range Rank: A numeric range rank (e.g., S2S3) is used to indicate the range of uncertainty about the exact status of the Element. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

S?: Unranked: Species is not yet ranked in the state.

SU: Unrankable: Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

SE: Exotic: An exotic established in the state; may be native in nearby regions (e.g., house finch or catalpa in eastern U.S.)

SA: Accidental/Nonregular: Accidental or casual in the state (i.e., infrequent and outside usual range).

SP: Potential: Potentially occurring in the state but no occurrences reported.

SR: Reported: Element reported in the state but without persuasive documentation which would provide a basis for either accepting or rejecting (e.g., misidentified specimen) the report.

SRF: Reported Falsely: Element erroneously reported in the state and the error has persisted in the literature.

STATE RANK (Cont.)

SH: Historical: Element occurred historically in the state (with expectation that it may be rediscovered). Perhaps having not been verified in the past 20 years, and suspected to be still extant.

SX: Extirpated: Element is believed to be extirpated from the state.

QUALIFIERS:

?: Inexact or Uncertain: Denotes inexact or uncertain numeric rank. (The ? qualifies the character immediately preceding it in the SRANK. The ? is not used in combination with range ranks.)

SPECIES CHANGES

STATUS CHANGES

PLANTS

Grimmia ovalis (A Moss) from SRF to SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Leucodon brachypus (A Moss) from SRF to SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Panicum portoricense (A Panic Grass) from S1 to S1? due to unresolved questions over determination of some specimens.

Pseudotaxiphyllum distichaceum (A Moss) from S? to SU due to insufficient data to assess rank.

Sphagnum cuspidatum (Sphagnum) from SRF to SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Sphagnum russowii (Sphagnum) from SRF to SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Sphagnum subtile (Sphagnum) from SRF to SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

MOLLUSKS

Alasmidonta marginata (Elktoe) from S2? to S2. The elktoe is a rare mussel in Missouri and is sometimes a habitat specialist.

Alasmidonta viridis (Slippershell) from S? to S2. The slippershell is very rare in Missouri, and because of their small size are difficult to locate.

Anodontoides ferussacianus (Cylindrical Papershell) from S1? to S1. This species is rarely collected in Missouri, and has not been collected in recent years from past locations.

Cyprogenia aberti (Western Fanshell) from S1S2 to S2. Recent genetic and host evidence indicates there may be a need to separate western fanshell into "management units" based on river drainage. Until further genetic studies are undertaken, S2 is the most appropriate rank.

Fusconaia ebena (Ebonyshell) from S1? to S1. Ebonyshell is rare in Missouri, and only found at limited sites, with very little to no evidence of recent recruitment. In fact, the few females found in the Meramec River are nearly sterile from low population density. In the Mississippi River, all individuals are very old and are slowly dying away.

Leptodea leptodon (Scaleshell) from S1S2 to S1. Scaleshell is a short-lived mussel that is rare in Missouri. In fact, females are very rare and the species could be lost very quickly.

Leptoxis arkansensis (Arkansas Mudalia) from SU to S3. Arkansas mudalia is restricted to 1 river system (North Fork & Bryant Creek), but populations locally abundant.

MOLLUSKS (Cont.)

Ligumia recta (Black Sandshell) from S1S2 to S2. Populations are doing fairly well in the Osage River, which is a population stronghold.

Obovaria olivaria (Hickorynut) from S2S3 to S3. While common in the Mississippi River, hickorynut is rarely collected from interior streams it was historically known from.

Plethobasus cyphus (Sheepnose) from S1 to S2. Recent survey work indicates that sheepnose is doing fairly well at several locations, especially in the Meramec River basin.

Ptychobranhus occidentalis (Ouachita Kidneyshell) from S2S3 to S3. Recent survey work indicates Ouachita kidneyshell is very abundant at some sites in the St. Francis River basin and fairly so in some upper White River tributaries.

Simpsonaias ambigua (Salamander Mussel) from S1? to S1. The salamander mussel is known from only a few sites and is very rare in Missouri.

Stagnicola elodes (Marsh Pondsnailed) from S3? to S2. The marsh pondsnailed is known from only four populations, and only one of these appears sustainable (Saline Co).

Vertigo oscariana (Capital Vertigo) from SU to S1. The capital vertigo is very rare in Missouri. No live shells have been found, and it is historically known from only 2 localities in the state.

CRUSTACEANS

Orconectes eupunctus (Coldwater Crayfish) from S3 to S2 due to survey by Magoulick and DiStefano which indicates that this species has disappeared from Howell county and 28 kilometers of the Spring River drainage.

Orconectes williamsi (Williams' crayfish) from S1? to S2 based on a survey by Westhoff et al. (2005) which indicated that this crayfish is significantly more common in the White River drainage than initially thought, yet remains limited to only one drainage and distribution is fragmented by reservoirs.

MILLIPEDES

Causeyella dendropus (Causeyella Cave Millipede) from SU to S2. In 2003 Dr. William A. Shear published a revision of the millipede family Trichopetalidae, in which he placed the troglobitic millipede, *Scoterpes dendropus* in a new genus, thus making it *Causeyella dendropus* (Loomis). He also described two new species of *Causeyella* from Arkansas. The genus is named after Nell Causey, famous deceased biologist from the University of Arkansas. The species is known from at least ten caves in Missouri. The type locality is Marvel Cave, Stone Co., Missouri, collected 27 June 1938 by Kenneth Dearolf (MCZ).

INSECTS

Calephelis borealis (Northern Metalmark) from S2S3 to S1 on the basis of periodic field surveys over the last 20 years which indicate only one-two populations of the species are present in the state.

INSECTS (Cont.)

Cicindela circumpecta johnsonii (Saline Spring Tiger Beetle) from S2S3 to S1 because only two locations were found during a 2001-2003 survey of prospective and known habitat in central Missouri by Brown and MacRae. They concluded that the long-term viability of the Missouri population is questionable.

Euphyes dukesi (Duke's Skipper) from S1? to S1 on the basis of recent field surveys which indicate only five populations of the species occur in the state.

Hesperia ottoe (Ottoe Skipper) from S2S3 to S1 on the basis of recent field surveys indicating that only four populations occur in the state.

Satyroides appalachia leeuwi (Appalachian Eyed Brown) from S2S3 to S1 on the basis of recent field surveys which indicate only four-five populations occur in the state.

Speyeria Diana (Diana Fritillary) from SU to SA on the basis of a review of old records and recent field surveys which indicate the species is not currently established in the state.

ADDITIONS

PLANTS

Agastache scrophulariifolia (Purple Giant-hyssop) as S1 because the single recent collection is first since 1950. Reported from only seven counties, including historical records.

Anacamptodon splachnoides (Knothole Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Atrichum crispum (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Atrichum cylindricum (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Brachythecium acutum (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Brachythecium campestre (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Brachythecium digastrum (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Bryhnia novae-angliae (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Bryum flaccidum (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

PLANTS (Cont.)

Bryum pallescens (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Bryum ruderale (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Drepanocladus aduncus var. *kneiffii* (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Entodon brevisetus (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Fissidens exilis (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Fontinalis hypnoides (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Funaria Americana (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Funaria calvescens (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Grimmia plagiopodia (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Herzogiella striatella (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Hypnum pretense (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Jaffueliobryum rauii (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Jaffueliobryum wrightii (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Lithospermum latifolium (American Gromwell) as S2 because there are only two recent collections. Reported from only nine counties, including historical records.

Mnium hornum (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Orthotrichum strangulatum (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

PLANTS (Cont.)

Physcomitrium hookeri (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Physcomitrium immersum (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Plagiomnium medium (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Pleuridium acuminatum (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Pleuridium sullivantii (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Pylaisia intricate (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Pylaisiadelphina tenuirostris (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Schistidium liliputanum (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Sphagnum compactum (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Sphagnum magellanicum (Magellan's Peatmoss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Sphagnum platyphyllum (Sphagnum) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Tortella fragilis (Fragmented Screw-moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Tortella tortuosa (Twisted Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

Tragia cordata (Heart-leaved Noseburn) as S2 because there are only two recent collections.

Trichostomum tenuirostre var. *gemneparum* (A Moss) as SU due to a recent review of moss specimens and literature by bryologists at the MO Botanical Garden.

MOLLUSKS

Discus nigrimontanus (Black Mountain Disc) as S3. The Black Mountain disc is only found in 11 counties in Missouri, and then in low numbers. Its habitat is not widespread (xeric, rocky, sparse leaf cover).

Gastrocopta cristata (Crested Snaggletooth) as S1. The crested snaggletooth is rare in Missouri, only known from 3 sites in 3 counties.

Gastrocopta pellucida (Slim Snaggletooth) as S1. The slim snaggletooth is rare in Missouri, only known from 3 sites in 3 counties.

Lampsilis reeviana brittsi (Northern Brokenray) as S3. Recent genetics work indicates that northern brokenray is a distinct species from Arkansas/Ozark brokenray, which are not distinct, separate species.

Marstonia scalariformis (Moss Pyrg) as S1. The moss pyrg was recently confirmed from only 1 locality in Crawford County.

Mesodon mitchellianus (Sealed Goblet) as S1. The sealed goblet has only been found in 2 locations in Missouri, in St. Louis & Barry counties.

Neohelix divesta (Ozark Whitelip) as S3. The Ozark whitelip has been found in only 8 counties in the SW region of Missouri.

Patera perigrapta (Engraved Bladetooth) as S2. The engraved bladetooth is known only from the White River basin in Stone and Taney counties.

Stenotrema stenotrema (Inland Slitmouth) as S3. The inland slitmouth is found in only 8 counties in Missouri.

Strobilops affinis (Eightfold Pinecone) as S2. While generally distributed, the eightfold pinecone has been found in very low numbers from 13 counties in Missouri.

Triodopsis cragini (Post Oak Threetooth) as SH. Specimens of post oak threetooth from Missouri are housed in the Field Museum and reported by Hubricht from 4 counties. Recent surveys have failed to locate this species.

CRUSTACEANS

Brackenridgia ashleyi (Ashley's Isopod) as S2. A new species of troglobitic isopod, *Brackenridgia ashleyi*, was described by Dr. Julian J. Lewis in 2004. It is named after Dr. David C. Ashley, Missouri Western State University, who led many studies in Tumbling Creek Cave. The species was thought to be very rare, but recently was found in three caves at Ft. Leonard Wood, Pulaski County, and one cave in Arkansas. Specimens of this genus were collected in one other cave and two mines in Arkansas, and have not been identified to species yet (Mike Slay, pers. comm.). Members of this genus usually are cave-adapted and semi-aquatic. The cave contains about 117 known species and has the highest cave biodiversity in Missouri and probably west of the Mississippi River.

INSECTS

Gomphus fraternus (Midland Clubtail) as SU. New state record. One specimen was collected in St. Louis county; identification has been confirmed. Because of the limited information provided by a single adult specimen and the absence of immatures, we cannot be confident of the specimen's origin (it could be a stray), nor can we be certain of the existence of a Meramec River/MO population

DELETIONS

PLANTS

Aneura pinguis (A Liverwort) removed from list because species more common than previously thought.

Agalinis skinneriana (Pale Gerardia) removed from list because species more common than previously thought.

Campylium stellatum var. *stellatum* (Yellow Starry Fen Moss) removed from list because species more common than previously thought.

Carex oklahomensis (Oklahoma Sedge) removed from list because species more common than previously thought.

Didymodon rigidulus var. *gracilis* (A Moss) removed from list because species more common than previously thought.

Eleocharis wolfii (Wolf's Spike Rush) removed from list because species more common than previously thought.

Ephemerum crassinervium var. *crassinervium* (A Moss) removed from list because species more common than previously thought.

Grimmia teretinervis (A Moss) removed from list because species more common than previously thought.

Helodium paludosum (A Moss) removed from list because species more common than previously thought.

Leskea australis (A Moss) removed from list because species more common than previously thought.

Physcomitrella patens (A Moss) removed from list because species more common than previously thought.

Plagiomnium ellipticum (A Moss) removed from list because species more common than previously thought.

Rhytidiadelphus triquetrus (Shaggy Moss) removed from list because species more common than previously thought.

Riccia stenophylla (A Liverwort) removed from list because species more common than previously thought.

PLANTS (Cont.)

Scopelophila ligulata (Copper Moss) removed from list because species no longer thought to occur in Missouri.

Sphagnum centrale (Sphagnum) removed from list because species no longer thought to occur in Missouri.

Sphagnum fallax (Sphagnum) removed from list because species no longer thought to occur in Missouri.

Sphagnum girgensohnii (Sphagnum) removed from list because species no longer thought to occur in Missouri.

Sphagnum margaritae (Peatmoss) removed from list because species no longer thought to occur in Missouri.

Sphagnum tenerum (Sphagnum) removed from list because species no longer thought to occur in Missouri.

MOLLUSKS

Euconulus fulvus (Brown Hive) removed from the list because Pilsbry (1946) noted that some published locality records for *E. fulvus* were in error, since *E. chersinus* was not recognized until 1908. Even with this work, specimens of *E. fulvus* and *E. chersinus* are difficult to distinguish, and can be easily misidentified. Hubricht (1985) reported Pleistocene loess fossils for *E. fulvus* in Missouri, however the recent fauna consisted of *E. chersinus*.

Gastrocopta rogersensis (A Snaggletooth Snail) removed from the list because species recently described (2001) and has since been recorded from over 20 counties in Missouri.

Lampsilis reeviana reeviana (Arkansas Brokenray) removed from the list because recent genetics work indicates that Arkansas brokenray and Ozark brokenray are not distinct, separate species. Common in tributaries to the White River in Missouri.

Linisa texasiana (Texas Liptooth) removed from the list because reported in Missouri by Hubricht (1985), but there are no specimens under this name from Missouri in his collection at the Field Museum.

Pyrgulopsis ozarkensis (Ozark Pyrg) removed from the list because there is one reported location of Ozark pyrg in Missouri, and efforts to relocate the species have been unsuccessful.

Ventridens brittsi (Western Dome) removed from the list because it was reported in Missouri by Hubricht (1985), but there are no specimens under this name from Missouri in his collection at the Field Museum.

Vertigo gouldi (Variable Vertigo) removed from the list because the variable vertigo has been recorded from over 30 counties in Missouri. It is also very abundant where it occurs.

Vertigo meramecensis (Bluff Vertigo) removed from the list because the bluff vertigo has been recorded from 10 counties in Missouri.

MOLLUSKS (Cont.)

Xolotrema denotatum (Black Velvet Wedge Snail) removed from the list because the black velvet wedge snail has been reported from Missouri, but there are no specimens in available collections. Specimens may be misidentified.

INSECTS

Formica Montana (Prairie Mound Ant) removed from the list based on further field surveys in the Glaciated Plains.

Hypoponera opacior (An Ant) removed from the list based on further field surveys in the Mississippi Lowlands and Osage Plains.

TAXONOMIC CHANGES

PLANTS

Leskea polycarpa var. *polycarpa* to *Leskea polycarpa* (A Moss).

Lesquerella filiformis to *Physaria filiformis* (Missouri Bladder-pod).

Leucodon brachypus var. *brachypus* to *Leucodon brachypus* (A Moss).

Tortula papillosa to *Syntrichia papillosa* (A Moss).

MILLIPEDES

Scoterpes dendropus to *Causeyella dendropus* (Causeyella Cave Millipede).

TERRESTRIAL NATURAL COMMUNITIES

In addition to lichens, plants, and animals, the Missouri Natural Heritage Program tracks occurrences of high quality natural communities. Terrestrial natural communities are interrelated assemblages of plants, animals, and other living organisms incorporated into their physical surroundings- including geologic substrate, soils, topography and aspect- that are shaped by climate and other natural processes. High quality sites are ones that provide diverse assemblages of native species and represent the least distressed examples of ecosystems that existed in Missouri prior to European settlement. These natural communities frequently provide the habitat necessary for Missouri's listed lichens, plants, and animals. Because the Missouri Department of Conservation tracks occurrences of high quality natural communities, we encourage the submission of site information on natural communities as we do for species listed in this Checklist.

State ranks are assigned to natural communities using criteria that are similar to species SRANKs. (Criteria include total number of occurrences, number of occurrences by grade [A-D], total acres, number of counties in which the community type occurs, number of protected occurrences, and threats.) Global ranks are not applied to communities due to the difficulty in reconciling Missouri's classification system with larger scale classifications.

Natural community types have been classified using The Terrestrial Natural Communities of Missouri, Revised edition (Nelson, 2005). This classification system was developed to accomplish an inventory of the state's natural communities, prioritized by quality, size and distribution, to help meet land protection goals. The Terrestrial Natural Communities tracked in Heritage are listed below with their SRANKs by major community type.

<u>COMMUNITY TYPE</u>	<u>SRANK</u>
FOREST	
Dry-Mesic Loess/Glacial Till Forest	S3
Mesic Loess/Glacial Till Forest	S3
Dry-Mesic Limestone/Dolomite Forest	S3
Mesic Limestone/Dolomite Forest	S3
Dry-Mesic Chert Forest	S4
Dry-Mesic Sandstone Forest	S3
Mesic Sandstone Forest	S2
Dry-Mesic Sand Forest	S1
Mesic Sand Forest	S1
Dry-Mesic Igneous Forest	S4
Dry-Mesic Bottomland Forest	S3
Mesic Bottomland Forest	S2
Wet-Mesic Bottomland Forest	S3
Wet Bottomland Forest	S2
Riverfront Forest	S4

<u>COMMUNITY TYPE</u>	<u>SRANK</u>
WOODLAND	
Dry Loess/Glacial Till Woodland	S3
Dry-Mesic Loess/Glacial Till Woodland	S3
Dry Limestone/Dolomite Woodland	S3
Dry-Mesic Limestone/Dolomite Woodland	S3
Dry Chert Woodland	S4
Dry-Mesic Chert Woodland	S4
Dry Sandstone Woodland	S3
Dry-Mesic Sandstone Woodland	S3
Dry Sand Woodland	S1
Dry-Mesic Sand Woodland	S2
Dry Igneous Woodland	S4
Dry-Mesic Igneous Woodland	S4
Upland Flatwoods	S2
Bottomland Flatwoods	S1
Sinkhole Flatwoods	S2
Dry-Mesic Bottomland Woodland	S2
Mesic Bottomland Woodland	SH
Wet-Mesic Bottomland Woodland	S1
SAVANNA	
Dry-Mesic Loess/Glacial Till Savanna	S1
Mesic Loess/Glacial Till Savanna	SH
Limestone/Dolomite Savanna	SH
Chert Savanna	SH
Sandstone/Shale Savanna	SH
Sand Savanna	S1
PRAIRIE	
Dry Loess/Glacial Till Prairie	S2
Dry-Mesic Loess/Glacial Till Prairie	S1
Mesic Loess/Glacial Till Prairie	S1
Dry Limestone/Dolomite Prairie	S2
Dry-Mesic Limestone/Dolomite Prairie	S2
Dry-Mesic Chert Prairie	S3
Dry-Mesic Sandstone/Shale Prairie	S3
Sand Prairie	S1
Prairie Swale	S2
Hardpan Prairie	S2
Wet-Mesic Bottomland Prairie	S1
Wet Bottomland Prairie	S1
GLADE	
Limestone Glade	S2
Dolomite Glade	S3
Chert Glade	S2
Sandstone Glade	S2

<u>COMMUNITY TYPE</u>	<u>SRANK</u>
GLADE (Cont.)	
Igneous Glade	S3
CLIFF/TALUS	
Dry Limestone/Dolomite Cliff	S5
Moist Limestone/Dolomite Cliff	S4
Dry Sandstone Cliff	S3
Moist Sandstone Cliff	S3
Dry Chert Cliff	S3
Moist Chert Cliff	S2
Dry Igneous Cliff	S4
Moist Igneous Cliff	S4
Unconsolidated Bluff	S3
Limestone/Dolomite Talus	S4
Igneous Talus	S4
STREAM EDGE	
Sand Bar	S3
Gravel Wash	S3
Stream Bank/River Bank	S2
WETLAND	
Marsh	S2
Shrub Swamp	S2
Swamp	S1
Pond Marsh	S1
Pond Shrub Swamp	S2
Pond Swamp	S1
Ozark Fen	S2
Prairie Fen	S2
Forested Fen	S2
Glacial Fen	S1
Acid Seep	S2
Saline Seep	S1
Limestone/Dolomite Spring	S3
CAVE	
Cave	S4
Cave Spring	S4
Spring	S4
Total Terrestrial Natural Communities:	86

THREATENED AND ENDANGERED SPECIES IN MISSOURI

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATE¹ STATUS</u>	<u>FEDERAL² STATUS</u>
PLANTS			
<i>Asclepias meadii</i>	Mead's Milkweed	Endangered	Threatened
<i>Boltonia decurrens</i>	Decurrent False Aster	Endangered	Threatened
<i>Geocarpon minimum</i>	Geocarpon	Endangered	Threatened
<i>Helenium virginicum</i>	Virginia Sneezeweed	Endangered	Threatened
<i>Isotria medeoloides</i>	Small Whorled Pogonia ³	Endangered	Threatened
<i>Lesquerella filiformis</i>	Missouri Bladder-pod	Endangered	Threatened
<i>Lindera melissifolium</i>	Pondberry	Endangered	Endangered
<i>Platanthera leucophaea</i>	E. Prairie Fringed Orchid ³	Endangered	Threatened
<i>Platanthera praeclara</i>	W. Prairie Fringed Orchid	Endangered	Threatened
<i>Trifolium stoloniferum</i>	Running Buffalo Clover	Endangered	Endangered
MOLLUSKS			
<i>Antrobia culveri</i>	Tumbling Creek Cavesnail	Endangered	Endangered
<i>Cumberlandia monodonta</i>	Spectaclecase		Candidate
<i>Elliptio crassidens</i>	Elephantear	Endangered	
<i>Epioblasma florentina curtisii</i>	Curtis Pearlymussel ³	Endangered	Endangered
<i>Epioblasma triquetra</i>	Snuffbox	Endangered	
<i>Fusconaia ebena</i>	Ebonyshell	Endangered	
<i>Lampsilis abrupta</i>	Pink Mucket	Endangered	Endangered
<i>Lampsilis higginsii</i>	Higgins Eye ³	Endangered	Endangered
<i>Lampsilis rafinesqueana</i>	Neosho Mucket		Candidate
<i>Leptodea leptodon</i>	Scaleshell	Endangered	Endangered
<i>Plethobasus cyphyus</i>	Sheepnose	Endangered	Candidate
<i>Potamilus capax</i>	Fat Pocketbook	Endangered	Endangered
<i>Quadrula fragosa</i>	Winged Mapleleaf	Endangered	Endangered
INSECTS			
<i>Nicrophorus americanus</i>	American Burying Beetle ³	Endangered	Endangered
<i>Somatochlora hineana</i>	Hine's Emerald Dragonfly	Endangered	Endangered
FISH			
<i>Acipenser fulvescens</i>	Lake Sturgeon	Endangered	
<i>Amblyopsis rosae</i>	Ozark Cavefish	Endangered	Threatened
<i>Cottus</i> sp. 8	Grotto Sculpin		Candidate
<i>Crystallaria asprella</i>	Crystal Darter	Endangered	
<i>Etheostoma cragini</i>	Arkansas Darter		Candidate
<i>Etheostoma fusiforme</i>	Swamp Darter	Endangered	
<i>Etheostoma histrio</i>	Harlequin Darter	Endangered	
<i>Etheostoma nianguae</i>	Niangua Darter	Endangered	Threatened
<i>Etheostoma parvipinne</i>	Goldstripe Darter	Endangered	
<i>Etheostoma whipplei</i>	Redfin Darter	Endangered	
<i>Forbesichthys agassizi</i>	Spring Cavefish	Endangered	
<i>Hybognathus hayi</i>	Cypress Minnow	Endangered	
<i>Notropis maculatus</i>	Taillight Shiner	Endangered	
<i>Notropis sabinae</i>	Sabine Shiner	Endangered	
<i>Notropis topeka</i>	Topeka Shiner	Endangered	Endangered
<i>Noturus eleutherus</i>	Mountain Madtom	Endangered	
<i>Noturus placidus</i>	Neosho Madtom	Endangered	Threatened
<i>Percina nasuta</i>	Longnose Darter	Endangered	
<i>Platygobio gracilis</i>	Flathead Chub	Endangered	
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	Endangered	Endangered
<i>Umbra limi</i>	Central Mudminnow	Endangered	

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>STATE¹ STATUS</u>	<u>FEDERAL² STATUS</u>
AMPHIBIANS			
<i>Cryptobranchus a. alleganiensis</i>	Eastern Hellbender	Endangered	
<i>Cryptobranchus a. bishopi</i>	Ozark Hellbender	Endangered	Candidate
REPTILES			
<i>Deirochelys reticularia miaria</i>	Western Chicken Turtle	Endangered	
<i>Elaphe vulpina vulpina</i>	Western Fox Snake	Endangered	
<i>Emydoidea blandingii</i>	Blanding's Turtle	Endangered	
<i>Kinosternon f. flavescens</i>	Yellow Mud Turtle	Endangered	
<i>Kinosternon f. spooneri</i>	Illinois Mud Turtle	Endangered	
<i>Nerodia cyclopion</i>	Mississippi Green Water Snake ³	Endangered	
<i>Sistrurus c. catenatus</i>	Eastern Massasauga	Endangered	Candidate
BIRDS			
<i>Aimophila aestivalis</i>	Bachman's Sparrow	Endangered	
<i>Botaurus lentiginosus</i>	American Bittern	Endangered	
<i>Circus cyaneus</i>	Northern Harrier	Endangered	
<i>Egretta thula</i>	Snowy Egret	Endangered	
<i>Falco peregrinus</i>	Peregrine Falcon	Endangered	
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Endangered	Threatened
<i>Limnothlypis swainsonii</i>	Swainson's Warbler	Endangered	
<i>Rallus elegans</i>	King Rail	Endangered	
<i>Sterna antillarum athalassos</i>	Interior Least Tern	Endangered	Endangered
<i>Tympanuchus cupido</i>	Greater Prairie-chicken	Endangered	
<i>Tyto alba</i>	Barn Owl	Endangered	
MAMMALS			
<i>Canus lupus</i>	Gray Wolf		Endangered
<i>Corynorhinus townsendii ingens</i>	Ozark Big-eared Bat ³	Endangered	Endangered
<i>Lepus californicus</i>	Black-tailed Jackrabbit	Endangered	
<i>Myotis grisescens</i>	Gray Bat	Endangered	Endangered
<i>Myotis sodalis</i>	Indiana Bat	Endangered	Endangered
<i>Puma concolor</i>	Mountain Lion	Endangered	
<i>Spilogale putorius</i>	Spotted Skunk	Endangered	

¹ Listed in the Wildlife Code of Missouri, Rule 3 CSR10-4, 111 Endangered Species.

²Federally Listed Species under the Endangered Species Act (ESA) of 1973 as Amended:

Endangered = Any species that is in danger of extinction throughout all or a significant portion of its range.

Threatened = Any species that is likely to become endangered within the foreseeable future.

Candidate = Plants or animals that the U.S. Fish & Wildlife Service is reviewing for possible addition to the list of Endangered and Threatened species.

Proposed = Any species proposed for listing as Threatened or Endangered by the U.S. Fish & Wildlife Service.

³Considered extirpated, historical or accidental occurrence in Missouri.

SPECIES AND STATUSES

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>SRANK</u>	<u>GRANK</u>	<u>STATE STATUS</u>	<u>FEDERAL STATUS</u>
LICHENS					
Cladonia cervicornis ssp. verticillata	A Lichen	S?	G5TNR		
Cladonia leporina	A Lichen	S2	G4G5		
Collema nigrescens	A Lichen	SU	G5?		
Dendriscoaulon intricatum	A Lichen	S?	GUQ		
Dermatocarpon moulinii	A Lichen	S1	GNR		
Dibaeis absoluta	A Lichen	S1	G4		
Flavoparmelia rutidota	A Lichen	S?	G4G5		
Graphina sophisticascens	A Lichen	SH	GNR		
Imshaugia aleurites	A Lichen	S?	G5		
Lecidea lurida	A Lichen	SU	GNR		
Pannaria rubiginosa	A Lichen	S1	G4G5		
Parmelia squarrosa	A Lichen	S?	G5		
Parmelina horrescens	A Lichen	S1	G5		
Parmotrema hypoleucinum	A Lichen	S1	G4G5		
Parmotrema madagascariaceum	A Lichen	S?	G3G5		
Parmotrema tinctorum	A Lichen	S2	G5?		
Pseudocyphellaria aurata	A Lichen	S1	G3G5		
Psora icterica	A Lichen	S1	G5?		
Psora tuckermanii	A Lichen	SRF	G5		
Pycnothelia papillaria	A Lichen	S1	G3G5		
Ramalina intermedia	A Lichen	S1	G4G5		
Rimelia subisidiosa	A Lichen	S1	G4G5		
Tuckermannopsis ciliaris	A Lichen	S?	G3G5		
Usnea angulata	A Lichen	S1	G3G5		
Xanthoparmelia australasica	A Lichen	S1	G5		
Xanthoparmelia tinctina	A Lichen	SRF	G5		
Total Lichen Records:	26				
LIVERWORTS AND HORNWORTS					
Aneura maxima	A Liverwort	SU	G4?		
Aspiromitus punctatus ssp. agrestis	A Hornwort	S?	G5		
Bazzania trilobata	A Liverwort	S1	G5		
Kurzia setacea	A Liverwort	S1	G4G5		
Kurzia sylvatica	A Liverwort	S1	G5		
Marchantia aquatica	A Liverwort	SU	GNR		
Marsupella sphacelata	A Liverwort	S1	G5		
Metzgeria conjugata	A Liverwort	S1S2	G5		
Metzgeria furcata	A Liverwort	S?	G5		
Nardia lescurii	A Liverwort	S?	G3?		
Notothylas orbicularis	A Hornwort	S1	G5		
Nowellia curvifolia	A Liverwort	S?	G5		
Phaeoceros oreganus	A Hornwort	S1	GNRQ		
Preissia quadrata	A Liverwort	S?	G5		

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>SRANK</u>	<u>GRANK</u>	<u>STATE STATUS</u>	<u>FEDERAL STATUS</u>
LIVERWORTS AND HORNWORTS (Cont.)					
<i>Ptilidium pulcherrimum</i>	A Liverwort	S1	G5		
<i>Rectolejeunea maxonii</i>	A Liverwort	S1	G4		
<i>Riccardia multifida</i>	A Liverwort	S1	G5		
<i>Riccardia palmata</i>	A Liverwort	S1	G5		
<i>Riccia sullivantii</i>	A Liverwort	S?	G4Q		
Total Liverwort and Hornwort Records:	19				
MOSESSES					
<i>Acaulon muticum</i> var. <i>rufescens</i>	A Moss	S?	G4G5T4		
<i>Anacamptodon splachnoides</i>	Knothole Moss	SU	G3G5		
<i>Anomobryum filiforme</i>	A Moss	S1	G4		
<i>Archidium alternifolium</i>	A Moss	S1	G4G5		
<i>Atrichum crispum</i>	A Moss	SU	G4?		
<i>Atrichum cylindricum</i>	A Moss	SU	G5		
<i>Barbula convoluta</i> var. <i>convoluta</i>	A Moss	S?	G5TNR		
<i>Brachelyma subulatum</i>	A Moss	S1	G4G5		
<i>Brachythecium acutum</i>	A Moss	SU	GNRQ		
<i>Brachythecium campestre</i>	A Moss	SU	G4G5Q		
<i>Brachythecium digastrum</i>	A Moss	SU	G4?		
<i>Bruchia flexuosa</i>	A Moss	S?	G4		
<i>Bryhnia novae-angliae</i>	A Moss	SU	G5		
<i>Bryoxiphium norvegicum</i>	Sword Moss	S1	G5?		
<i>Bryum algovicum</i> var. <i>algovicum</i>	A Moss	S1	G4G5TNR		
<i>Bryum cyclophyllum</i>	A Moss	S?	G4G5		
<i>Bryum flaccidum</i>	A Moss	SU	G5		
<i>Bryum klinggraeffii</i>	A Moss	S?	G4G5		
<i>Bryum miniatum</i>	A Moss	S1	G3G4		
<i>Bryum pallescens</i>	A Moss	SU	G5		
<i>Bryum ruderae</i>	A Moss	SU	G3G5		
<i>Bryum subapiculatum</i>	A Moss	SX	G5?		
<i>Bryum uliginosum</i>	A Moss	S1	G3G5		
<i>Calliergonella cuspidata</i>	A Moss	S?	G5		
<i>Campylium polygamum</i>	A Moss	S1	G5		
<i>Campylium protensum</i>	A Moss	SU	G5T3T5		
<i>Campylium radicale</i>	A Moss	SU	G3G5		
<i>Campylopodia stenocarpa</i>	A Moss	S1	G5		
<i>Campylopus tallulensis</i>	A Moss	S1	G4		
<i>Dichelyma capillaceum</i>	A Moss	S1	G5		
<i>Dicranella rufescens</i>	A Moss	S1S2	G5?		
<i>Dicranum polysetum</i>	A Moss	S1	G5		
<i>Didymodon revolutus</i>	A Moss	S1	G4		
<i>Didymodon rigidulus</i> var. <i>rigidulus</i>	A Moss	S1	G5T4?		
<i>Drepanocladus aduncus</i> var. <i>kneiffii</i>	A Moss	SU	G5T4T5		
<i>Encalypta procera</i>	Extinguisher Moss	S1	G4G5		

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>SRANK</u>	<u>GRANK</u>	<u>STATE STATUS</u>	<u>FEDERAL STATUS</u>
MOSSES (Cont.)					
Entodon brevisetus	A Moss	SU	G4?		
Ephemerum cohaerens	Emerald Dewdrops	S1	G4G5		
Ephemerum serratum	A Moss	SU	G5		
Ephemerum spinulosum	Emerald Dewdrops	S?	G4G5		
Fissidens exilis	Small Pocket Moss	SU	G3G4		
Fontinalis hypnoides	A Moss	SU	G4G5		
Fontinalis sullivantii	A Moss	S1	G3G5		
Forsstroemia producta	A Moss	S1	G5?		
Funaria americana	A Moss	SU	G3?		
Funaria calvescens	A Moss	SU	G5		
Grimmia olneyi	A Moss	S?	G3G5		
Grimmia ovalis	A Moss	SU	G5?		
Grimmia plagiopodia	A Moss	SU	G4G5		
Herzogiella striatella	A Moss	SU	G4G5		
Homaliadelphus sharpii	Sharp's Homaliadelphus	S1	G3?		
Hypnum cupressiforme var. filiforme	A Moss	S1	G5TNR		
Hypnum imponens	A Moss	S?	G5		
Hypnum pallescens	A Moss	S1	G5		
Hypnum pratense	A Moss	SU	G5		
Isopterygiopsis muelleriana	A Moss	S1	G5		
Jaffuelobryum raii	A Moss	SU	G4?		
Jaffuelobryum wrightii	A Moss	SU	G4G5		
Leskea polycarpa	A Moss	SU	G4G5		
Leucodon brachypus	A Moss	SU	G5		
Micromitrium megalosporum	A Moss	S1S2	G4		
Mnium hornum	A Moss	SU	G5		
Mnium thomsonii	A Moss	S?	G5		
Myurella sibirica	A Moss	S?	G4?		
Neckera besseri	A Moss	S1	G5		
Orthotrichum anomalum	A Moss	S?	G4G5		
Orthotrichum diaphanum	A Moss	S?	G5		
Orthotrichum elegans	A Moss	S1	G5		
Orthotrichum strangulatum	A Moss	SU	G4		
Physcomitrium collenchymatum	A Moss	S1	G2G4		
Physcomitrium hookeri	A Moss	SU	G2G4		
Physcomitrium immersum	A Moss	SU	G4		
Plagiomnium medium	A Moss	SU	G5		
Plagiomnium rostratum	A Moss	S1	G5		
Plagiothecium denticulatum	A Moss	S1	G5		
Platylomella lescurii	A Moss	S?	G5		
Pleuridium acuminatum	A Moss	SU	G3G5		
Pleuridium sullivantii	A Moss	SU	G3G5		
Polytrichum piliferum	A Hair Cap Moss	S1	G5		
Pseudotaxiphyllum distichaceum	A Moss	SU	G4G5		
Ptychomitrium sinense	A Moss	S1	G4G5		
Pylaisia intricata	A Moss	SU	G4		

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>SRANK</u>	<u>GRANK</u>	<u>STATE STATUS</u>	<u>FEDERAL STATUS</u>
MOSSES (Cont.)					
<i>Pylaisiadelphina tenuirostris</i>	A Moss	SU	G5?		
<i>Pyramidula tetragona</i>	A Moss	S?	G3G5		
<i>Rhabdoweisia crispata</i>	A Moss	S1	G5		
<i>Rhytidium rugosum</i>	Golden Glade-moss	S1	G5		
<i>Schistidium liliputanum</i>	A Moss	SU	GNR		
<i>Seligeria calcarea</i>	A Moss	S?	G4?		
<i>Seligeria donniana</i>	A Moss	S1	G4G5		
<i>Seligeria pusilla</i>	A Moss	S1	G3G5		
<i>Sematophyllum marylandicum</i>	A Moss	S1	G5		
<i>Sphagnum affine</i>	Sphagnum	S1	G5		
<i>Sphagnum angustifolium</i>	Narrowleaf Peatmoss	S1	G5		
<i>Sphagnum bartlettianum</i>	Sphagnum	SU	G4G5		
<i>Sphagnum capillifolium</i>	Northern Peatmoss	S1	G5		
<i>Sphagnum compactum</i>	A Moss	SU	G5		
<i>Sphagnum cuspidatum</i>	Sphagnum	SU	G5		
<i>Sphagnum fimbriatum</i> var. <i>fimbriatum</i>	Sphagnum	S1	G5TNR		
<i>Sphagnum henryense</i>	Sphagnum	S1	G4?		
<i>Sphagnum inundatum</i>	Sphagnum	S1	G4		
<i>Sphagnum magellanicum</i>	Magellan's Peatmoss	SU	G5		
<i>Sphagnum platyphyllum</i>	Sphagnum	SU	G5		
<i>Sphagnum recurvum</i>	Sphagnum	S1	G5		
<i>Sphagnum russowii</i>	Sphagnum	SU	G5		
<i>Sphagnum subtile</i>	Sphagnum	SU	G5?Q		
<i>Sphagnum trinitense</i>	Sphagnum	S1	G4		
<i>Syntrichia papillosa</i>	A Moss	S?	G5		
<i>Syrrhopodon texanus</i>	A Moss	S1	G5		
<i>Thamnobryum alleghaniense</i>	A Moss	S1	G5?		
<i>Tortella fragilis</i>	Fragmented Screw-moss	SU	G5		
<i>Tortella tortuosa</i>	Twisted Moss	SU	G5		
<i>Trematodon longicollis</i>	A Moss	S1	G5		
<i>Trichostomum tenuirostre</i> var. <i>gemneparum</i>	A Moss	SU	GNR		
<i>Zygodon apiculatus</i>	A Moss	S1	GU		
Total Moss Records:	114				
FERNS AND FERN ALLIES					
<i>Asplenium montanum</i>	Mountain Spleenwort	SH	G5		
<i>Botrychium biternatum</i>	Few-lobed Grape Fern	S1	G5		
<i>Cheilanthes alabamensis</i>	Alabama Lip-fern	S1	G4G5		
<i>Cheilanthes tomentosa</i>	Woolly Lip-fern	S1	G5		
<i>Cystopteris tenuis</i>	A Bladderfern	S1	G4G5		
<i>Dennstaedtia punctilobula</i>	Hay-scented Fern	S2	G5		
<i>Dryopteris carthusiana</i>	Spinulose Shield Fern	S2	G5		
<i>Dryopteris celsa</i>	Log Fern	S1	G4		
<i>Dryopteris cristata</i>	Crested Fern	S1	G5		
<i>Dryopteris goldiana</i>	Goldie's Fern	S2	G4		

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>SRANK</u>	<u>GRANK</u>	<u>STATE STATUS</u>	<u>FEDERAL STATUS</u>
FERNS AND FERN ALLIES					
(Cont.)					
Dryopteris intermedia	Evergreen Woodfern	S1	G5		
Equisetum pratense	Meadow Horsetail	SRF	G5		
Huperzia porophila	Fir Clubmoss	S2	G4		
Isoetes engelmannii var. engelmannii	Engelmann's Quillwort	S1?	G4TNR		
Lycopodium dendroideum	Round-branched Ground Pine	S1	G5		
Lycopodium digitatum	A Clubmoss	S2	G5		
Lycopodium tristachyum	Ground Cedar	S1	G5		
Marsilea mucronata	Marsilea	SRF	G5Q		
Matteuccia struthiopteris var. pensylvanica	Ostrich Fern	S2	G5T5		
Ophioglossum crotalophoroides	Bulbous Adder's-tongue	SH	G5		
Ophioglossum petiolatum	Stalked Adder's-tongue	SX	G5		
Pellaea glabella var. missouriensis	Missouri Cliffbrake	S1S2	G5T1T2		
Pilularia americana	American Pillwort	SU	G5		
Woodsia obtusa ssp. occidentalis	Blunt-lobe Woodsia	S1	G5TNR		
Woodwardia areolata	Netted Chain Fern	S2	G5		
Total Fern and Fern Allies	25				
Records:					
FLOWERING PLANTS					
Acalypha deamii	Large Seeded Mercury	S1	G4?		
Aconitum uncinatum	Southern Monkshood	S1	G4		
Agalinis auriculata	Auriculate False Foxglove	S2	G3		
Agalinis heterophylla	Prairie False Foxglove	S1	G4G5		
Agalinis purpurea	Purple False Foxglove	S2	G5		
Agalinis viridis	Green False Foxglove	S1	G4?		
Agastache scrophulariifolia	Purple Giant-hyssop	S1	G4		
Agrimonia gryposepala	Tall Agrimony	SU	G5		
Allium burdickii	Wild Leek	S2	G4G5		
Alopecurus aequalis	Floating Foxtail Grass	S2	G5		
Ammannia auriculata	Wright Ammannia	SRF	G5		
Amsonia ciliata var. filifolia	Ciliate Blue Star	S2S3	G5?T4?		
Anemone cylindrica	Thimbleweed	S2	G5		
Anemone quinquefolia	Wood Anemone	S1	G5		
Arabis glabra	Tower Mustard	SH	G5		
Aralia nudicaulis	Wild Sarsaparilla	S2	G5		
Arenaria lateriflora	Grove Sandwort	S2S3	G5		
Aristida adscensionis	Sixweeks Three-awn	SH	G5		
Aristida desmantha	Curly Three-awn	S1	G5		
Aristida lanosa	Woollyleaf Three-awn	S1	G5		
Armoracia lacustris	Lake Cress	S2	G4?		
Aronia melanocarpa	Black Chokeberry	S1	G5		
Artemisia dracunculus ssp. glauca	A Wormwood	SH	G5T4T5Q		
Asclepias meadii	Mead's Milkweed	S2	G2	E	T
Asclepias speciosa	Showy Milkweed	SA	G5		

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FLOWERING PLANTS (Cont.)					
Aster brachyactis	Rayless Alkali Aster	SH	G5T5		
Aster dumosus var. strictior	Tradescant Aster	S2	G5T4		
Aster fragilis var. fragilis	Small White Aster	S1	G4G5TNRQ		
Aster furcatus	Forked Aster	S2	G3		
Aster macrophyllus	Big-leaved Aster	S2	G5		
Aster pubentior	Flat-topped White Aster	S1	G5		
Aster subulatus var. ligulatus	Saltmarsh Aster	S2	G5T5		
Astragalus lotiflorus	Low Milk Vetch	S2	G5		
Astranthium integrifolium	Western Daisy	S2	G5		
Bartonia paniculata	Screwstem	S1	G5		
Bartonia virginica	Yellow Bartonia	S1	G5		
Berberis canadensis	American Barberry	S2	G3		
Bergia texana	Bergia	S2	G5		
Berula erecta	Cut-leaved Water-parsnip	S1	G4G5		
Bidens laevis	A Beggar's Tick	SH	G5		
Bolboschoenus maritimus ssp. paludosus	Bayonet Grass	S1	G5TNR		
Boltonia decurrens	Decurrent False Aster	S1	G2	E	T
Bouteloua gracilis	Blue Grama	S1	G5		
Bouteloua hirsuta	Hairy Grama	S2	G5		
Bromus ciliatus	Fringed Brome	SRF	G5		
Bromus latiglumis	A Brome	S3	G5		
Bromus nottowanus	Satin Brome	S3	G3G5		
Buchloe dactyloides	Buffalo Grass	S1	G4G5		
Calamagrostis porteri ssp. insperata	Oferhollow Reed Grass	S3	G4T3		
Calamagrostis stricta ssp. inexpansa	Northern Reedgrass	S2S3	G5T5		
Calamovilfa longifolia var. longifolia	Long-leaved Reed Grass	SH	G5T5		
Callicarpa americana	French Mulberry	S1	G5		
Callirhoe bushii	Bush's Poppy Mallow	S2	G3		
Callirhoe triangulata	Clustered Poppy Mallow	SH	G3		
Calopogon tuberosus	Grass Pink Orchid	S2	G5		
Caltha palustris	Marsh Marigold	S1	G5		
Camassia angusta	A Wild Hyacinth	S3	G5?Q		
Campanula aparinoides	Marsh Bellflower	S1	G5		
Campanula rotundifolia	Harebell	S1	G5		
Carex abscondita	A Sedge	S1	G4G5		
Carex alata	Broadwing Sedge	S2S3	G5		
Carex albicans var. australis	Bellow Beaked Sedge	S1	G5T5		
Carex albolutescens	Greenish-white Sedge	S1S2	G5		
Carex aquatilis var. aquatilis	Water Sedge	SRF	G5T5		
Carex aquatilis var. substricta	A Sedge	S1	G5TNR		
Carex arkansana	A Sedge	S3	G4		
Carex atherodes	Awned Sedge	S1	G5		
Carex atlantica ssp. atlantica	A Sedge	S1	G5T4		
Carex bromoides	A Sedge	S2	G5		
Carex buxbaumii	Brown Bog Sedge	S2	G5		

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FLOWERING PLANTS (Cont.)					
Carex cherokeensis	Cherokee Sedge	S2	G4G5		
Carex communis	Fibrous-root Sedge	S1	G5		
Carex comosa	Bristly Sedge	S2	G5		
Carex conoidea	Field Sedge	S1	G5		
Carex debilis var. debilis	White-edge Sedge	S1	G5T5		
Carex debilis var. rudgei	White-edge Sedge	SRF	G5T5		
Carex decomposita	Epiphytic Sedge	S3	G3		
Carex fissa var. fissa	A Sedge	S1	G3G4QT3?		
Carex flaccosperma	A Sedge	S1	G5		
Carex gigantea	Giant Sedge	S1S2	G4		
Carex gracillima	Graceful Sedge	S1	G5		
Carex jorii	Cypress-swamp Sedge	SH	G4G5		
Carex lacustris	Lake-bank Sedge	S2	G5		
Carex laxiculmis	Spreading Sedge	S2	G5		
Carex laxiflora var. laxiflora	A Carex	S1	G5T5		
Carex longii	Greenish-white Sedge	S1	G5		
Carex microdonta	A Sedge	SH	G4		
Carex molestiformis	A Sedge	S2	G4		
Carex nigromarginata var. floridana	A Sedge	S1	G5T5?		
Carex oxylepis	Sharp-scale Sedge	S2	G5?		
Carex prasina	Drooping Sedge	S1	G4		
Carex reniformis	Reniform Sedge	S1	G4?		
Carex sartwellii	Sartwell's Sedge	S1	G4G5		
Carex scabrata	Rough Sedge	SH	G5		
Carex socialis	A Sedge	S2	G4		
Carex spengelii	Longbeak Sedge	S1	G5?		
Carex sterilis	A Sedge	S1	G4		
Carex straminea	Straw Sedge	S1	G5		
Carex stricta	Tussock Sedge	S3	G5		
Carex sychnocephala	A Sedge	S1	G4		
Carex tenera var. echinodes	A Sedge	SH	G5TNRQ		
Carex tetanica	Rigid Sedge	S2	G4G5		
Carex texensis	A Sedge	S2	G5		
Carex timida	Timid Sedge	S1S2	G2G3		
Carex tonsa	Shaved Sedge	SH	G4G5		
Carex triangularis	Triangular Sedge	S2	G5		
Carex trichocarpa	Hairy-fruited Sedge	S1	G4		
Carex vesicaria var. monile	A Sedge	S2?	G5T4		
Carex willdenowii	Willdenow's Sedge	S1	G5		
Carex woodii	Wood's Sedge	SRF	G4		
Carya glabra var. glabra	Pignut Hickory	SU	G5T5		
Carya pallida	Sand Hickory	S2S3	G5		
Castanea pumila var. ozarkensis	Ozark Chinquapin	S2	G5T3		
Castilleja purpurea var. purpurea	Purple Paintbrush	SH	G5T4?		
Castilleja sessiliflora	Downy Painted Cup	S2	G5		
Cayaponia grandifolia	A Gourd	S1	G4		

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FLOWERING PLANTS (Cont.)					
<i>Centaurea americana</i>	American basket flower	SH	G5		
<i>Centrosema virginianum</i>	Coastal Butterfly-pea	SU	G5		
<i>Ceratophyllum echinatum</i>	Coontail	S1?	G4?		
<i>Chaetopappa asteroides</i>	Common Leastdaisy	S2S3	G5		
<i>Chamaesyce geyeri</i>	Geyer's Spurge	S1	G5		
<i>Chasmanthium laxum</i> ssp. <i>laxum</i>	Slender Spike Grass	S1	G5TNR		
<i>Chasmanthium laxum</i> ssp. <i>sessiliflorum</i>	A Spike Grass	SH	G5T5		
<i>Chelone obliqua</i> var. <i>speciosa</i>	Rose Turtlehead	S2	G4T3		
<i>Chenopodium strictum</i> var. <i>glaucophyllum</i>	A Goosefoot	SH	G5TU		
<i>Cissus incisa</i>	Marine Vine	S2	G3G5		
<i>Clematis fremontii</i>	Fremont's Leather Flower	S3	G5		
<i>Clematis viorna</i>	A Leatherflower	S1	G5		
<i>Cleome serrulata</i>	Rock Mountain Bee Plant	SH	G5		
<i>Coeloglossum viride</i> var. <i>virescens</i>	Long-bracted Orchid	S1	G5T5		
<i>Coelorachis cylindrica</i>	Joint Grass	S1	G4G5		
<i>Conyza canadensis</i> var. <i>pusilla</i>	Fleabane	S1S2	G5T5		
<i>Corallorhiza trifida</i> var. <i>verna</i>	Early Coral Root	SRF	G5TNRQ		
<i>Corispermum hyssopifolium</i>	A Bugseed	SH	GU		
<i>Corispermum orientale</i>	Oriental Tick-seed	SU	GU		
<i>Corydalis micrantha</i> ssp. <i>australis</i>	A Corydalis	S2	G5T5?		
<i>Crataegus marshallii</i>	Parsley Haw	S1	G5		
<i>Crataegus spathulata</i>	A Hawthorn	S1	G5		
<i>Crotonopsis linearis</i>	Narrowleaf Rushfoil	S1	G5		
<i>Cynosciadium digitatum</i>	Finger Dog-shade	S2	G4G5		
<i>Cyperus compressus</i>	Coco Grass	SU	G5		
<i>Cyperus croceus</i>	Baldwin's Cyperus	S1	G5		
<i>Cyperus diandrus</i>	Umbrella Flatsedge	S1	G5		
<i>Cyperus flavicomus</i>	An Umbrella Sedge	S1	G5		
<i>Cyperus grayoides</i>	An Umbrella Sedge	S3	G3		
<i>Cyperus hystricinus</i>	Flatsedge	S1	G4		
<i>Cyperus plukenetii</i>	Plukenet's Cyperus	S1	G5		
<i>Cyperus polystachyos</i> var. <i>texensis</i>	Many-spiked Cyperus	S2S3	G5T5		
<i>Cyperus retroflexus</i>	Umbrella Sedge	S1	G5		
<i>Cyperus retrofractus</i>	Teasel-like Cyperus	S1S2	G5		
<i>Cyperus retrorsus</i>	An umbrella sedge	SH	G5		
<i>Cyperus schweinitzii</i>	Schweinitz's Flatsedge	S3	G5		
<i>Cyperus setigerus</i>	Bristled Cyperus	S1	G3G5		
<i>Cypripedium candidum</i>	Small White Lady-slipper	S1	G4		
<i>Cypripedium reginae</i>	Showy Lady-slipper	S2S3	G4		
<i>Dalea enneandra</i>	Nine-anther Dalea	S2	G5		
<i>Dalea gattingeri</i>	Gattinger Prairie-clover	S1	G3G4		
<i>Dalea multiflora</i>	Round-headed Prairie Clover	SH	G5		
<i>Decodon verticillatus</i>	Swamp Loosestrife	S1	G5		
<i>Delphinium exaltatum</i>	Tall Larkspur	S2	G3		

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FLOWERING PLANTS (Cont.)					
<i>Descurainia pinnata</i> ssp. <i>pinnata</i>	Tansy Mustard	SH	G5T5		
<i>Desmodium nuttallii</i>	Nuttall Tick-trefoil	S3	G5		
<i>Desmodium ochroleucum</i>	Creamflower Tick Trefoil	SH	G1G2		
<i>Desmodium strictum</i>	Pineland Tick Trefoil	S1	G4		
<i>Desmodium viridiflorum</i>	Velvety Tick Trefoil	S1	G5?		
<i>Diarrhena americana</i>	American Beakgrain	S1	G4?		
<i>Dichondra carolinensis</i>	Pony-foot Grass	S1	G5		
<i>Distichlis spicata</i> var. <i>spicata</i>	Seashore Salt Grass	S1	G5TNR		
<i>Dodecatheon amethystinum</i>	Amethyst Shooting Star	S2	G4		
<i>Dodecatheon frenchii</i>	French's Shooting Star	S1	G3		
<i>Dracopis amplexicaulis</i>	Clasping Leaved Coneflower	S1?	G5		
<i>Echinacea angustifolia</i> var. <i>angustifolia</i>	Narrow-leaved Coneflower	SH	G4T4		
<i>Echinochloa walteri</i>	A Barnyard Grass	S1	G5		
<i>Echinodorus tenellus</i> var. <i>parvulus</i>	Dwarf Burhead	S1	G3T3		
<i>Elatine triandra</i>	Waterwort	SH	G5		
<i>Eleocharis atropurpurea</i>	A Spike Rush	S1	G4G5		
<i>Eleocharis equisetoides</i>	Horsetail Spike Rush	SH	G4		
<i>Eleocharis lanceolata</i>	Lance-like Spike Rush	S1	G4G5		
<i>Elodea canadensis</i>	Broad Waterweed	SU	G5		
<i>Elymus diversiglumis</i>	Wild Rye	SH	G3?Q		
<i>Epifagus virginiana</i>	Beech Drops	S2	G5		
<i>Epilobium leptophyllum</i>	Willow Herb	S1	G5		
<i>Eragrostis glomerata</i>	A Love Grass	S1	G3G5		
<i>Eragrostis reptans</i>	Creeping Love Grass	SH	G5		
<i>Erianthus giganteus</i>	Plume Grass	S1	G5		
<i>Erianthus strictus</i>	Narrow Plumegrass	SH	G5		
<i>Eriogonum longifolium</i> var. <i>longifolium</i>	Umbrella Plant	S2	G4T4		
<i>Erysimum capitatum</i> var. <i>capitatum</i>	Western Wallflower	S3?	G5T5		
<i>Euonymus americanus</i>	Strawberry Bush	S2	G5		
<i>Eupatorium maculatum</i>	Spotted Joe-pye Weed	S1	G5		
<i>Eupatorium rotundifolium</i> var. <i>scabridum</i>	A Thoroughwort	S1?	G5T3T5		
<i>Eupatorium semiserratum</i>	A Thoroughwort	S1S2	G5		
<i>Festuca sororia</i>	A Fescue	SH	G4		
<i>Filipendula rubra</i>	Queen of the Prairie	S2	G4G5		
<i>Fimbristylis littoralis</i> var. <i>littoralis</i>	A Fimbristylis	S1?	G3G5TNR		
<i>Fimbristylis miliacea</i>	A Fimbristylis	SRF	G5		
<i>Floerkea proserpinacoides</i>	False Mermaid	SU	G5		
<i>Fragaria vesca</i> var. <i>americana</i>	Woodland Strawberry	S1	G5T5		
<i>Fuirena simplex</i> var. <i>aristulata</i>	An Umbrella Grass	S2?	G5TNR		
<i>Gaillardia aestivalis</i> var. <i>flavovirens</i>	A Blanket Flower	SH	G5TNR		
<i>Galium boreale</i> ssp. <i>septentrionale</i>	Northern Bedstraw	S2	G5TNR		
<i>Gaura coccinea</i> var. <i>coccinea</i>	Scarlet Gaura	S1	G5TNR		
<i>Gaylussacia baccata</i>	Black Huckleberry	S1	G5		

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FLOWERING PLANTS (Cont.)					
<i>Gentiana andrewsii</i> var. <i>andrewsii</i>	Closed Gentian	SH	G5?T5?		
<i>Geocarpon minimum</i>	Geocarpon	S2	G2	E	T
<i>Geum virginianum</i>	Pale Avens	S1	G5		
<i>Gillenia trifoliata</i>	Indian Physic	SH	G4G5		
<i>Glyceria acutiflora</i>	Sharp-scaled Manna Grass	S3	G5		
<i>Glycyrrhiza lepidota</i> var. <i>lepidota</i>	Wild Licorice	SH	G5TNRQ		
<i>Gratiola viscidula</i>	Hedge Hyssop	S1	G4G5		
<i>Hedyotis boscii</i>	A Bluet	S1	G5		
<i>Hedyotis uniflora</i>	Clustered Bluets	S1	G5		
<i>Helenium virginicum</i>	Virginia Sneezeweed	S3	G2	E	T
<i>Helianthemum canadense</i>	A Rockrose	SU	G5		
<i>Helianthus angustifolius</i>	Swamp Sunflower	S2	G5		
<i>Heliotropium curassavicum</i>	Seaside Heliotrope	S1	G5		
<i>Heterotheca canescens</i>	Hoary Golden Aster	SH	G5?		
<i>Heuchera parviflora</i> var. <i>parviflora</i>	Little Leaved Alum Root	S1	G4T4		
<i>Hottonia inflata</i>	Featherfoil	S2	G4		
<i>Hydrocotyle verticillata</i> var. <i>verticillata</i>	Water Pennywort	S1	G5T5		
<i>Hydrolea ovata</i>	Ovate Fiddleleaf	S2	G5		
<i>Hypericum adpressum</i>	Creeping St. John's-wort	S1	G3		
<i>Hypericum canadense</i>	Canadian St. John's-wort	SRF	G5		
<i>Hypericum densiflorum</i>	Bushy St. John's-wort	SRF	G5		
<i>Hypericum lobocarpum</i>	A St. John's Wort	SH	G4Q		
<i>Hypericum majus</i>	Greater St. John's-wort	SH	G5		
<i>Hypericum pyramidatum</i>	Great St. John's-wort	S1	G4		
<i>Ilex verticillata</i> var. <i>padifolia</i>	Winterberry	S3	G5TNR		
<i>Isolepis molestus</i>	Gulf Coast Bulrush	SH	G4?		
<i>Isotria medeoloides</i>	Small Whorled Pogonia	SH	G2	E	T
<i>Isotria verticillata</i>	Large Whorled Pogonia	S1S2	G5		
<i>Iva xanthifolia</i>	A Marsh Elder	S1	G5		
<i>Juncus alpinoarticulatus</i>	Richardson Rush	SH	G5		
<i>Juncus balticus</i> var. <i>littoralis</i>	Baltic Rush	S1	G5T5		
<i>Juncus brachyphyllus</i>	Small-headed Rush	SH	G5		
<i>Juncus bufonius</i> var. <i>bufonius</i>	Toad Rush	S1	G5T5		
<i>Juncus canadensis</i> var. <i>canadensis</i>	Canada Rush	S1	G5T5		
<i>Juncus debilis</i>	Weak Rush	S1	G5		
<i>Juncus nodosus</i>	Knotted Rush	SH	G5		
<i>Juncus validus</i>	A Rush	S1	G5		
<i>Justicia ovata</i>	A Water Willow	S2	G5		
<i>Lactuca hirsuta</i>	Hairy Lettuce	SU	G5?		
<i>Lactuca ludoviciana</i>	Western Lettuce	SH	G4G5		
<i>Lactuca tatarica</i> ssp. <i>pulchella</i>	Blue Lettuce	S1	G5T5		
<i>Lathyrus pusillus</i>	A Wild Pea	SH	G5?		
<i>Lechea racemulosa</i>	Illinois Pinweed	SH	G5		
<i>Leitneria floridana</i>	Corkwood	S2	G3		
<i>Lemna obscura</i>	A Duckweed	SU	G5		

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FLOWERING PLANTS (Cont.)					
Lemna trisulca	Star Duckweed	S2	G5		
Lemna turionifera	A Duckweed	SH	G5		
Liatris punctata var. nebraskana	A Blazing Star	S3	G5T3T5		
Liatris scariosa var. nieuwlandii	A Blazing Star	S2	G5?T3T5		
Liatris spicata	Button Snakeroot	SX	G5		
Lilium philadelphicum var. andinum	Wood Lily	S1	G5T4T5		
Lilium superbum	Turk's Cap Lily	S1	G5		
Limnobiium spongia	American Frogbit	S2	G4		
Limnosciadium pinnatum	Pinnate Dogshade	S1	G5?		
Limosella aquatica	Mudwort	SH	G5		
Lindera melissifolium	Pondberry	S1	G2	E	E
Liparis loeselii	Loesel's Twayblade	S2	G5		
Lipocarpha aristulata	Lipocarpha	SH	G5?		
Lipocarpha drummondii	A Lipocarpha	SH	G4G5		
Lithospermum latifolium	American Gromwell	S2	G4		
Lobelia puberula var. mineolana	Downy Lobelia	SH	G5TNR		
Lomatium foeniculaceum ssp. foeniculaceum	Hairy Parsley	S1S3	G5T5		
Ludwigia leptocarpa	Primrose Willow	S2	G5		
Ludwigia microcarpa	A False Loosestrife	S2	G5		
Ludwigia repens	A False Loosestrife	SU	G5		
Lycopus asper	Bugle Weed	SH	G5		
Lycopus uniflorus	Northern Bugleweed	S2?	G5		
Lygodesmia juncea	Skeleton Plant	S3	G5		
Lyonia mariana	Stagger Bush	SH	G5		
Lysimachia thyrsoiflora	Tufted Loosestrife	S1	G5		
Malus angustifolia	Narrow-leaved Wild Crab	S2	G5?		
Malvastrum hispidum	Yellow False Mallow	S3	G3G5		
Marshallia caespitosa var. caespitosa	Barbara's Buttons	S3	G4T4		
Marshallia caespitosa var. signata	Barbara's Buttons	S1	G4T4		
Matelea obliqua	Climbing Milkweed	SR	G4?		
Mecardonia acuminata	Water Hyssop	S1	G5		
Medeola virginiana	Indian Cucumber-root	SH	G5		
Menyanthes trifoliata var. minor	Bogbean	S1	G5TNR		
Microseris cuspidata	Prairie Dandelion	S2	G5		
Mimulus glabratus var. fremontii	Roundleaf Monkey Flower	SH	G5T5		
Mitreola petiolata	Miterwort	S1	G5		
Monarda clinopodia	A Horsemint	SH	G5		
Monarda punctata var. occidentalis	Dotted Monarda	S2	G5T4T5		
Monarda punctata var. villicaulis	Horsemint	S2	G5T5?		
Najas flexilis	A Naiad	SH	G5		
Najas gracillima	Thread-like Naiad	S2	G5?		
Nemastylis geminiflora	Prairie Iris	S2	G4		
Neviusia alabamensis	Snow Wreath	SH	G2		
Nyssa biflora	Swamp Black Gum	SH	G5		

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FLOWERING PLANTS (Cont.)					
<i>Obolaria virginica</i>	Virginia Pennywort	S2	G5		
<i>Oenothera clelandii</i>	Evening Primrose	S2	G3G5		
<i>Oenothera fruticosa</i> ssp. <i>fruticosa</i>	Shrubby Sundrops	S1	G5T5		
<i>Oenothera fruticosa</i> ssp. <i>glauca</i>	Shrubby Sundrops	SH	G5T5		
<i>Oenothera perennis</i>	Small Sundrops	S1	G5		
<i>Oenothera rhombipetala</i>	An Evening Primrose	S1S2	G4G5		
<i>Oenothera triloba</i>	Stemless Evening Primrose	S2	G4		
<i>Opuntia macrorhiza</i>	Low Prickly Pear	S2	G5		
<i>Opuntia polyacantha</i> var. <i>polyacantha</i>	Starvation Cactus	SX	G5T5		
<i>Orobanche ludoviciana</i>	A Broomrape	S1	G5		
<i>Orobanche multiflora</i>	A Broomrape	S1	G5		
<i>Oryzopsis racemosa</i>	Black-seeded Mountain Rice	S1	G5		
<i>Oxytropis lambertii</i>	Locoweed	S2	G5		
<i>Panicum acuminatum</i> var. <i>longiligulatum</i>	A Panic Grass	SRF	G5T4T5		
<i>Panicum dichotomum</i> var. <i>mattamuskeetense</i>	A Panic Grass	SH	G5T4?		
<i>Panicum dichotomum</i> var. <i>nitidum</i>	A Panic Grass	S1	G5TNR		
<i>Panicum dichotomum</i> var. <i>yadkinense</i>	A Panic Grass	S1	G5T3T4Q		
<i>Panicum hians</i>	Gaping Panic Grass	S3	G5		
<i>Panicum leibergii</i>	A Panic Grass	SU	G5		
<i>Panicum portoricense</i>	A Panic Grass	S1?	G5T5		
<i>Panicum sabulorum</i>	Hemlock Witchgrass	SRF	G5		
<i>Panicum verrucosum</i>	Warty Panicgrass	S1	G4		
<i>Paronychia virginica</i> var. <i>scoparia</i>	Virginia Whitlow Wort	S1	G4T4Q		
<i>Paspalum bifidum</i>	Pitchfork Paspalum	S1	G5		
<i>Paspalum dissectum</i>	Mudbank Paspalum	SH	G4?		
<i>Paspalum setaceum</i> var. <i>setaceum</i>	Slender Paspalum	S1	G5T5		
<i>Pediomelum argophyllum</i>	Silvery Psoralea	S2	G5		
<i>Peltandra virginica</i>	Arrow Arum	S2	G5		
<i>Penstemon cobaea</i> var. <i>cobaea</i>	A Beard-tongue	S1	G4TNR		
<i>Penstemon grandiflorus</i>	Large Beard-tongue	S1	G5?		
<i>Perideridia americana</i>	Eastern Eulophus	SU	G4		
<i>Philadelphus pubescens</i> var. <i>verrucosus</i>	Mock Orange	S1	G5?TU		
<i>Phlox amplifolia</i>	Large-leaved Phlox	S3?	G3G5		
<i>Phlox bifida</i> ssp. <i>stellaria</i>	Bifid Phlox	S1	G5?T3		
<i>Phlox carolina</i> ssp. <i>angusta</i>	Carolina Phlox	SH	G5?TNR		
<i>Phlox carolina</i> ssp. <i>carolina</i>	Carolina Phlox	S1	G5?T3T5Q		
<i>Phlox maculata</i> ssp. <i>pyramidalis</i>	Wild Sweet William	S2	G5T4T5		
<i>Phyla nodiflora</i>	Fog Fruit	SH	G5		
<i>Phyllanthus polygonoides</i>	Knotweed Leaf-flower	S1	G5		
<i>Physaria filiformis</i>	Missouri Bladder-pod	S3	G3	E	T
<i>Physostegia intermedia</i>	A False Dragonhead	S1	G5		

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FLOWERING PLANTS (Cont.)					
Plantago patagonica	Woolly Plantain	S2	G5		
Platanthera ciliaris	Yellow-fringed Orchid	S1	G5		
Platanthera clavellata	Green Wood Orchid	S2	G5		
Platanthera flava var. flava	Pale Green Orchid	S2	G4T4?Q		
Platanthera flava var. herbiola	Northern Rein Orchid	S2	G4T4Q		
Platanthera leucophaea	Eastern Prairie Fringed Orchid	SH	G2	E	T
Platanthera praeclara	Western Prairie Fringed Orchid	S1	G2	E	T
Platanthera psycodes	Small Purple-fringed Orchid	SX	G5		
Pluchea foetida	Marsh Fleabane	SH	G5		
Poa interior	Inland Bluegrass	S1	G5		
Pogonia ophioglossoides	Snake-mouth Orchid	S1	G5		
Polygonella americana	Jointweed	S2	G5		
Polygonum amphibium var. stipulaceum	Water Smartweed	S1	G5T5		
Polygonum arifolium	Halberd-leaved Tear Thumb	S1	G5		
Polygonum densiflorum	Dense-flower Smartweed	SH	G5		
Polygonum prolificum	Bushy Knotweed	SRF	G4G5		
Polygonum punctatum var. majus	Dotted Smartweed	SU	G4G5		
Polymnia laevigata	Smooth Leaf-cup	SX	G3		
Polypremum procumbens	Juniper-leaf	S2	G5		
Populus grandidentata	Big-toothed Aspen	S1	G5		
Populus tremuloides var. tremuloides	Quaking Aspen	S2	G5TNR		
Potamogeton epihydrus	Nuttall Pondweed	SH	G5		
Potamogeton pulcher	Spotted Pondweed	S2S3	G5		
Potamogeton pusillus var. pusillus	Slender Pondweed	S1	G5T5		
Potentilla nicolletii	Bushy Cinquefoil	SH	GNR		
Prenanthes racemosa	Rattlesnake Root	SH	G5		
Prionopsis ciliata	A Goldenweed	S1	G4G5		
Ptilimnium capillaceum	Mock Bishop's Weed	SH	G5		
Pycnanthemum muticum	Blunt Mountain Mint	S2	G5		
Pycnanthemum torrei	Torrey Mountain Mint	SH	G2		
Quercus ellipsoidalis	Northern Pin Oak	S1	G4		
Quercus nigra	Water Oak	S2	G5		
Quercus prinoides	Dwarf Chinquapin Oak	S3?	G5		
Quercus stellata var. margaretta	Sand Post Oak	SH	G5		
Quercus texana	Nuttall's Oak	S2	G4G5		
Ranunculus cymbalaria	Seaside Crowfoot	SH	G5		
Rhynchosia difformis	Double-formed Snoutbean	S1	G5?		
Rhynchospora harveyi	Harvey's Beak-rush	S1	G4		
Rhynchospora macrostachya	Horned Rush	S1	G4		
Ribes americanum	Gooseberry	S1	G5		
Rosa blanda	Smooth Rose	S1	G5		
Rosa virginiana	A Rose	SU	G5		
Rubus missouricus	Prickly Groundberry	SH	GHQ		
Rubus strigosus	Red Raspberry	SH	G5		

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Rudbeckia grandiflora var. grandiflora	Rough Coneflower	S1	G5TNR		
Rumex orbiculatus	Water Dock	SRF	G5		
Ruppia maritima	Ditch Grass	S1	G5		
Sabatia brachiata	Marsh Pink	S1	G5?		
Sacciolepis striata	American Cupscale	S1	G5		
Sagittaria ambigua	Kansas Arrowhead	S1	G2?		
Sagittaria platyphylla	Ovate-leaved Arrowhead	S1	G5		
Salix discolor	Pussy Willow	S1	G5		
Salix eriocephala var. famelica	Diamond Willow	SU	G5TNR		
Salix petiolaris	Meadow Willow	S1	G5		
Sambucus canadensis var. laciniata	Elderberry	S1	G5TNRQ		
Sambucus racemosa ssp. pubens	Red-berried Elderberry	S1	G5T4T5		
Sanicula smallii	Black Snakeroot	SH	G5		
Sapindus drummondii	Soapberry	S2	G5T5		
Schoenoplectus americanus	Olney's Bulrush	SH	G5		
Schoenoplectus californicus	Giant Bulrush	S1	G5		
Schoenoplectus deltarum	Delta Bulrush	SH	G3G4		
Schoenoplectus etuberculatus	Canby's Bulrush	S1	G3G4		
Schoenoplectus hallii	Hall's Bulrush	S2	G2		
Schoenoplectus purshianus	Weakstalk Bulrush	S1	G4G5		
Schoenoplectus saximontanus	A Bulrush	S1	G5		
Schoenoplectus subterminalis	Swaying Rush	S1	G4G5		
Schoenoplectus torreyi	Torrey's Bulrush	SH	G5?		
Scirpus divaricatus	A Bulrush	SH	G5		
Scirpus pallidus	Pale Bulrush	S2	G5		
Scirpus pedicellatus	A Bulrush	SH	G4		
Scleria reticularis var. pubescens	Muhlenberg's Nut-rush	S1	G5		
Scrophularia lanceolata	Early Figwort	SH	G5		
Scutellaria elliptica var. hirsuta	Hairy Skullcap	SH	G5TNR		
Scutellaria galericulata	Marsh Skullcap	S1	G5		
Scutellaria montana	Large-flowered Skullcap	SRF	G2		T
Senecio tomentosus	Hairy Groundsel	SH	G4G5		
Sida elliotii	Elliott Sida	S1	G4G5		
Sisyrinchium atlanticum	Eastern Blue-eyed Grass	S2	G5		
Smilax illinoensis	Carrion Flower	S2S3	G4?		
Solidago riddellii	Riddell's Goldenrod	S3	G5		
Spermolepis divaricata	Rough-fruit Spermolepis	S1	G5		
Sphenopholis pensylvanica	Swamp Oats	SH	G4		
Spiraea alba	Meadow-sweet	S1	G5		
Spiraea tomentosa	Hardhack	S1	G5		
Sporobolus airoides	Alkali Sacaton	SH	G5		
Stachys aspera	Hedge Nettle	SH	G5T4?		
Stenosiphon linifolius	Stenosiphon	S2	G5		
Stylisma pickeringii var. pattersonii	A Stylisma	S1	G4T4		
Styrax grandifolius	Bigleaf Snowbell	SRF	G5		

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FLOWERING PLANTS (Cont.)					
Sullivantia sullivantii	Sullivantia	S2	G4		
Symphoricarpos occidentalis	Wolfberry	S1	G5		
Thalia dealbata	Water Canna	S2	G4		
Thelesperma filifolium var. filifolium	Thelesperma	S2	G4G5TNR		
Tipularia discolor	Cranefly Orchid	S1	G4G5		
Torreyochloa pallida	Pale Manna Grass	S1	G5?		
Tradescantia ozarkana	Ozark Spiderwort	S2	G3		
Tragia cordata	Heart-leaved Noseburn	S2	G5?		
Tragia ramosa	A Noseburn	S2	G5		
Trautvetteria caroliniensis	False Bugbane	S2	G5		
Trepocarpus aethusae	Trepocarpus	S1	G4G5		
Triadenum tubulosum	Marsh St. John's Wort	S1	G4?		
Trichostema setaceum	Blue Curls	S1	G5		
Tridens flavus var. chapmanii	A Grass	S2	G5T3T5		
Tridens muticus var. elongatus	Slim Tridens	SH	G5TNR		
Trifolium carolinianum	Carolina Clover	SH	G5		
Trifolium stoloniferum	Running Buffalo Clover	S1	G3	E	E
Trillium nivale	Snow Trillium	S3?	G4		
Trillium pusillum var. ozarkanum	Ozark Wake Robin	S2	G3T3		
Triodanis holzingeri	A Venus' Looking Glass	SH	G4		
Triodanis lamprosperma	A Venus' Looking Glass	S2	G5?		
Triosteum angustifolium var. eamesii	Yellow-flowered Horse Gentian	S1	G5TNRQ		
Typha domingensis	Southern Cattail	S1	G4G5		
Ulmus crassifolia	Cedar Elm	S1	G5		
Ulmus thomasii	Rock Elm	S2	G5		
Urtica chamaedryoides	Weak Nettle	S1	G4G5		
Utricularia subulata	Slender Bladderwort	S1	G5		
Valerianella ozarkana	Ozark Corn Salad	S2	G3		
Veronica americana	American Brooklime	SH	G5		
Viburnum dentatum var. deamii	Southern Arrow-wood	S1	G5T4T5Q		
Viburnum lentago	Nannyberry	S1	G5		
Viburnum ozarkense	Ozark Arrow Wood	S2S3	GNR		
Viburnum recognitum	Northern Arrow-wood	S1	G5		
Vicia ludoviciana var. ludoviciana	Louisiana Vetch	SH	G5TNR		
Vicia minutiflora	Pygmy-flowered Vetch	SH	G5		
Viola macloskeyi ssp. pallens	Smooth White Violet	S2	G5T5		
Vitis rotundifolia	Muscadine	S1	G5		
Waldsteinia fragarioides ssp. fragarioides	Barren Strawberry	S2	G5T5		
Wolffia borealis	Dotted Watermeal	SU	G5		
Wolffia columbiana	Columbia Water-meal	SU	G5		
Wolffiella gladiata	Wolffiella	S1	G5		
Xyris jupicai	Yellow-eyed-grass	S1	G5		
Xyris torta	Yellow-eyed Grass	S1	G5		
Yucca arkansana	Arkansas Yucca	S2	G5		

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FLOWERING PLANTS (Cont.)					
<i>Yucca glauca</i>	Small Soapweed Yucca	S2	G5		
<i>Zannichellia palustris</i> var. <i>major</i>	Horned Pondweed	S3?	G5TNR		
<i>Zigadenus elegans</i>	White Camas	S2	G5		
<i>Zigadenus nuttallii</i>	Death Camas	S1	G5		
<i>Zizania palustris</i> var. <i>interior</i>	Interior Wild Rice	SH	G4G5T4T5		
Total Flowering Plant Records:	471				
FLATWORMS					
<i>Macrocotyla glandulosa</i>	Pink Planarian	S1	G2G3		
<i>Macrocotyla lewisi</i>	Lewis' Cave Planarian	S1	G1		
<i>Sphalloplana evaginata</i>	Perryville Cave Planarian	S1	G1G2		
<i>Sphalloplana hubrichti</i>	Hubricht's Cave Planarian	S1	G2G4		
Total Flatworm Records:	4				
MOLLUSKS					
<i>Alasmidonta marginata</i>	Elktoe	S2	G4		
<i>Alasmidonta viridis</i>	Slippershell Mussel	S2	G4G5		
<i>Amnicola stygia</i>	Stygian Cavesnail	S1	G1		
<i>Anodonta suborbiculata</i>	Flat Floater	S2	G5		
<i>Anodontoides ferussacianus</i>	Cylindrical Papershell	S1	G5		
<i>Antrobia culveri</i>	Tumbling Creek Cavesnail	S1	G1G2	E	E
<i>Arcidens confragosus</i>	Rock Pocketbook	S3	G4		
<i>Cumberlandia monodonta</i>	Spectaclecase	S3	G2G3		C
<i>Cyprogenia aberti</i>	Western Fanshell	S2	G2		
<i>Discus nigrimontanus</i>	Black Mountain Disc	S3	G4		
<i>Elliptio crassidens</i>	Elephantear	S1	G5	E	
<i>Epioblasma florentina curtisii</i>	Curtis Pearlymussel	S1	G1T1	E	E
<i>Epioblasma triquetra</i>	Snuffbox	S1	G3	E	
<i>Fontigens aldrichi</i>	Ozark Springsnail	S4	G3G4		
<i>Fontigens antroecetes</i>	Enigmatic Cavesnail	S2	G2G3		
<i>Fontigens proserpina</i>	Proserpine Cavesnail	S1	G2		
<i>Fusconaia ebena</i>	Ebonysnail	S1	G4G5	E	
<i>Gastrocopta cristata</i>	Crested Snaggletooth	S1	G5		
<i>Gastrocopta pellucida</i>	Slim Snaggletooth	S1	G5		
<i>Hendersonia occulta</i>	Cherrystone Snail	S3	G5		
<i>Lampsilis abrupta</i>	Pink Mucket	S2	G2	E	E
<i>Lampsilis higginsii</i>	Higgins Eye	SA	G1	E	E
<i>Lampsilis rafinesqueana</i>	Neosho Mucket	S2	G2		C
<i>Lampsilis reeviana brittsi</i>	Northern Broken-ray	S3	G3T2		
<i>Leptodea leptodon</i>	Scaleshell	S1	G1	E	E
<i>Leptoxis arkansensis</i>	Arkansas Mudalia	S3	G1		
<i>Ligumia recta</i>	Black Sandshell	S2	G5		
<i>Marstonia scalariformis</i>	Moss Pyrg	S1	G1		
<i>Mesodon mitchellianus</i>	Sealed Goblet	S1	G4		
<i>Millerelix deltoidea</i>	A Snail	SU	GNR		
<i>Neohelix divesta</i>	Ozark Whitelip	S3	G3G4		

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MOLLUSKS (Cont.)					
Obovaria jacksoniana	Southern Hickorynut	S1	G1G2		
Obovaria olivaria	Hickorynut	S3	G4		
Patera perigrapta	Engraved Bladetooth	S2	G5		
Plectomerus dombeyanus	Bankclimber	S3	G4		
Plethobasus cyphus	Sheepnose	S2	G3	E	C
Pleurocera alveare	Rough Hornsnail	S1S3	G3G4		
Potamilus capax	Fat Pocketbook	S1	G1	E	E
Ptychobranhus occidentalis	Ouachita Kidneyshell	S3	G3G4		
Quadrula cylindrica cylindrica	Rabbitsfoot	S1	G3T3		
Quadrula fragosa	Winged Mapleleaf	S1	G1	E	E
Quadrula nodulata	Wartyback	S3	G4		
Simpsonaias ambigua	Salamander Mussel	S1	G3		
Somatogyrus rosewateri	Chert Pebblesnail	S1S3	G1		
Stagnicola elodes	Marsh Pondsnailed	S2	G5		
Stenotrema stenotrema	Inland Slitmouth	S3	G5		
Strobilops affinis	Eightfold Pinecone	S2	G4G5		
Toxolasma lividus	Purple Lilliput	S2	G2		
Toxolasma texasiensis	Texas Lilliput	S3	G4		
Triodopsis cragini	Post Oak Threetooth	SH	G4		
Ventridens demissus	Perforate Dome	SU	G5		
Vertigo oscariana	Capital Vertigo	S1	G4		
Total Mollusk Records:	52				
ARACHNIDS					
Apochthonius mysterius	Mystery Cave Pseudoscorpion	S1	G1G2		
Apochthonius typhlus	Stone County Cave Pseudoscorpion	S1	G1G2		
Hesperochernes occidentalis	Guano Pseudoscorpion	S3	G5		
Mundochthonius cavernicolus	Cavernicolous Pseudoscorpion	SU	G1G2		
Phanetta subterranea	Subterranean Cave Spider	S1	G5		
Porrhomma cavernicola	Cavernicolous Porrhomma Spider	S2	G5		
Total Arachnid Records:	6				
CRUSTACEANS					
Allocrangonyx hubrichti	Hubricht's Long-tailed Amphipod	S3	G2G3		
Bactrurus brachycaudus	Short-tailed Groundwater Amphipod	S4	G4		
Bactrurus hubrichti	Sword-tail Cave Amphipod	S1	G4		
Bactrurus pseudomucronatus	False Sword-tailed Cave Amphipod	S2	G1G3		
Brackenridgia ashleyi	Ashley's Isopod	S2	GNR		
Caecidotea antricola	Cave Isopod	S4	G5		
Caecidotea dimorpha	An Isopod	S1S3	G2G3		
Caecidotea fustis	Fustis Cave Isopod	S2	G2G3		
Caecidotea salemensis	Salem Cave Isopod	S2	G4		

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CRUSTACEANS (Cont.)					
Caecidotea serrata	Serrated Cave Isopod	S1	G1G2		
Caecidotea stiladactyla	Slender-fingered Cave Isopod	S1	G3G4		
Caecidotea stygia	Stygian Cave Isopod	S1	G5		
Cambarellus puer	Cajun Dwarf Crayfish	S3?	G4G5		
Cambarellus shufeldtii	Shufeldt's Dwarf Crayfish	S3?	G5		
Cambarus aculabrum	Cave Crayfish	SP	G1G2		E
Cambarus hubrichti	Salem Cave Crayfish	S3	G4		
Cambarus setosus	Bristly Cave Crayfish	S3	G4		
Cyclops clandestinus	Clandestine Groundwater Copepod	S1S3	GNR		
Fallicambarus fodiens	Digger Crayfish	S2S3	G5		
Faxonella clypeata	Shield Crayfish	S2S3	G5		
Lirceus megapodus	An Isopod	SU	GNR		
Macrobrachium ohione	Freshwater Shrimp	S1	G4		
Orconectes eupunctus	Coldwater Crayfish	S2	G2		
Orconectes harrisonii	Belted Crayfish	S3	G3		
Orconectes lancifer	Shrimp Crayfish	S1S2	G5		
Orconectes marchandi	Mammoth Spring Crayfish	S1S2	G2		
Orconectes meeki	Meek's Crayfish	S1	G4		
Orconectes peruncus	Big Creek Crayfish	S2	G2		
Orconectes quadruncus	St. Francis River Crayfish	S2	G2		
Orconectes stygocaneyi	Caney Mountain Cave Crayfish	S1	G1		
Orconectes williamsi	Williams' Crayfish	S2	G2		
Procambarus viaeviridis	Vernal Crayfish	S3?	G5		
Stygobromus barri	Barr's Groundwater Amphipod	S1S3	G2G3		
Stygobromus clantoni	Clanton's Groundwater Amphipod	S1S3	G4		
Stygobromus heteropodus	Pickle Springs Amphipod	SX	G1G2		
Stygobromus onondagaensis	Onondaga Cave Amphipod	S3?	G5		
Stygobromus ozarkensis	Ozark Cave Amphipod	S3?	G4		
Stygobromus subtilis	Subtle Groundwater Amphipod	S1S3	G3G4		
Triops longicaudatus	Tadpole Shrimp	SU	G5		
Total Crustacean Records:	38				
MILLIPEDES					
Causeyella dendropus	Causeyella Cave Millipede	S2	GNR		
Chaetaspis aleyorum	Aleys' Cave Millipede	S1	GNR		
Tingupa pallida	Tingupa Cave Millipede	S4	G4		
Zosteractis interminata	Zosteractis Cave Millipede	SU	G2G3		
Total Millipede Records:	4				
INSECTS					
Acroneuria ozarkensis	Ozark Stone	S2	G2		
Agapetus artesus	Artesian Agapetus Caddisfly	S3	GNR		
Allocapnia pygmaea	Pygmy Snowfly	S3	G5		
Alloperla hamata	Barbed Sallfly	S3	G4		

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INSECTS (Cont.)					
<i>Alloperla leonarda</i>	Truncate Sallfly	S3	G4		
<i>Amblytropidia mysteca</i>	A Glade Grasshopper	SU	G5		
<i>Anax longipes</i>	Comet Darner	S3	G5		
<i>Andrena beameri</i>	An Andrenid Bee	S3	GNR		
<i>Arrhopalites clarus</i>	Clarus Cave Springtail	S3	G4		
<i>Attaneuria ruralis</i>	Giant Stone	S3	G4		
<i>Baetisca obesa</i>	A Mayfly	S3	G5		
<i>Calephelis borealis</i>	Northern Metalmark	S1	G3G4		
<i>Calephelis muticum</i>	Swamp Metalmark	S3	G3		
<i>Camptonotus carolinensis</i>	Carolina Leaf Roller Camel Cricket	SU	GNR		
<i>Catocala marmorata</i>	Marbled Underwing Moth	S3	G3G4		
<i>Catocala pretiosa texarkana</i>	Precious Underwing Moth	S3?	G4T4		
<i>Chalybion zimmermanni</i> <i>zimmermanni</i>	A Blue Mud Dauber	SU	GNRTNR		
<i>Cicindela circumpecta johnsonii</i>	Saline Spring Tiger Beetle	S1	G5T5		
<i>Conocephalus saltans</i>	Prairie Meadow Katydid	S3	GNR		
<i>Euphyes dukesi</i>	Duke's Skipper	S1	G3		
<i>Formica creightoni</i>	Creighton's Slavemaking Ant	S3	GNR		
<i>Formica fossiceps</i>	An Ant	SU	GNR		
<i>Formica querquetulana</i>	An Ant	S3	GNR		
<i>Glyphopsyche missouri</i>	Missouri Glyphopsyche Caddisfly	S1	G1		
<i>Gomphus fraternus</i>	Midland Clubtail	SU	G5		
<i>Gomphus ozarkensis</i>	Ozark Clubtail	S3	G4		
<i>Gomphus ventricosus</i>	Sillet Clubtail	SU	G3		
<i>Gryllotalpa major</i>	Prairie Mole Cricket	S3	G3		
<i>Hesperia ottoe</i>	Ottoe Skipper	S1	G3G4		
<i>Hydroperla fugitans</i>	Austin Springfly	S3	G3		
<i>Hydropsyche piatrix</i>	A Net-spinning Caddisfly	S4	GNR		
<i>Inscudderia taxodii</i>	Bald Cypress Katydid	S1	GNR		
<i>Isoperla burksi</i>	Banded Stripetail	S3	G4		
<i>Isoperla longiseta</i>	Plains Stripetail	SX	G5		
<i>Leptysma marginicollis</i>	Cattail Toothpick Grasshopper	S2S3	G5		
<i>Leucotrichia pictipes</i>	A Micro Caddisfly	S3	GNR		
<i>Lordithon niger</i>	Black Lordithon Rove Beetle	SH	GU		
<i>Lytrosis permagnaria</i>	Geometrid Moth	SU	G3G4		
<i>Macromia pacifica</i>	Gilded River Cruiser	S3	G4		
<i>Melanoplus fasciatus</i>	Huckleberry Grasshopper	S3	G5		
<i>Melanoplus impudicus</i>	Immodest Grasshopper	S3	G4G5		
<i>Melanoplus packardii</i>	Packard's Grasshopper	S2	G5		
<i>Melanoplus punctulatus griseus</i>	Grizzly Grasshopper	SU	G4T4		
<i>Melanoplus viridipes viridipes</i>	Green-legged Grasshopper	S3	G4T4		
<i>Mermiria picta</i>	Mermiria Grasshopper	S3	G5		
<i>Merope tuber</i>	A Meropid Scorpionfly	S3	G3G5		
<i>Metaleptea brevicornis</i>	Short-horned Grasshopper	S4	G5		
<i>Neoconocephalus bivocatus</i>	Two-voiced Conehead Katydid	S3	GNR		

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INSECTS (Cont.)					
Neoconocephalus exiliscanorus	Slightly-musical Conehead Katydid	S3	GNR		
Neoconocephalus lyristes	Bog Conehead Katydid	S3	GNR		
Neoconocephalus retusus	Round-tipped Conehead Katydid	S4?	GNR		
Neoperla carlsoni	Spiny Stone	S3?	G4		
Neotrichia kitae	Kite's Neotrichian Caddisfly	SU	GU		
Neotridactylus apicalis	Larger Pygmy Grasshopper	SU	GNR		
Nicrophorus americanus	American Burying Beetle	SH	G2G3	E	E
Ochrotrichia contorta	Contorted Ochrotrichian Micro Caddisfly	SU	GNR		
Oecleus chrisjohni	A Cixiid Planthopper	SU	GNR		
Oncopodura hoffi	Hoff's Cave Springtail	S1S3	G1G2		
Ophiogomphus westfalli	Westfall's Snaketail	S3	G3		
Pardalophora saussurei	A Glade Grasshopper	S3	G5		
Paroxya hoosieri	Hoosier Grasshopper	S1	G5		
Pentacora signoreti	A Shore Bug	S1	GNR		
Phoetaliotes nebrascensis	Large-headed Grasshopper	S3	G5		
Phrixocnemis truculentus	Truculent Camel Cricket	SU	GNR		
Phyllobrotica lengi	A Leaf Beetle	SU	GNR		
Phyllobrotica nigritarsus	A Leaf Beetle	SU	GNR		
Phyllobrotica physostegiae	A Leaf Beetle	S4?	GNR		
Ponera exotica	An Ant	S3	GNR		
Prostoia similis	Longhorn Forestfly	S3	G5		
Pseudosinella espana	Espana Cave Springtail	S3	G2G3		
Psinidia fenestralis	Sand Grasshopper	S2S3	G5		
Satyrodes appalachia leeuwi	Appalachian Eyed Brown	S1	G4T4		
Serratella frisoni	Frison's Seratellan Mayfly	S2	G4		
Sinella avita	Avita Cave Springtail	SU	G3G4		
Sinella barri	Barr's Cave Springtail	SU	G5		
Somatochlora hineana	Hine's Emerald	S1	G2G3	E	E
Somatochlora ozarkensis	Ozark Emerald	S2S3	G3		
Speyeria diana	Diana Fritillary	SA	G3G4		
Speyeria idalia	Regal Fritillary	S3	G3		
Stenonema bednariki	A Heptageniid Mayfly	S3	G2G4		
Stethophyma celatum	Sedge Grasshopper	S3	G4		
Stylurus notatus	Elusive Clubtail	S2S3	G3		
Tachopteryx thoreyi	Gray Petaltail	S3	G4		
Tettigidea armata	Spined Grouse Locust	S2S3	G5		
Tomocerus missus	Missus Cave Springtail	SU	G4		
Trimerotropis maritima	Seaside Grasshopper	SH	G5		
Xenochalepus potomaca	A Leaf Beetle	SU	GNR		
Xenotrechus condei	Northern Xenotrechus Cave Beetle	S1	G1G2		
Xenotrechus denticollis	Southern Xenotrechus Cave Beetle	S1	G1G2		
Total Insect Records:	89				

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FISH					
Acipenser fulvescens	Lake Sturgeon	S1	G3G4	E	
Alosa alabamae	Alabama Shad	S2	G3		
Amblyopsis rosae	Ozark Cavefish	S2	G3	E	T
Ameiurus nebulosus	Brown Bullhead	S3?	G5		
Ammocrypta clara	Western Sand Darter	S2S3	G3		
Carpionodes velifer	Highfin Carpsucker	S2	G4G5		
Centrarchus macropterus	Flier	S3	G5		
Cottus sp. 8	Grotto Sculpin	S2	G1Q		C
Crystallaria asprella	Crystal Darter	S1	G3	E	
Cycleptus elongatus	Blue Sucker	S3	G3G4		
Cyprinella camura	Blunface Shiner	S2S3	G5		
Erimyzon sucetta	Lake Chubsucker	S2	G5		
Etheostoma cragini	Arkansas Darter	S3S4	G3		C
Etheostoma euzonum erizonum	Current River Saddled Darter	S3	G3G4T3T4		
Etheostoma euzonum euzonum	Arkansas Saddled Darter	S2	G3G4T3T4		
Etheostoma fusiforme	Swamp Darter	S1	G5	E	
Etheostoma histrio	Harlequin Darter	S2	G5	E	
Etheostoma microperca	Least Darter	S2	G5		
Etheostoma nianguae	Niangua Darter	S2	G2	E	T
Etheostoma parvipinne	Goldstripe Darter	S1	G4G5	E	
Etheostoma vivax	Scaly Sand Darter	S3	G5		
Etheostoma whipplei	Redfin Darter	S1	G4	E	
Forbesichthys agassizi	Spring Cavefish	S1	G4G5	E	
Fundulus chrysotus	Golden Topminnow	S1	G5		
Fundulus dispar	Starhead Topminnow	S2	G4		
Fundulus sciadicus	Plains Topminnow	S3	G4		
Fundulus zebrinus	Plains Killifish	S2	G5		
Hiodon tergisus	Mooneye	S3	G5		
Hybognathus argyritis	Western Silvery Minnow	S2	G4		
Hybognathus hankinsoni	Brassy Minnow	S3	G5		
Hybognathus hayi	Cypress Minnow	S1	G5	E	
Hybognathus nuchalis	Mississippi Silvery Minnow	S3S4	G5		
Hybognathus placitus	Plains Minnow	S2	G4		
Ichthyomyzon gagei	Southern Brook Lamprey	S2S3	G5		
Lampetra appendix	American Brook Lamprey	S2	G4		
Lepisosteus spatula	Alligator Gar	SU	G3G4		
Lepomis marginatus	Dollar Sunfish	SU	G5		
Lepomis symmetricus	Bantam Sunfish	S2	G5		
Macrhybopsis gelida	Sturgeon Chub	S3	G3		
Macrhybopsis meeki	Sicklefin Chub	S3	G3		
Macrhybopsis storeriana	Silver Chub	S3	G5		
Mugil cephalus	Striped Mullet	SA	G5		
Notropis amnis	Pallid Shiner	SX	G4		
Notropis buchanani	Ghost Shiner	S2	G5		
Notropis chalybaeus	Ironcolor Shiner	S1	G4		
Notropis heterolepis	Blacknose Shiner	S2	G4		

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FISH (Cont.)					
Notropis maculatus	Taillight Shiner	S1	G5	E	
Notropis ozarcanus	Ozark Shiner	S2	G3		
Notropis sabiniae	Sabine Shiner	S1	G4	E	
Notropis texanus	Weed Shiner	S3	G5		
Notropis topeka	Topeka Shiner	S1	G3	E	E
Noturus eleutherus	Mountain Madtom	S1S2	G4	E	
Noturus flavater	Checkered Madtom	S3S4	G3G4		
Noturus placidus	Neosho Madtom	S2	G2	E	T
Opsopoeodus emiliae	Pugnose Minnow	S4	G5		
Percina copelandi	Channel Darter	S3	G4		
Percina cymatotaenia	Bluestripe Darter	S2	G2		
Percina nasuta	Longnose Darter	S1	G3	E	
Percina shumardi	River Darter	S3	G5		
Percina uranidea	Stargazing Darter	S2	G3		
Percopsis omiscomaycus	Trout-perch	S1?	G5		
Pimephales tenellus parviceps	Eastern Slim Minnow	S2S3	G4T2T3		
Pimephales tenellus tenellus	Western Slim Minnow	S3	G4T4		
Platygobio gracilis	Flathead Chub	S1	G5	E	
Polyodon spathula	Paddlefish	S3	G4		
Scaphirhynchus albus	Pallid Sturgeon	S1	G1	E	E
Typhlichthys subterraneus	Southern Cavefish	S2S3	G4		
Umbra limi	Central Mudminnow	S1	G5	E	
Total Fish Records:	68				
AMPHIBIANS					
Ambystoma annulatum	Ringed Salamander	S3	G4		
Ambystoma talpoideum	Mole Salamander	S2	G5		
Ambystoma tigrinum tigrinum	Eastern Tiger Salamander	SU	G5T5		
Amphiuma tridactylum	Three-toed Amphiuma	S2	G5		
Bufo cognatus	Great Plains Toad	SU	G5		
Cryptobranchus alleganiensis alleganiensis	Eastern Hellbender	S1	G3G4T3T4	E	
Cryptobranchus alleganiensis bishopi	Ozark Hellbender	S1	G3G4T1Q	E	C
Hemidactylum scutatum	Four-toed Salamander	S4	G5		
Necturus maculosus louisianensis	Red River Mudpuppy	SU	G5T4		
Necturus maculosus maculosus	Common Mudpuppy	SU	G5T5		
Pseudacris streckeri illinoensis	Illinois Chorus Frog	S2	G5T3		
Rana areolata circulosa	Northern Crawfish Frog	S3	G4T4		
Rana pipiens	Northern Leopard Frog	S2	G5		
Rana sylvatica	Wood Frog	S3	G5		
Scaphiopus holbrookii	Eastern Spadefoot	S2	G5		
Typhlotriton spelaeus	Grotto Salamander	S2S3	G4		
Total Amphibian Records:	16				

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REPTILES					
<i>Cemophora coccinea copei</i>	Northern Scarlet Snake	S2S3	G5T5		
<i>Crotaphytus collaris collaris</i>	Eastern Collared Lizard	S4	G5		
<i>Deirochelys reticularia miaria</i>	Western Chicken Turtle	S1	G5T5	E	
<i>Elaphe vulpina vulpina</i>	Western Fox Snake	S1	G5T5	E	
<i>Emydoidea blandingii</i>	Blanding's Turtle	S1	G4	E	
<i>Eumeces obsoletus</i>	Great Plains Skink	S2	G5		
<i>Eumeces septentrionalis obtusirostris</i>	Southern Prairie Skink	S3	G5T5		
<i>Eumeces septentrionalis septentrionalis</i>	Northern Prairie Skink	S3	G5T5		
<i>Farancia abacura reinwardtii</i>	Western Mud Snake	S2	G5T5		
<i>Heterodon nasicus gloydi</i>	Dusty Hog-nosed Snake	S1	G5T3T4Q		
<i>Heterodon nasicus nasicus</i>	Plains Hog-nosed Snake	SX	G5T5		
<i>Kinosternon flavescens flavescens</i>	Yellow Mud Turtle	S1	G5T5	E	
<i>Kinosternon flavescens spooneri</i>	Illinois Mud Turtle	S1	G5T1Q	E	
<i>Liochlorophis vernalis</i>	Smooth Green Snake	SX	G5		
<i>Macrochelys temminckii</i>	Alligator Snapping Turtle	S2	G3G4		
<i>Nerodia cyclopion</i>	Mississippi Green Water Snake	SX	G5	E	
<i>Phrynosoma cornutum</i>	Texas Horned Lizard	S2	G4G5		
<i>Sistrurus catenatus catenatus</i>	Eastern Massasauga	S1	G3G4T3T4	E	C
Total Reptile Records:	18				
BIRDS					
<i>Accipiter striatus</i>	Sharp-shinned Hawk	S3	G5		
<i>Aimophila aestivalis</i>	Bachman's Sparrow	S2	G3	E	
<i>Anhinga anhinga</i>	Anhinga	SX	G5		
<i>Ardea alba</i>	Great Egret	S3	G5		
<i>Asio flammeus</i>	Short-eared Owl	S2	G5		
<i>Asio otus</i>	Long-eared Owl	SU	G5		
<i>Bonasa umbellus</i>	Ruffed Grouse	SU	G5		
<i>Botaurus lentiginosus</i>	American Bittern	S1	G4	E	
<i>Buteo swainsoni</i>	Swainson's Hawk	S2	G5		
<i>Campephilus principalis</i>	Ivory-billed Woodpecker	SX	GH		E
<i>Certhia americana</i>	Brown Creeper	SU	G5		
<i>Chlidonias niger</i>	Black Tern	SX	G4		
<i>Circus cyaneus</i>	Northern Harrier	S2	G5	E	
<i>Cistothorus palustris</i>	Marsh Wren	S3	G5		
<i>Conuropsis carolinensis</i>	Carolina Parakeet	SX	GX		
<i>Coragyps atratus</i>	Black Vulture	S3	G5		
<i>Corvus corax</i>	Common Raven	SX	G5		
<i>Coturnicops noveboracensis</i>	Yellow Rail	SU	G4		
<i>Cygnus buccinator</i>	Trumpeter Swan	SX	G4		
<i>Dendroica cerulea</i>	Cerulean Warbler	S2S3	G4		
<i>Dendroica pensylvanica</i>	Chestnut-sided Warbler	S3	G5		
<i>Ectopistes migratorius</i>	Passenger Pigeon	SX	GX		
<i>Egretta caerulea</i>	Little Blue Heron	S3	G5		

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BIRDS (Cont.)					
Egretta thula	Snowy Egret	S2	G5	E	
Elanoides forficatus	Swallow-tailed Kite	SX	G5		
Empidonax minimus	Least Flycatcher	SU	G5		
Falco peregrinus	Peregrine Falcon	S1	G4	E	
Gallinula chloropus	Common Moorhen	S2	G5		
Geococcyx californianus	Greater Roadrunner	S3	G5		
Grus canadensis	Sandhill Crane	SU	G5		
Haliaeetus leucocephalus	Bald Eagle	S3	G4	E	T
Ictinia mississippiensis	Mississippi Kite	S3	G5		
Ixobrychus exilis	Least Bittern	S3	G5		
Lanius ludovicianus	Loggerhead Shrike	S2	G4		
Laterallus jamaicensis	Black Rail	S1	G4		
Limnithlypis swainsonii	Swainson's Warbler	S2	G4	E	
Nycticorax nycticorax	Black-crowned Night-heron	S3	G5		
Pandion haliaetus	Osprey	SU	G5		
Passerina ciris	Painted Bunting	S3	G5		
Picoides borealis	Red-cockaded Woodpecker	SX	G3		E
Porzana carolina	Sora	S2	G5		
Rallus elegans	King Rail	S1	G4	E	
Rallus limicola	Virginia Rail	S2	G5		
Sitta pusilla	Brown-headed Nuthatch	SX	G5		
Sterna antillarum athalassos	Interior Least Tern	S1	G4T2Q	E	E
Tympanuchus cupido	Greater Prairie-chicken	S1	G4	E	
Tyto alba	Barn Owl	S3	G5	E	
Vermivora bachmanii	Bachman's Warbler	SX	GH		E
Wilsonia citrina	Hooded Warbler	S3	G5		
Xanthocephalus xanthocephalus	Yellow-headed Blackbird	S3	G5		
Total Bird Records:	50				
MAMMALS					
Bos bison	American Bison	SX	G4		
Canis lupus	Gray Wolf	SX	G4		E
Canis rufus	Red Wolf	SX	G1		E
Cervus elaphus	Wapiti	SX	G5		
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	SU	G3G4		
Corynorhinus townsendii ingens	Ozark Big-eared Bat	SX	G4T1	E	E
Lepus californicus	Black-tailed Jackrabbit	S1	G5	E	
Lepus townsendii	White-tailed Jackrabbit	SX	G5		
Mustela frenata	Long-tailed Weasel	S2	G5		
Mustela nivalis	Least Weasel	S4	G5		
Myotis austroriparius	Southeastern Bat	SU	G3G4		
Myotis grisescens	Gray Bat	S3	G3	E	E
Myotis leibii	Eastern Small-footed Myotis	SU	G3		
Myotis septentrionalis	Northern Myotis	S3	G4		
Myotis sodalis	Indiana Bat	S1	G2	E	E
Ochrotomys nuttalli	Golden Mouse	S3?	G5		

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MAMMALS (Cont.)					
Oryzomys palustris	Rice Rat	SU	G5		
Perognathus flavescens	Plains Pocket Mouse	S2	G5		
Peromyscus gossypinus	Cotton Mouse	S2	G5		
Puma concolor	Mountain Lion	SU	G5	E	
Reithrodontomys montanus	Plains Harvest Mouse	S2	G5		
Spermophilus franklinii	Franklin's Ground Squirrel	S2S3	G5		
Spilogale putorius interrupta	Plains Spotted Skunk	S1	G5T4	E	
Sylvilagus aquaticus	Swamp Rabbit	S2	G5		
Ursus americanus	Black Bear	S3	G5		
Total Mammal Records:	25				
Total Records Processed:	1025				

REFERENCES

NATURAL COMMUNITIES

Taxonomic Authority:

Nelson, P.W., et al. 2005. The Terrestrial Natural Communities of Missouri, Revised ed. The Missouri Natural Areas Committee. Jefferson City, Missouri. 550pp.

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Taxonomic Authority:

Egan, R.S. 1987. A fifth checklist of the lichen-forming, lichenicolous and allied fungi of the continental United States and Canada. Bryologist 90:77-173.

For Additional Information:

Ladd, D. 1996. Checklist and bibliography of Missouri lichens. Missouri Department of Conservation. Natural History Series, No. 4. Jefferson City, Missouri. 92 pp.

LIVERWORTS AND HORNWORTS

Taxonomic Authority:

Schuster, R.M. 1966-1992. The Hepeticeae and Anthocerotae of North America, six volume series. Columbia Univ. Press, N.Y. and Field Museum of Natural History, Chicago, Illinois.

MOSESSES

Taxonomic Authority:

Anderson, Louis E., H.A. Crum, and W.R. Buck. 1990. List of the mosses of North America north of Mexico. Bryologist 93:448-499.

Crum, H. 1984. Sphagnopsida: Sphagnaceae. North American Flora, Series 2, 11:i-iv, 1-180.

FERNS AND FERN ALLIES

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FLOWERING PLANTS

Taxonomic Authority:

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Yatskievych, G. 1999. Steyermark's Flora of Missouri, Vol. 1, Revised ed. Missouri Department of Conservation. Jefferson City, Missouri. 1991 pp. *for monocotyledons*

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For Additional Information:

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Taxonomic Authority:

Turgeon, D.D., A.E. Bogan, E.V. Coan, W.K. Emerson, W.G. Lyons, W.L. Pratt, C.F.E. Roper, A. Scheltama, F.G. Thompson and J.D. Williams. 1998. Common and scientific names of aquatic invertebrates from the United States and Canada: mollusks, 2nd ed. American Fisheries Society Special Publication No. 26. 526 pp.

For Additional Information:

Oesch, R.D. 1995. Missouri naiades: a guide to the mussels of Missouri. Missouri Department of Conservation. Jefferson City, Missouri. 270 pp.

Wu, S.K., R.D. Oesch and M.E. Gordon. 1997. Missouri aquatic snails. Missouri Department of Conservation. Jefferson City, Missouri. Natural History Series, No. 5. 97 pp.

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For Additional Information:

Pflieger, W.L. 1996. The crayfishes of Missouri. Missouri Department of Conservation. Jefferson City, Missouri. 152 pp.

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For Additional Information:

Heitzman, J.R. and J.E. Heitzman. 1987. Butterflies and moths of Missouri. Missouri Department of Conservation. Jefferson City, Missouri. 385 pp.

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Taxonomic Authority:

Robins, C.R., R.M. Bailey, C.E. Bond, J.R. Brooker, E.A. Lachner, R.N. Lea, and W.B. Scott. 1991. Common and scientific names of fishes from the United States and Canada (Fifth Edition). American Fisheries Society Special Publication 20. 183 pp.

For Additional Information:

Pflieger, W.L. 1997. The fishes of Missouri Revised Edition. Missouri Department of Conservation. Jefferson City, Missouri. 372 pp.

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Taxonomic Authority:

Crother, B.I. and Committee, 2003. Scientific and standard English names of amphibians and reptiles of North America north of Mexico: Update. *Herpetological Review* 34(3): 196-203.

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For Additional Information:

Johnson, T.R. 2000. The amphibians and reptiles of Missouri. Missouri Department of Conservation. Jefferson City, Missouri. 400 pp.

Conant, R. and J.T. Collins. 1998. A field guide to reptiles and amphibians of eastern and central North America. Third ed. expanded. Houghton Mifflin. Boston. 616 pp.

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For Additional Information:

Jacobs, R. and J.D. Wilson. 1997. Missouri breeding bird atlas. Missouri Department of Conservation. Jefferson City, Missouri. 430 pp.

National Geographic Society. 1987. Field guide to the birds of North America. Second edition. Washington, D.C. 464 pp.

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Wilson, D.E. and D.M. Reeder, eds. 1993. Mammal species of the world: a taxonomic and geographic reference, 2nd edition. Smithsonian Institution, Washington, D.C. 1206 pp.

For Additional Information:

Schwartz, C.W. and E.R. Schwartz. 2001. The wild mammals of Missouri, 2nd Revised edition. University of Missouri Press. Columbia, Missouri. 368 pp.

FOR MORE INFORMATION

The Missouri Department of Conservation collects and manages information on the location and status of species of conservation concern throughout the state. The Natural Heritage Database is a repository for this information.

If you have information on the location or questions about the status of any element on this checklist, please write or call:

Endangered Species Coordinator
Missouri Department of Conservation
P.O. Box 180
2901 W Truman Blvd
Jefferson City, MO 65109
(573) 751-4115

If you are requesting information about the location of any element on this checklist for the purposes of environmental review, please write:

Policy Coordination
Missouri Department of Conservation
P.O. Box 180
2901 W Truman Blvd
Jefferson City, MO 65109

WEBPAGE

This checklist is updated annually. The most current version is always available by contacting the Missouri Department of Conservation, Resource Science Division. *Checklist* information is also available on the Missouri Department of Conservation's website:

<http://mdc.mo.gov/documents/nathis/endangered/checklist.pdf>

CITATION

An appropriate citation for this edition of the *Checklist* is:

Missouri Natural Heritage Program. 2006. Missouri species and communities of conservation concern checklist. Missouri Department of Conservation. Jefferson City, Missouri. 58pp.

APPENDIX A
BIRD SPECIES TRACKED IN HERITAGE AND THEIR CRITERIA FOR EOs
 Updated September 10, 2004

<u>SPECIES (ranks)</u>	<u>REGIONS</u>	<u>CRITERIA (safe dates), COMMENTS</u>
Anseriformes (Ducks, geese, swans)		
Trumpeter Swan (SX, G4)	All (NE, NW)	1
Galliformes (chicken-like birds)		
Ruffed Grouse (SU, G5)	CE, OZ, SL, SE	1
Greater Prairie-chicken (S1, G4)	SW, KC, NW, NE	Anytime observed
Pelecaniformes (pelicans, cormorants, darters)		
Anhinga (SX, G5)	SE	1
Ciconiiformes (herons, egrets, storks, ibises, vultures)		
American Bittern (S1, G4)	All	1 – extensive emergent marshes
Least Bittern (S3, G5)	All	1,2 (5/25-8/1)
Great Egret (S3, G5)	All (SE)	1
Snowy Egret (S2, G5)	SE	1
Little Blue Heron (S3, G5)	SE, SL	1
Black-crowned Night-Heron (S3, G5)	All (SE)	1
Black Vulture (S3, G5)	OZ, SE	1
Falconiformes (hawks, falcons, eagles, kites)		
Osprey (SU, G5)	All (confirmed NE, SW)	1 – Any large open body of water
Mississippi Kite (S3, G5)	All (SE, SL, NE)	1 – Expanding range
Bald Eagle (S3, G4)	All	1 – Any large open body of water
Northern Harrier (S2, G5)	All (except OZ, SE)	1
Sharp-shinned Hawk (S3, G5)	All	1
Swallow-tailed Kite (SX, G5)	SE	1 – Formerly SE, large rivers
Swainson's Hawk (S2, G5)	SW, KC	1
Peregrine Falcon (S1, G4)	SL, KC	1 – Formerly along MO river bluffs
Gruiformes (rails, cranes)		
Sandhill Crane (SU, G5)	NE, NW, CE, SL	1
Black Rail (S1, G4)	All	Anytime observed, large marshes
Yellow Rail (SU, G4)	All	Anytime observed (migrant)
King Rail (S1, G4G5)	All (SE, SL, NE)	1,2 (5/30-7/31)
Virginia Rail (S2, G5)	All	1,2 (5/15-8/1)
Sora (S2, G5)	All	1,2 (5/30-7/31)
Common Moorhen (S2, G5)	All (except OZ)	1,2 (5/30-8/31)
Charadriiformes (gulls, terns, shorebirds)		
Interior Least Tern (S1, G4T2Q)	SE	1 – Formerly along MS, MO Rivers
Black Tern (SX, G4)	NW	1
Cuculiformes (cuckoos, roadrunners)		
Greater Roadrunner (S3, G5)	SW, OZ	Anytime observed
Strigiformes (owls)		
Barn Owl (S3, G5)	All (SE)	1,2 (5/25-8/15)
Long-eared Owl (SU, G5)	All	1 – Forests, dense thickets near water
Short-eared Owl (S2, G5)	SW, NW, NE, KC	1,2 (5/1-8/31)

Piciformes (woodpeckers)		
Red-cockaded Woodpecker (SX, G3)	OZ, SE	Anytime observed
<u>SPECIES (ranks)</u>	<u>REGIONS</u>	<u>CRITERIA (safe dates), COMMENTS</u>
Passeriformes (perching birds)		
Least Flycatcher (SU, G5)	NE, NW	1,2 (5/27-7/7)
Loggerhead Shrike (S2, G5)	All (SW, KC, NW)	1,2 (4/20-7/20)
Brown-headed Nuthatch (SX, G5)	OZ, SE	Anytime observed
Brown Creeper (SU, G5)	SL, NE, OZ	1,2 (5/15-9/15)
Marsh Wren (S3, G5)	All (except SW, SE, OZ)	1,2 (5/25-8/25)
Chestnut-sided Warbler (S3, G5)	All	1,2 (6/1-8/10)
Hooded Warbler (S3, G5)	SE, OZ, SW, SL	1,2 (5/25-7/25)
Cerulean Warbler (S2S3, G4)	All (OZ)	1,2 (6/1-8/10)
Swainson's Warbler (S2, G4)	SE, OZ, SW	1,2 (5/25-8/15)
Bachman's Sparrow (S2, G3)	OZ, SW, SE	1,2 (6/1-8/15)
Painted Bunting (S3, G5)	SW, OZ	1,2 (5/25-8/1)
Yellow-headed Blackbird (S3, G5)	NW (possible anywhere)	1

MDC Region Abbreviations (regions listed are those in which the species is most likely to be recorded):

CE – Central	KC – Kansas City
NE – Northeast	NW – Northwest
OZ – Ozark	SL – St. Louis
SE – Southeast	SW – Southwest

Explanation of Criteria

1. Confirmed breeding. Evidenced one or more of the following:

- Nest building (except wrens and woodpeckers)
- Nest with egg(s) or young (seen or heard)
- Used nest or eggshells
- Physiological evidence of breeding based upon bird in hand (e.g. brood patch)
- Distraction display or injury feigning
- Recently fledged young
- Adults entering or leaving nest site in circumstances indicating nesting
- Adult carrying fecal sac
- Adult carrying food

2. Probable or possible breeding (valid only between safe dates)

Probable

- Male and female seen together (not part of a flock)
- Bird holding territory
- Seven or more singing males detected in one visit
- Courtship or copulation
- Visiting probable nest site
- Agitated behavior or anxiety call (not provoked by observer)
- Nest building by wrens or woodpeckers

Possible

- Species heard or seen in breeding habitat

PLANTS OF CONSERVATION CONCERN REPORTING FORM

HERITAGE BOTANIST and LAB USE ONLY

EO Report Status (check one): New _____ Update with mapping _____ Update without mapping _____
 EO_ID: _____ Source Number: _____ SRANK: _____
 ELCODE: _____ EONUM: _____ State Status: _____
 Federal Status: _____
 Mapper _____ Map_QC _____ Heritage Biologist: _____
 Tracker _____ Tracker_QC _____ Date: _____

ELEMENT IDENTIFICATION and LOCATION

Scientific Name: _____ Common Name: _____

Identification Problems: Y N Explain: _____

If surveying known site, was species relocated? Y N

Survey Site Name: _____

Directions to the survey site (include landmarks, roads, towns, distances, compass directions): _____

County(ies): _____

USGS Quadrangle names: _____

Twp _____ Rng _____ Sec _____ ¼ Sec _____ Elev _____ (ft or m)

If using a GPS unit, please collect data in NAD83, zone 15; if unfeasible, indicate: NAD _____ zone _____

UTM: Easting (X) _____ OR: Latitude _____

Northing (Y) _____ Longitude _____

Explanation of possible GPS unit inaccuracy: _____

SURVEY INFORMATION

Survey Date: _____ - _____ - _____ (yyyy-mm-dd)

Surveyor(s) (principal surveyor first; last name, first name): _____

Phone #: (____) _____ - _____ E-mail address: _____

Street Address: _____

TOPOGRAPHIC MAP (mandatory) Attach a copy of the topographic map or DOQ (no county maps, please!) with the species' location marked. Please identify *who* marked the map (i.e., observer, transcriber, updater, or Heritage Biologist).

Use the following guidelines to draw the source's location on the map as precisely as possible. Note: Heritage mappers will digitize exactly what is drawn on your map.

- Use a fine tip pen to mark a pen point or thin solid line identifying the source location. If the element occurrence or source boundary follows the edge of a lake, stream, road or other feature, draw the boundary precisely on the edge of the feature.
- Disjunct patches of the same element occurrence should be mapped separately and # observed indicated at each site.
- If you are not certain you can draw the observed area's exact location, draw a boundary line inclusive of the entire area where you are certain the source was observed. Draw as small an area as you can while still being certain it contains the actual location of the observed element. Where possible, use features on the map such as roads, streams, contour lines, etc., to delineate this area. For example, draw a line along the stretch of trail where the EO was observed.

Locational Uncertainty: How accurate is your depiction of the source's location on the map?

The mapped location is within (circle appropriate buffer radius in meters): 0 6.25 25 50 100 200 400 800 1500 4000

OR, specify your own estimate: _____ m or _____ ft or _____ mi

ELEMENT OCCURRENCE DATA

If illustration/photograph/slide taken, give artist/photographer, year, subject, and repository: _____

If specimen collected, give collector, collection #, year, acquisition number and repository: _____

Abundance:

Number (individuals, clumps, or colonies) observed: _____

Area of Occupancy (preferably acres or hectares): _____

Person hours spent searching for this Element? _____

Condition (plants sterile, in bud, flower or fruit, evidence of disease, predation, or exotics): _____

General Description (habitat): Describe the physical setting/context surrounding the EO, including a list of adjacent communities and surrounding land use. _____

CONSERVATION INFORMATION

Name of Managed Area(s): A) _____ B) _____ C) _____

Is EO completely within boundaries of Managed Area(s)? Yes or Partially (*Y or P*) A) _____ B) _____ C) _____

Public Owner(s): _____

Private Owner(s): _____

Owner Comments (include address/phone number): _____

Management Comments (e.g., exotics, burn needed, current or potential threats, etc.): _____

Protection Comments (e.g. legal actions/strategies needed to secure protection for the site): _____

General Comments (include associated species): _____

Form completed by (last, first name): _____ Date: _____

Thank you for your assistance in helping maintain the Missouri Natural Heritage Program.

Return to: Resource Science Division – Heritage Botanist, Missouri Department of Conservation,
P.O. Box 180, Jefferson City, Missouri 65102
573-751-4115

TO BE COMPLETED BY HERITAGE BOTANIST

Origin Subrank: _____ EO Rank: _____ EO Rank Comments: _____

Separation Distance: _____ Unit of measure: _____ Justification (if different from EOSpecs): _____

Should this record be a Sub-EO? Y N If "Yes", explain: _____

Independent Source (record should be entered as an observation and not an EO)? Y N Comments: _____

Source Feature (Descriptor) Name: _____

Source Feature Locator(s) (i.e. UTM, site location ID, distance from known points, etc): _____

Primary Reference: _____

Additional Reference(s): _____

ANIMALS OF CONSERVATION CONCERN REPORTING FORM

HERITAGE BIOLOGIST and LAB USE ONLY

EO Report Status (check one): New _____ Update **with** mapping _____ Update **without** mapping _____
 EO_ID: _____ Source Number: _____ SRANK: _____
 ELCODE: _____ EONUM: _____ State Status: _____
 Federal Status: _____
 Mapper _____ Map_QC _____ Heritage Biologist: _____
 Tracker _____ Tracker_QC _____ Date: _____

ELEMENT IDENTIFICATION and LOCATION

Scientific Name: _____ Common Name: _____

Identification Problems: Y N Explain: _____

If surveying known site, was species relocated? Y N

Survey Site Name: _____

Directions to the survey site (include landmarks, roads, towns, distances, compass directions): _____

County(ies): _____

USGS Quadrangle names: _____

Twp _____ Rng _____ Sec _____ ¼ Sec _____ Elev _____ (ft or m)

If using a GPS unit, please collect data in NAD83, zone 15: if unfeasible, indicate: NAD _____ zone _____

UTM: Easting (X) _____ OR: Latitude _____

 Northing (Y) _____ Longitude _____

Explanation of possible GPS unit inaccuracy: _____

SURVEY INFORMATION

Survey Date: ____ - ____ - ____ (yyyy-mm-dd)

Surveyor(s) (principal surveyor first; last name, first name): _____

Phone #: (____) _____ - _____ E-mail address: _____

Street Address: _____

Location Use Class (circle one): Not applicable, Adult foraging area, Bachelor Colony, Breeding, Freshwater, Hibernaculum, Juvenile foraging area, Maternity Colony, Migratory Corridor, Migratory Stopover, Nesting area, Nonbreeding, Nonmigratory, Nursery area, Staging, Undetermined.

TOPOGRAPHIC MAP (mandatory) Attach a copy of the topographic map or DOQ (no county maps, please!) with the species' location marked. Please identify *who* marked the map (i.e., observer, transcriber, updater, or Heritage Biologist).

Use the following guidelines to draw the source's location on the map as precisely as possible. Note: Heritage mappers will digitize exactly what is drawn on your map.

- Use a fine tip pen to mark a pen point or thin solid line identifying the source location. If the element occurrence or source boundary follows the edge of a lake, stream, road or other feature, draw the boundary precisely on the edge of the feature.
- Disjunct patches of the same element occurrence should be mapped separately and # observed indicated at each site.
- If you are not certain you can draw the observed area's exact location, draw a boundary line inclusive of the entire area where you are certain the source was observed. Draw as small an area as you can while still being certain it contains the actual location of the observed element. Where possible, use features on the map such as roads, streams, contour lines, etc., to delineate this area. For example, draw a line along the stretch of trail where the EO was observed.

Locational Uncertainty: How accurate is your depiction of the source's location on the map?

The mapped location is within (circle appropriate buffer radius in meters): 0 6.25 25 50 100 200 400 800 1500 4000

OR, specify your own estimate: _____ m or _____ ft or _____ mi

Confidence Extent: Are you confident that the observed area represents the full extent of occupied habitat for the Element at that location? Y N ? (Y=confident that full extent is known; N= confident that full extent is not known; ?= uncertainty whether full extent is known). **Comments:** _____

ELEMENT OCCURRENCE DATA
 If illustration/photograph/slide taken, give artist/photographer, year, subject, and repository: _____
 If specimen collected, give collector, collection #, year, acquisition number and repository: _____
 Sampling Methodology (briefly describe traps, seining, call count, etc.): _____
 External Measurements: _____
Abundance:
 Actual number (number of adults, juveniles, dens, etc.) observed: _____

 Estimated number(s) and basis for estimate: _____

 Population Density (if practical): number: _____ per areal unit: _____ (i.e. meters², etc)
 Area of Occupancy (preferably acres or hectares): _____ Type of measurement: ___ Precise or ___ Estimate
 Person hours spent searching for this Element? _____
 Condition (evidence of reproduction, disease/predation/injury, or exotics): _____
 General Description (habitat): Describe the physical setting/context surrounding the EO, including a list of adjacent communities and surrounding land use. _____

CONSERVATION INFORMATION
 Name of Managed Area(s): A) _____ B) _____ C) _____
 Is EO completely within boundaries of Managed Area(s)? Yes or Partially (Y or P) A) ___ B) ___ C) ___
 Public Owner(s): _____
 Private Owner(s): _____
 Owner Comments (include address/phone number): _____
 Management Comments (e.g., exotics, burn needed, current or potential threats, etc.): _____
 Protection Comments (e.g. legal actions/strategies needed to secure protection for the site): _____
 Monitoring and Research Needs : _____

General Comments (include associated species): _____
 Form completed by (last, first name): _____ Date: _____

Thank you for your assistance in helping maintain the Missouri Natural Heritage Program.
Return to: Resource Science Division – Heritage Zoologist, Missouri Department of Conservation,
 1110 S. College Ave., Columbia, Missouri 65201
 573-882-9909

TO BE COMPLETED BY HERITAGE BIOLOGIST
 Origin Subrank: _____ EO Rank: _____ EO Rank Comments: _____
 Separation Distance: _____ Unit of measure: _____ Justification (if different from EOSpecs): _____
 Should this record be a Sub-EO? Y N If “Yes”, explain: _____
 Independent Source (record should be entered as an observation and not an EO)? Y N Comments: _____
 Source Feature (Descriptor) Name: _____
 Source Feature Locator(s) (i.e. UTM, site location ID, distance from known points, etc): _____
 Slope (circle): Flat(0%, 0deg.), Gentle(0-5%, 1-10deg.), Mod(5-15%, 1-25deg.), Somewhat steep(15-25%, 25-50deg.), Steep (25-45%, 50-100deg.), Very steep(45-70%, 100-275deg.), Abrupt (70-100%, 275-300deg.), Overhanging/Sheltered (>100%, >300deg.)
 Primary Reference: _____
 Additional Reference(s): _____

TERRESTRIAL NATURAL COMMUNITY REPORTING FORM

HERITAGE COMMUNITY ECOLOGIST and LAB USE ONLY

EO Report Status (check one): New _____ Update with mapping _____ Update without mapping _____
 EO_ID: _____ Source Number: _____ SRANK: _____
 ELCODE: _____ EONUM: _____ State Status: _____
 Federal Status: _____
 Mapper _____ Map_QC _____ Heritage Biologist: _____
 Tracker _____ Tracker_QC _____ Date: _____

ELEMENT IDENTIFICATION and LOCATION

Scientific (Community) Name: _____
 Identification Problems: Y N Explain: _____
 Survey Site Name: _____
 If surveying known site, was community relocated? Y N
 Directions to the survey site (include landmarks, roads, towns, distances, compass directions): _____

 County(ies): _____
 USGS Quadrangle Names: _____
 Twp _____ Rng _____ Sec _____ ¼ Sec _____ Elev _____ (ft or m)
 If using a GPS unit, please collect data in NAD83, zone 15: if unfeasible, indicate: NAD _____ zone _____
 UTM: Easting (X) _____ OR: Latitude _____
 Northing (Y) _____ Longitude _____
 Explanation of possible GPS unit inaccuracy: _____

SURVEY INFORMATION

Survey Date: ____ - ____ - ____ (yyyy-mm-dd)
 Surveyor(s) (principal surveyor first; last name, first name): _____
 Phone #: (____) _____ - _____ E-mail address: _____
 Street Address: _____

TOPOGRAPHIC MAP (mandatory) Attach a copy of the topographic map or DOQ (no county maps, please!) with the community location marked. Please identify *who* marked the map (i.e., observer, transcriber, updater, or Heritage Biologist).

Use the following guidelines to draw the source's location on the map as precisely as possible. Note: Heritage mappers will digitize exactly what is drawn on your map.

- Use a fine tip pen to mark a pen point or thin solid line identifying the source location. If the element occurrence or source boundary follows the edge of a lake, stream, road or other feature, draw the boundary precisely on the edge of the feature.
- Disjunct patches of the same element occurrence should be mapped separately and # observed indicated at each site.
- If you are not certain you can draw the observed area's exact location, draw a boundary line inclusive of the entire area where you are certain the source was observed. Draw as small an area as you can while still being certain it contains the actual location of the observed element. Where possible, use features on the map such as roads, streams, contour lines, etc., to delineate this area. For example, draw a line along the stretch of trail where the EO was observed.

Locational Uncertainty: How accurate is your depiction of the source's location on the map?

The mapped location is within (circle appropriate buffer radius in meters): 0 6.25 25 50 100 200 400 800 1500 4000
 OR, specify your own estimate: _____ m or _____ ft or _____ mi

Confidence Extent: Are you confident that the observed area represents the full extent of occupied habitat for the Element at that location? Y N ? (Y=confident that full extent is known; N= confident that full extent is not known; ?= uncertainty whether full extent is known). **Comments:** _____

ELEMENT OCCURRENCE DATA

If illustration/photograph/slide taken, give artist/photographer, year, subject, and repository: _____

If specimen collected, give collector, collection #, year, acquisition number and repository: _____

If associated qualitative/quantitative data is available, where is it located: _____

Method Used (circle): Visual/Qualitative OR Quantitative transect/plot

Person hours spent evaluating this Element? _____

Condition: (Quality of biotic and abiotic factors/processes w/in the EO, such as stand maturity, species diversity, stability of substrate, water quality, exotics, etc.). Comments: _____

Size: Area: _____ acres Length: _____ Width: _____ Height (i.e. cliffs) _____

EO Rank: _____ EO Rank Comments: _____

General Description: Describe the physical setting/context of the EO, including a list of adjacent communities and surrounding land use.

Geology (substrate): _____

Soil Type(s): _____

Species Composition: Indicate the stratum that each species inhabits (e.g., tree, shrub, herb, non-vascular, other), followed by dominant species for each stratum. _____

Associated plant &/or animal species within observed area: _____

Listed Species: _____

Species List Attached? Yes No

Natural and Anthropogenic Disturbances: _____

CONSERVATION INFORMATION

Name of Managed Area(s): A) _____ B) _____ C) _____

Is EO completely within boundaries of Managed Area(s)? Yes or Partially (Y or P) A) _____ B) _____ C) _____

Public Owner(s): _____

Private Owner(s): _____

Owner Comments (include address/phone number): _____

Management Comments (e.g., exotics, burn needed, current or potential threats, etc.): _____

Protection Comments (e.g. legal actions/strategies needed to secure protection for the site): _____

Monitoring and Research Needs : _____

General Comments: _____

Form completed by (last, first name): _____ Date: _____

Thank you for your assistance in helping maintain the Missouri Natural Heritage Program.

Return to: Resource Science Division – Heritage Community Ecologist, Missouri Department of Conservation
P.O. Box 180, Jefferson City, Missouri 65102
573-751-4115

TO BE COMPLETED BY HERITAGE COMMUNITY ECOLOGIST:

Gelcode: _____ Confidence in classification (circle one): Certain Somewhat certain Not certain
If Somewhat Certain or Not Certain, why is confidence not certain (circle one)? Classification pending Not enough data
Origin Subrank: _____ Community Significance (circle one): Significant Exceptional Notable
Should this record be a Sub-EO? Y N If Yes, explain: _____

Source Feature (Descriptor) Name: _____

Source Feature Locator(s) (i.e. UTM, site location ID, distance from known points, etc): _____

Primary Reference: _____

Additional Reference(s): _____