

THE ILLINOIS ENDANGERED SPECIES PROTECTION ACT AT FORTY:

**A REVIEW OF THE ACT'S PROVISIONS AND THE ILLINOIS LIST OF
ENDANGERED AND THREATENED SPECIES**



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On the cover: Listed species over four decades; clockwise from upper right – Silvery Salamander (*Ambystoma platineum*), listed as Illinois endangered in 1977; Ill-scented Trillium (*Trillium erectum*), listed as Illinois endangered in 1980; Karner Blue Butterfly (*Lycaeides melissa samuelis*), listed as federally endangered in 1992 and Illinois endangered in 1994; and, Sandhill Crane (*Grus canadensis*), listed as Illinois endangered in 1989, upgraded to Illinois threatened in 1999, and delisted as recovered in 2009.

Photo credits: Silvery Salamander, donated by Lance Merry; Ill-scented Trillium, donated by Randy Nyboer; and, Karner Blue Butterfly and Sandhill Crane, Carol Freeman.

ACRONYMS/ABBREVIATIONS

Act – Illinois Endangered Species Protection Act
Board – Illinois Endangered Species Protection Board
Database – IDNR Natural Heritage (Biotics 4) Database
Department – Illinois Department of Natural Resources
DNH – IDNR, ORC Division of Natural Heritage
E&T – Endangered and Threatened Species
ESPA – Illinois Endangered Species Protection Act
ESPB – Illinois Endangered Species Protection Board
IAS – IDNR, OREP Impact Assessment Section
IDNR – Illinois Department of Natural Resources
IESPA – Illinois Endangered Species Protection Act
IESPB – Illinois Endangered Species Protection Board
Illinois List – Illinois List of Endangered and Threatened Species
INPC – Illinois Nature Preserves Commission
ITA – Endangered and Threatened Species Incidental Take Authorization
List - Illinois List of Endangered and Threatened Species
ORC – IDNR Office of Resource Conservation
OREP – IDNR Office of Realty and Environmental Planning
USFWS – U.S. Fish and Wildlife Service
USFS – U.S. Forest Service

EXECUTIVE SUMMARY

The Illinois Endangered Species Protection Act (Act) was established in 1972 and 2012 marks its 40th anniversary. It is upon this anniversary that the Illinois Endangered Species Protection Board (Board/ESPB) elected to conduct a review of the history and performance of the Act's provisions to comprehensively quantify accomplishments and challenges relative to how well the Board has met its mission over the course of four decades: to protect those species of plants and animals native to Illinois which are in danger of being lost from the wild in the state.

The Board had three things in mind when it set about this review:

- 1) to use information from this document to identify opportunities for improving the Board's performance in conducting its mandates and duties under the Act;
- 2) in its mandated capacity of advising the Illinois Department of Natural Resources (Department/IDNR), to develop in coordination with the Department similar recommendations to improve Department programs for that agency's consideration; and,
- 3) as a service to the citizens of Illinois, that the document will serve as a valuable reference for members of the state's environmental and science communities and citizens with an interest in conserving Illinois' endangered and threatened species.

Important findings of the review include:

Partners are vital

- It was the interest and actions of multiple partners that led to the development of the Act itself as the first such state law in the nation.
- One-hundred thirty-two volunteer species experts and researchers have assisted the Board with developing the first Illinois List of Endangered and Threatened Species (Illinois List) and six subsequent revisions.
- Of the properties supporting the 4,960 endangered and threatened species occurrences known in Illinois, 22% are owned by the Department, 17% are owned by County Forest Preserve/Conservation Districts, 13% are owned by the U.S. Fish and Wildlife Service and U.S. Forest Service, and 48% are owned by mostly private landowners. The lands under these different owners that are enrolled in the Illinois Nature Preserve and Illinois Land and Water Reserve system support 26% of endangered and threatened species occurrences in the state.
- Partners other than the Board, Department, and Illinois Nature Preserves Commission (Commission/INPC) are responsible for approximately 50% of the endangered and threatened species occurrence information that is reported to the IDNR Natural Heritage (Biotics 4) Database (Database). Data in the Database is used to support all aspects of the ESPB's Illinois List review activities; the Department's endangered and threatened species possession permit, consultation, and incidental take authorization programs; natural area protection; and, species recovery planning.

The Board's mandates: accomplishments and challenges

Establish and maintain the Board

Accomplishments

- There have been 40 Board members appointed by the Governor since 1972 and they have demonstrated considerable dedication, with fully 25% serving for over 16 years.

- The Board's staffing has ranged from zero to four positions and during times when the Board had no staff, volunteer Board members made effort to accomplish required duties under the Act.

Challenges

- The Board was without budget and staff for several years and is currently operating with budget and staffing equivalent to 25% capacity. It is a considerable challenge to run the office and all operations of the Board with such reduced resources.
- Office procedures for data storage and maintenance have been inadequate for the Board to maintain detailed administrative records of many functions and robust files of information about general biology, survey results, research prescriptions, emerging threats, and results of management and recovery activities taking place for individual species.

Maintain the Illinois List

Accomplishments

- The Board established the first Illinois List and has conducted six required 5-year reviews and revisions, including listing a total of 644 species and delisting a total of 160 species.
- In conducting these revisions, the Board has enlisted a total of 132 volunteer expert consultants to assist in reviewing individual species' status and distribution and to meet its requirement for basing listing decisions on scientific evidence.
- The Board makes the current Illinois List available to the public on its website.

Challenges

- The Illinois List does not clearly identify that all federally listed species are provided legal protections in Illinois, including both those that occur in the state and those that do not.
- Inadequate budget and staffing make accomplishing this task very difficult and reduce the Board's performance of many aspects of the process including, overall administration and coordination of the process, conducting research and literature searches to inform listing decisions, documenting and maintaining an administrative record, and making information about the process available to the public.
- The Board often lacks sufficient data to accurately characterize the population status and trends for individual species - before, during, or after listing - and does not have an established process or schedule for accessing sources of information other than the Database to maintain the most accurate and complete information possible for each species.
- The Board's process for evaluating species during the 5-year review would benefit from a more robust and standardized analytical approach.
- The functionality of the Illinois List as it translates to the overall conservation of listed species would benefit from the Board establishing status review criteria and recovery goals, and identifying essential habitat, for each species either at the time of listing or shortly thereafter.

Advise the Department on the conservation of listed species

Accomplishments

- The Board and its staff provide considerable advice to the Department regarding the status, management, recovery, research needs, regulations, and laws related to Illinois endangered and threatened species.
- Board staff assist the Department in providing the public the same types of information by handling over 400 inquiries each year and by maintaining and updating the Board's website, which serves as the primary web portal for this subject matter for both agencies.

Challenges

- Despite budget and staffing challenges, the Board endeavors to meet the basic requirements of this duty, although this often requires staff overtime and leaves the Board unable to provide adequate consideration on all issues.
- There is continual need for species' status surveys and other research to inform the Board's listing decisions as well as all aspects of the IDNR's endangered and threatened species

conservation program, including regulatory applications. A dedicated and adequate budget would allow the Board to better address these needs.

Hold regularly scheduled business meetings open to the public

Accomplishments

- As of February 2012, the Board has held 153 regular meetings and maintained minutes for all meetings, with those for recent meetings made available via the Board's website.

Challenges

- The Board is challenged to conduct all administration necessary to hold quarterly meeting under current budget and staffing levels.

Produce and make available a report of accomplishments biennially

Accomplishments

- The Board has produced a report of accomplishments for every biennium since that ending in 1988.
- The two most recent reports are made available on the Board's website.

Challenges

- The Board has been challenged to produce these reports in the required timeframe, failing to meet the requirement for 9 of the 12 reporting periods. This requirement remains a challenge under current staffing levels.

The Department's mandates: accomplishments and challenges

Endangered and Threatened Species Possession Permits

Accomplishments

- Permits issued for justified purposes that will enhance the survival of the affected species by zoological, botanical or educational or for scientific purposes only, should by definition, help the species. A great deal of endangered and threatened species research and management is conducted by numerous individuals and institutions under such permits.

Challenges

- Information for the total number of endangered and threatened species possession permits issued, the number issued for any individual species, the number issued to any individual applicant, or the number of either type of permit issued in the 40 years of the program was not made available to the Board during the timeframe necessary for inclusion in this current document, making evaluation difficult. The information that was ultimately received will be used and analyzed as the Board and Department develop recommendations for improving this program.
- Other program practices may not contribute to, or may inhibit, the continued conservation or recovery of individual species, including:
 - o The inability to provide information about the permit status or history for individual applicants or for individual species.
 - o Permits are issued allowing propagation activities without the necessary plan in place describing the process and procedures for propagation and disposition of animals produced.
 - o Changes to the scope of activities allowed under an existing permit are made between the applicant and IDNR without the required follow-up of making amendment to the actual permit and securing new authorizing signatures.
 - o Permits are issued allowing the translocation of individuals of a species without an evaluation of how that translocation may negatively impact donor and/or receiving populations.
 - o Copies of required annual reports from holders of permits often do not make it to the Database to capture species occurrence and inventory data.

- The IDNR has been challenged for several years in accomplishing its duties by inadequate budget and staffing.

Endangered and Threatened Species Conservation Program

Accomplishments

- The program is split between the Offices of Resource Conservation, Divisions of Natural Heritage, Wildlife, and Fisheries, and the Office of Realty and Environmental Planning, Impact Assessment Section (IAS).
- The Division of Natural Heritage has primary responsibility for conducting endangered and threatened species habitat management, species monitoring, and recovery planning and implementation and houses an Endangered and Threatened Species Program, (including administration of Endangered and Threatened species Possession Permits and Endangered and Threatened Species Incidental Take Authorizations) and the Database.
- The Divisions of Wildlife and Fisheries engage in a variety of management and monitoring activities intended to contribute to the conservation of listed species.
- The IAS administers the Endangered and Threatened Species Consultation process.
- Additionally, the Commission contributes toward all responsibilities on properties in their programs.

Challenges

- The IDNR has been challenged for several years in accomplishing its duties by inadequate budget and staffing.
- The absence of a standard process or schedule for gaining advice from the Board as required for the active planning and implementation of the Department's Endangered and Threatened Species Conservation Program.
- It is estimated that there are \$4,000,000 in unmet stewardship needs for Illinois Nature Preserves alone, which support 26% of endangered and threatened species occurrences statewide.
- Over 1/3 of the 4,960 known endangered and threatened species occurrences in Illinois have not been surveyed in the last 10 years.
- Only 11 Board and Department approved species recovery planning documents have been developed by both agencies.

Endangered and Threatened Species Consultation

Accomplishments

- The IAS has developed a webpage explaining their program and the review processes it administers, issues the monthly on-line publication "Environmental Reporter" with brief descriptions of projects that have been reviewed through the consultation process, and developed a web-based tool (Ecological Compliance Assessment Tool – EcoCAT) to assist users in submitting projects for review and guiding them through the review process.
- During the period of 2000-2011, the IAS performed 60,982 total consultations. Information for consultations performed from 2000-2006, indicates the majority (95%) of consultations were closed after an initial review either because there were no resources in the vicinity or they were unlikely to be impacted by the action under review.
- During the period of 2000-2006, of 36,927 total consultations conducted, there were 442 consultations specifically for impacts to endangered and threatened species. Of those, 171 were performed for 67 plant species and 271 were performed for 43 animal species.

Challenges

- The IDNR has been challenged for several years in accomplishing its duties by inadequate budget and staffing.

Endangered and Threatened Species Incidental Take Authorization

Accomplishments

- For the period of 2001–July 2011, the IDNR issued a total of 202 incidental take authorizations (ITAs) involving 65 species (62 animals and 3 plants) on 158 projects.

Challenges

- Practices that may not contribute to, or may inhibit, the continued conservation or recovery of individual species, include:
 - o The absence of standards or criteria for evaluating whether a project under consultation is likely to result in take and should be referred to the IDNR ITA program.
 - o The lack of evaluation standards or criteria for determining that issuing an ITA and impacts to habitat and the potential taking from a project will not reduce the likelihood of the survival or recovery of the endangered or threatened species in the wild in Illinois, the biotic community of which the species is a part, or the habitat essential to the species' existence in Illinois.
 - o The inconsistent application of the legal requirements for minimizing and mitigating impacts upon the subject species and its habitat and for monitoring the effects of the project upon the subject species and its habitat.
 - o The lack of follow-up and monitoring to ensure that recipients of ITAs have met their legal responsibilities under the authorization and have submitted necessary progress and monitoring reports.
- The IDNR has been challenged for several years in accomplishing its duties by inadequate budget and staffing.

The Illinois List of Endangered and Threatened Species

Historical review, 1981-2011

- The first Illinois List was completed in 1981 and since then has undergone six revisions. During that time, the Board has listed a total of 644 species, with 78% listed as endangered and 22% as threatened, and with plants comprising 69%, and animals 31%, of the total.
- Overall, endangered and threatened species represent <1% of species native to Illinois. Due mostly to the vastly greater numbers of invertebrates and non-vascular plants as compared to vertebrates and vascular plants, a much greater proportion of Illinois' vertebrates (19%) and vascular plants (2%) are listed as compared to invertebrates (0.3%) and non-vascular plants (0.005%).
- The trend in the status of species since the enactment of the Act and development of the first Illinois List (where additions to the List since the first Illinois List are considered a decline), shows that status has been unchanged for 43%, improved for 19%, and declined for 38% of the 644 species ever listed. Once listed, the trend in status for the 644 species has been unchanged for 64%, improved for 19%, and declined for 17%.
- The majority of species (77%) have been listed because they occupy restricted habitats or exhibit low population levels in Illinois and another 15% have been listed because they were formerly widespread, but have been nearly extirpated in Illinois.
- A total of 160 species have been delisted by the Board; 46 animals and 114 plants. The largest proportion (48%) were delisted due to extirpation/extinction, followed by 26% as more common than previously thought, and 16% as being listed in error due to misidentification of specimens.
- It is estimated that 147 species have been extirpated from Illinois since about the mid-1800s, including 70 species from the time prior to, and 77 species from the time after, the Act became law and the Illinois List was developed. It is likely that many of the 77 delisted species may have actually been extirpated prior to, or shortly after, listing since 27% were known for only one occurrence in the state at the time of listing.
 - o Of the 77 species delisted as extirpated, those species that were restricted to private properties or streams, rivers, or Lake Michigan made up a greater proportion (66%) as compared with those that occurred solely on public properties (10%). Of the species

- occurring on public properties, those on Department lands experienced ½ as many extirpations as those on other public properties (such as those owned by County Forest Preserve Districts or the U.S. Forest Service).
- The majority of extirpated animals (79%) were aquatic species and the largest proportion of extirpated plants (47%) were associated with wetlands.
- Not surprisingly, extirpations were most associated with those parts of the state with the greatest concentrations of affected species and with the greatest pressures from development and habitat alteration/degradation.
- The reasons associated with the recovery of five species illustrate the complex nature of rare species management and underscore the importance of planning, partners, and coordinated and strategic implementation of recovery activities. Across the five species, protection and restoration of habitat and/or habitat quality was the most important factor in recovery, followed by reductions in other key threats such as environmental contaminants and unregulated harvest.

The current Illinois List (2011)

- There are 484 species (74% endangered and 26% threatened) on the current Illinois List, including 52 animals and 332 plants, and 20 federally listed species.
- Illinois endangered and threatened species are indeed rare. Approximately 60% of the 484 currently listed species have ≤5 occurrences in the state and approximately 80% have ≤10 occurrences in the state.
- The geographic areas of the state with the highest concentrations of endangered and threatened species reflect those with specialized habitats/natural communities associated with some of the more unique natural division sections and features in the state.
- There is great need for monitoring endangered and threatened species occurrences and habitats in Illinois. Of the 4,960 listed species occurrences in the state, 34% have not been surveyed in the last 10 years, and 46% have been surveyed, but not observed in the last 10 years.
- The importance of partners is again underscored with respect to protecting endangered and threatened species habitat. Fully 44% of listed species occurrences are known from properties in mostly private ownership and not known to be enrolled in a land protection program.
 - Another 22% of endangered and threatened species occurrences are found on Department properties (43% of which occur on properties dedicated as an Illinois Nature Preserve or registered as an Illinois Land and Water Reserve).
 - Other public properties support 30% of occurrences, with land owned by the U.S. Fish and Wildlife Service and U.S. Forest Service supporting 13% of listed species occurrences in the state and those owned by County Forest Preserve/Conservation Districts supporting 17% of occurrences (41% of which occur on properties dedicated as an Illinois Nature Preserve or registered as an Illinois Land and Water Reserve).

Conclusion:

This review suggests that after 40 years of implementation, the Illinois Endangered Species Protection Act has proven mostly successful at slowing species extirpations after the initial period following enactment and at providing a regulatory framework for protecting those species of plants and animals native to Illinois which are in danger of being lost from the wild in Illinois. The findings also aid in identifying those aspects of Illinois endangered and threatened species conservation that have been successful and those that warrant additional review, evaluation, and improvement. As stated above, the Board will use the findings of this review to identify ways to improve the efficiency and effectiveness of its programs, and will also develop in coordination with the Department similar recommendations to improve Department programs for consideration by that agency. In this way, the Board hopes to keep Illinois in the forefront of endangered and threatened species conservation, much as it was when the Act was first established in 1972.

PREFACE

The Illinois Endangered Species Protection Act (Act) was passed by the Illinois General Assembly in 1972. Shortly before the Act was to become effective on January 1, 1973, it became apparent that additional time was needed to prepare for its administration. Consequently, implementation was delayed until April 30, 1973, through an Executive Order signed by Governor Ogilvie, to allow time for appointment of members to the Endangered Species Protection Board (Board) and development of fiscal and operating procedures for administration of the Act. Despite the delay, this protective legislation for endangered species in Illinois predates the federal Endangered Species Act, which was passed by Congress in 1973. The timing of the Illinois legislation is an indication that our state was in the forefront of those concerned by the continued loss of species from our landscape.

From 1973–1986, nearly all administration and implementation of the Act was the responsibility of the Board and then in 1986 the Illinois Department of Conservation (now the Illinois Department of Natural Resources; Department) established an Endangered and Threatened Species program and assumed certain responsibilities. Since 1986, the Board and Department have cooperated in the administration of respective programs to implement provisions of the Act. In the 40 years since the Act was established, there have been several revisions to the Act, the Board's and IDNR's programs. Staffing and budgets have also changed, and there have been gains in the amount of available information and changes in our knowledge about rare species conservation. During that time, the Board has taken several opportunities for introspection of its performance, and viewed this current anniversary as an appropriate time to comprehensively quantify accomplishments and challenges relative to how well it has met its mission over the course of four decades: to protect those species of plants and animals native to Illinois which are in danger of being lost from the wild in the state.

So, it is upon the 40th anniversary of the ESPA that the Board identified the need to review the history and performance of the Act's provisions since no such review had previously been conducted by either the Board or the Department and assigned that task to its Director. Although challenged by budget and staffing shortfalls, the Board and its Director considered this project to be a priority, and so the majority of this effort was conducted on volunteer time. The result is this current volume. The Board plans to use information from this document to identify opportunities to improve its performance in conducting its mandates and duties under the Act. Additionally, in its mandated capacity of advising the Department, the Board will also develop in coordination with the Department recommendations to improve Department programs for that agency's consideration. The Board also hopes the document will serve as a valuable reference for members of Illinois' environmental and science communities and citizens with an interest in conserving Illinois' endangered and threatened species.

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In addition to those involved with the production of the document itself, countless individuals have contributed, through vocation or avocation, to various aspects of Illinois endangered and threatened species identification, research, protection, management, and recovery. A partial listing of those who have contributed over the years includes: the volunteer experts who have assisted the Board with the development of the first Illinois List of Endangered and Threatened species and subsequent revisions; IDNR, especially the field staff of the Office of Resource Conservation; Illinois Department of Transportation; Illinois Nature Preserves Commission; U.S. Army Corps of Engineers; U.S. Fish and Wildlife Service; U.S. Forest Service; multiple County Forest Preserve/Conservation Districts (Boone, Champaign, Cook, DuPage, Kane, Lake, Macon, McHenry, Vermillion, Will, and Winnebago); non-governmental organizations such as Chicago Wilderness, Illinois Audubon Society, Illinois Native Plant Society, Natural Area Guardian groups, Natural Land Institute, The Nature Conservancy, Openlands, and Prairie Rivers Network; and, researchers and managers from Augustana College, Brookfield Zoo/Chicago Zoological Society, Chicago Botanic Garden, Eastern Illinois University, Field Museum, Lincoln Park Zoo, Illinois Natural History Survey, Illinois State Museum, Illinois State University, Knox College, Morton Arboretum, Northern Illinois University, Northeastern Illinois University, Shedd Aquarium, Southern Illinois University, University of Illinois, and Western Illinois University.

Finally, the Board thanks IDNR Director Marc Miller, and Assistant Director Johh Rogner, for their general support in reinstating the Board's budget-line in 2010, thus enabling the Board to restore some capacity for all of its functions, including this current effort.

INTRODUCTION:

WHY DO WE PROTECT ENDANGERED AND THREATENED SPECIES?

Those who work with endangered and threatened species often hear questions and comments such as “Why do we spend our money to protect these plants and animals?” or “Who cares about most of these species? They aren’t good for anything.” or “So what if a fish disappears from the Mississippi River? Most people will never see one anyway.”

There are many good reasons to protect all species of plants and animals. Special attention is given to those that have become very rare in order to prevent their complete elimination from our environment. The reasons we put forth a large effort to protect these species range from practical to spiritual and from utilitarian to aesthetic. Each person interested in the preservation of plants and animals has his or her own reasons, but some of the more widely expressed motivations include:

- 1) Any species of plant or animal may someday provide a product or service that is valuable to humans. We cannot predict what food, fibers, chemicals, or other products can be obtained from “wild” plants and animals in the future. The loss of species may eliminate potential human benefits.
- 2) Plants or animals can serve as early indicators of environmental problems that are potentially dangerous to humans. The variable sensitivity of different species to contaminants allows them to act as environmental monitors, alerting us to the fact that something is wrong in our world.
- 3) Every plant or animal species contributes to the stability of the ecosystem of which it is a part. This ecological concept is often compared to a house of cards. A house with many components is much more difficult to disrupt than one having a few basic elements. There is also a complex network of relationships among the parts. No plant or animal exists independently of all others. The loss of ANY species has effects on the other species that have evolved along with it.
- 4) Each species is the result of untold ages of evolution and has a right to continue to exist. Many people feel that it is morally wrong for humans to be the cause of the extinction of a species or to allow a species to disappear if human intervention could save it.
- 5) The loss of any plant or animal species diminishes the natural beauty of the earth. The existence and interaction of diverse life forms brings pleasure to those who take time to observe the species around them.

Whatever your reasons, we know you will agree that the protection of endangered and threatened species in Illinois is an important and necessary task in the future.

THE IMPORTANCE OF PARTNERS

The importance of partners in endangered and threatened species conservation in Illinois cannot be overemphasized. A partial listing of partners is included in the *Acknowledgements* section and partners are also discussed in individual sections throughout this document, but here are a few highlights:

- Indeed, it was due to the collective interest and efforts of many agencies, institutions, non-governmental organizations, other constituent groups, and numerous individuals that the Illinois

Endangered Species Protection Act (ESPA/Act) of 1972 was the first such state law in the nation and preceded the federal Endangered Species Act by a year.

- Over 60 volunteer species experts and researchers assisted the Endangered Species Protection Board (ESPB/Board) with the multi-year project that developed the first Illinois List of Endangered and Threatened Species (Illinois List) in 1981. Since then, another 72 volunteer experts have assisted the ESPB in six reviews and revisions of Illinois List.
- Of the properties supporting the 4,960 endangered and threatened species occurrences in Illinois, 22% are owned by the Illinois Department of Natural Resources (IDNR/Department), 17% are owned by County Forest Preserve/Conservation Districts, 13% are owned by the U.S. Fish and Wildlife Service and U.S. Forest Service, and 48% are owned by mostly private landowners.
- Many of the same landowners mentioned above take on the responsibility for the day-to-day management of the endangered and threatened species and their habitats that occur on their land.
- Habitats supporting over 26% of endangered and threatened species occurrences in Illinois have been protected as either an Illinois Nature Preserves or Illinois Land and Water Reserves by multiple state and county land management agencies, non-governmental organizations, and private landowners.
- Partners other than the ESPB, IDNR, and Illinois Nature Preserves Commission (INPC/Commission) are responsible for approximately 50% of the endangered and threatened species occurrence information that is reported to the IDNR Natural Heritage (Biotics 4) Database (Database). Data in the Database is used to support all aspects of the ESPB's Illinois List review activities; IDNR's endangered and threatened species conservation program, including possession permits, consultations, and incidental take authorizations; natural area protection by the IDNR and INPC; and, species recovery planning by all three agencies.
- Over decades, the ESPB and IDNR have utilized multiple funding sources to support hundreds of research projects performed by species experts from various institutions in the state to answer questions of individual species' status, distribution, and biology that are necessary for listing decisions and to facilitate conservation and recovery.

PART 1: A REVIEW OF THE ACT AND PERFORMANCE OF ITS MAJOR PROVISIONS

Evolution of endangered and threatened species law in Illinois

The Illinois ESPA was passed by the Illinois General Assembly in 1972. The stated purpose of the Act was "...to prohibit the transfer, sale and possession of products or skins of animals in danger of extinction, to create a Board to determine which species are endangered and to provide penalties for the violation thereof, and to make appropriation therefor." Shortly before the Act was to become effective on January 1, 1973, it became apparent that additional time was needed to prepare for its administration. Consequently, implementation was delayed until April 30, 1973, through an Executive Order signed by Governor Ogilvie, to allow time for appointment of members to the Board and development of fiscal and operating procedures for administration of the Act. Despite the delay, this protective legislation for endangered species in Illinois predates the federal Endangered Species Act, which was passed by Congress in 1973. The timing of the Illinois legislation is an indication that our state was in the forefront of those concerned by the continued loss of species from our landscape.

Illinois has come a long way in its ability to protect our endangered resources since the passage of the ESPA in 1972. From the early recognition of the need to determine which species were in trouble, we have progressed in our ability to actually provide protection for those species.

The original version of the Act protected animals but not plants, and only established one category of rarity: that of “Endangered.” In 1977, amendments to the Act added a “Threatened” category and included plants as well as animals, but still left the Act lacking in many respects. There were no prohibitions regarding threatened animals as there were for those classified as endangered, and plants were protected in no way at all – they were simply enumerated as threatened or endangered.

More comprehensive revisions to the ESPA were passed in 1985 and went into effect in 1986, giving much clearer protections for endangered species and their habitats than we had previously seen. Indeed, Illinois was among the first states to attempt to protect endangered species’ habitats through legislation. The 1986 amendments provided equal protections for both threatened and endangered animal species. The term “animal” was specifically defined to include both vertebrates and invertebrates and some protection was added for listed plants, prohibiting certain actions which involved the taking, transporting, or selling of those species. For the first time, a regularly scheduled review and revision of the Illinois List was required (every 5 years), ensuring that it is kept up-to-date with the actual status of those species in the wild. A significant amendment from 1986 stresses the commitment of agencies of state and local government in Illinois to the protection of endangered species. This policy of supporting the purposes of the Act is accomplished by evaluating, through a process of consultation with the IDNR, whether actions authorized, funded, or carried out by those agencies “are likely to jeopardize the continued existence of Illinois listed endangered and threatened species or are likely to result in the destruction or adverse modification of the designated essential habitat of such species...”.

In 2000, the Act was further amended, resulting in the current Act (Appendix C), by the addition of provisions allowing the IDNR to authorize incidental taking of Illinois listed endangered and threatened species under prescribed terms and conditions. The amendment stipulates that the taking must be incidental to, and not the purpose of, the carrying out of an otherwise lawful activity and requires that applicants submit a conservation plan to the IDNR.

Major provisions of the ESPA in the order they were adopted for the ESPB and the IDNR: responsibilities and performance

The ESPB and IDNR are the state agencies charged with primary responsibilities of endangered and threatened species listing and conservation in Illinois. Each agency has some unique mandates under the ESPA and several that overlap and they try to work together in accomplishing their duties. Statutory mandates are often discussed with respect to whether they are a “shall” or a “may”; where respective units of government are required under the law to perform the “shall” mandates and are allowed under the law to perform the “may” mandates. For example, all five of the Board’s mandates are “shalls” (the Board is required to perform them). Of the Department’s four mandates, two (to have an Endangered and Threatened Species Conservation Program and to provide an Endangered and Threatened Species Consultation process) are “shalls” (the Department is required to perform them), and two (Endangered and Threatened Species Possession Permits and Endangered and Threatened Species Incidental Take Authorization) are “mays”, where the Department may (but is not required to) issue a respective permit or authorization. The scope and details of respective mandates have evolved over the history of amendments to the ESPA and this section reviews the Act’s major provisions and mandates, both “shalls” and “mays”, for each agency. For additional reference, the mission statements for each agency follow:

ESPB mission statement

To protect those species of plants and animals native to Illinois which are in danger of being lost from the wild in Illinois.

IDNR mission statement

To manage, conserve and protect Illinois' natural, recreational and cultural resources, further the public's understanding and appreciation of those resources, and promote the education, science and public safety of Illinois' natural resources for present and future generations.

ESPA provisions and mandates of the ESPB (year added to the Act)

Establishment of Illinois Endangered Species Protection Board (1972)

Though its provisions were limited, the original ESPA required establishment of the Board and prescribed some requirements for member composition (520 ILCS 10/6). The duties of the Board were described as "...to determine which species are endangered and to provide penalties for the violation thereof..."

Because much of the interest in species decline at the time was focused on the harvest of exotic furbearers, the Act originally required that three of the nine-member, volunteer, Governor-appointed Board be representatives of the fur industry. The remaining six members were to be naturalists. More recently, 1986 amendments to the ESPA specified that the six naturalist positions on the Board are to include two zoologists, two ecologists, and one botanist, while the background and interests of the remaining three members is no longer specified. The ESPA also stipulates that the Director of the IDNR serve as a non-voting member. The redefined composition of the Board is a reflection of the changing emphasis of endangered species programs, and ensures a high degree of professionalism within the Board.

Information used to describe program performance

ESPB staff used the following information to review the Board's performance in establishing the Board and maintaining qualified membership: ESPA; ESPB files; ESPB Biennial Reports from 1986-2010; and, ESPB meeting minutes from 1973-2011.

Program performance

Board Members

Since 1973, there have been a total of 40 members appointed to the ESPB, spanning 8 IDNR Directors as ex officio members (Table 1). Member's professional affiliations (some prior to membership) have included the Chicago Botanic Garden, DuPage County Forest Preserve District, Eastern Illinois University, Field Museum, Illinois Audubon Society, Illinois Department of Natural Resources, Illinois Endangered Species Protection Board, Illinois Natural History Survey, Lincoln Park Zoo, The Nature Conservancy, Southern Illinois University, and Western Illinois University. Members serve three-year terms, there are no term limits, and they serve without compensation, but receive reimbursement for expenses incurred in the performance of their duties. The Board utilizes a long-standing process for reviewing qualifications of, and making recommendations to the Governor's Office for, new member nominees. Beginning in 2010, Governor Quinn established a required self-nomination web-tool at Appointments.Illinois.Gov for all state Boards and Commissions that is administered by the Governor's Office of Executive Appointments, and the Board continues its nomination process as supplemental to that on-line process.

In general, appointed members have demonstrated considerable dedication to the business of the Board; of the 40 appointed members, 40% served from 1-5 years, 25% served from 6-10 years, 10% served from 11-15 years, 17.5% served from 16-20 years, and 7.5% served over 20 years. Another measure of their commitment is illustrated by the fact that on multiple occasions, several members have continued to serve on expired terms (sometimes for years) awaiting reappointment.

Board Staff

(520 ILCS 10/6) of the ESPA allows the Board to employ staff and it has employed a total of 10 staff since 1978 (Table 1). Board staff perform all functions necessary to support and implement the business of the Board: holding Board meetings; performing the review and revision of the Illinois List; developing advice for the Department, and reviewing and commenting on various Department documents on the conservation of listed species; responding to inquiries and requests for information about endangered and threatened species conservation, regulations, and law from state and federal agencies, academic and research institutions, the media, and the public; producing educational information and materials; and performing all, day-to-day operations of the Board. Board staff, or volunteer Board members during times when the Board did not have staff, have largely met the basic requirements for performing all of these functions. However, there have been shortcomings in several areas and in particular, office procedures for data storage and maintenance have been inadequate for the Board to maintain a detailed administrative record of many functions or robust files of information about general biology, survey results, research prescriptions, emerging threats, and results of management and recovery activities taking place for individual species.

For the period of 1973-1978, instead of hiring staff, the Board utilized a liaison within the Department who, although the Department had no program for such, was responsible for all non-game and endangered species matters. The first Board staff person (Endangered Species Coordinator) was hired in 1978 and by 1986 the Board had added a Project Manager and Office Coordinator. In the 1990s, the Endangered Species Coordinator position was replaced by an Executive Director position and other title changes followed. Currently, the Board has four staff positions; Executive Director, Listing Coordinator, Recovery Coordinator, and Executive Secretary. For the period of 2002-2006, the Board had only two part-time contractual staff and from 2007- November, 2008 the Board had no staff. As of April 2012, the Board is staffed at 25%, with only the position of Executive Director filled, while the other three positions (75%) were vacant.

The Board has for many years been challenged in accomplishing its duties, including the activities associated with administering Board member appointments, by inadequate budget and staffing. Under these circumstances, the required duties of establishing and maintaining the Board and necessary staff represent an underfunded mandate. If the Board had the necessary resources, it would be better able to meet all of its statutory requirements. This is discussed further in each subsequent section reviewing Board performance of its mandates.

Table 1. A list of all Board members and staff since the Board's inception.

IDNR Directors – ex-officio members (their designees)		
Henry N. Barkhausen	1973 – 1973	
Anthony T. Dean	1973 – 1976	
David Kenney	1977 – 1984	
Mark Frech	1987 – 1991	
G. Brent Manning	1991 – 2003	(Designee, Deputy Director Jim Garner)
Joel Brunsvold	2003 – 2005	(Designee, Deputy Director Leslie Sgro)
Sam Flood (Acting)	2005 – 2009	(Designee, Deputy Director Leslie Sgro)
Marc Miller	2009 -	(Designee, Assistant Director John Rogner)
Appointed Board members		
Dr. William Beecher	1973 – 1974	
Dr. Lester Fisher	1973 – 1974	(Chair 1973-1974)
Daniel Navid	1973 – 1975	
Robert Herbin	1973 – 1976	
Dr. John Warnock	1973 – 1976	
James Phelps	1973 – 1978	
Richard Wagner	1973 – 1981	
Dr. Willard Klimstra	1973 – 1987	(Vice Chair 1978-1987)

Joseph Poppie	1973 – 1991	(Chair 1977-1991)
Dr. Richard Andrews	1976 – 1978	
Ann Broman Fisher	1976 – 1993	
Ray Pawley	1976 – 1993	
Dr. William Southern	1976 – 1993	(Secretary 1978-1993)
Dr. William Schwab	1978 – 1982	
Curtis Mason	1978 – 1988	
Dr. Johanna Clausen	1979 – 1987	
Irwin Ware	1982 – 1985	
Dr. Larry Jahn	1982 – 2001	(Vice Chair 1993-1996, Chair 1996-2001)
Jon Ellis	1985 – 1996	(Vice Chair 1987-1991, Chair 1991-1996)
Dr. Alan Woolf	1988 – 1996	
Darlene Fisk	1988 – 2002	
Dr. John Ebinger	1988 – 2008	(Vice Chair 2001-2008)
Judy Dolan Mendelson	1988 – 2005	
Dr. Ed Moll	1993 – 1999	
Dr. Scott Robinson	1993 – 1999	
R. Dan Gooch	1993 –	(Vice Chair 1996-2001, Chair 2001-present)
Mike Beebe	1996 – 1999	
John Clemetsen	1996 –	(Secretary 2001-2006, 2010-present)
Dr. Richard Anderson	2002 – 2004	
Marilyn Campbell	2002 – 2010	(Vice Chair 2008-2010)
Dr. James R. Herkert	2002 – 2009	
Susanne Masi	2002 –	
Dr. Chris Phillips	2002 – 2009	(Secretary 2006-2009)
Dr. Tom Nelson	2005 – 2008	
Dr. Mike Retzer	2005 – 2011	
Dr. John Taft	2008 –	
Glen Kruse	2009 –	(Vice Chair 2011-present)
Dr. Joyce Hofmann	2010 –	
Dr. Jeffery Walk	2010 –	
Laurel Ross	2010 –	
Board staff:		
Carl Becker, Endangered Species Coordinator	1978 – 1980	
Mike Sweet, Endangered Species Coordinator	1981 – 1985	
Sue Lauzon, Program Coordinator/Executive Director	1985 – 2002	
Glen Kruse, Project Manager	1986 – 1990	
Sherrie Elzinga, Office Coordinator	1986 – 1991	
Dr. James R. Herkert, Listing Coordinator	1991 – 2001	
Janet Boyer, Part-time Secretary	1994 – 2006	
Tammie McKay, Part-time Administrative Assistant	2002 – 2003	
Randy Nyboer, Contract Part-time Program Manager	2003 – 2007	
Anne Mankowski, Executive Director	2008 –	

Maintain the Illinois List of Endangered and Threatened Species (1972)

The original ESPA empowered the Board to designate endangered animal species and several revisions to the Act added a threatened category, added plants, and required the Board to conduct a regular review of Illinois List. The current ESPA requires that the Board shall review and revise the Illinois List as warranted, but in no case less frequently than every 5 years (520 ILCS 10/6). Section 520 ILCS 10/7 prescribes some criteria and a process for the review and revision of the Illinois List including the requirements for the Board to hold a public hearing prior to listing, delisting, or changing the status of state-listed species, and for consulting with and gaining written approval by the Department in accordance with the Illinois Administrative Procedure Act. The Illinois List is actually promulgated as two separate Illinois Administrative Rules; the Illinois List of Endangered and Threatened Fauna (Title 17 ILL. ADM. CODE, CH. I, SEC. 1010) and the Illinois List of Endangered and Threatened Flora (Title 17 ILL. ADM. CODE, CH. I, SEC 1050). (See also, *Part 2: A review of the Illinois List of Endangered and Threatened*

Species, beginning page 35, for more details on the process, reasons for listing and delisting, a comprehensive review of the history of the Illinois List, and related information.)

The ESPB and its technical expert consultants

Another indication of the professional nature of the Board is its interaction with Illinois scientists who are experts on various taxonomic groups of plants and animals and who volunteer to assist the Board as consultants in the review of the Illinois List and in providing recommendations for areas or species requiring additional research or data collection.

The Board identified early on that it needed input from subject matter experts as it made listing decisions. At its 24th Meeting, November 16, 1979, the Board authorized formation of 5 technical advisory committees (ESPB TACs) as unofficial bodies and made up of volunteer experts representing expertise in different taxonomic areas, one each on mammals, birds, reptiles and amphibians, fishes, and plants. An ESPB TAC on invertebrate animals was authorized at the 42nd Meeting, April 29, 1983. At its 153rd Meeting, February 17, 2012, the Board identified that it did not have adequate staff and funding to administer a List review process in compliance with the Open Meetings Act (OMA) that used the traditional volunteer committees in the same manner as had been previously done. The Board reviewed that requirements of the OMA would necessitate considerable training of all volunteer experts and multiple meetings for each ESPB TAC, including posting required notices and production of minutes for each, and that the administrative burden was untenable. Based on that review, the Board elected to eliminate the ESPB TACs. At the same meeting, the Board identified a process by which Board staff would engage in communication with individual technical expert consultants (ESPB TECs) to assist in conducting the review of the Illinois List and any group discussion involving the ESPB TECs would take place as an agenda item at an ESPB business meeting.

During the development of the first Illinois List, 60 individual volunteer experts were enlisted to provide review and advice about the status of various species. The composition of the whole body of experts enlisted by the Board has changed over time and with each review of the Illinois List, with a total of 132 individual experts assisting the Board from the mid-1970s through the 2009 List revision. Appendix D includes a list of Board members, Board staff, and volunteer technical expert consultants that participated in the development of the first Illinois List and each List review and revision.

Information used to describe program performance

ESPB staff used the following information to review the Board's performance in maintaining the Illinois List: ESPA; ESPB files; copies of Illinois Administrative Rules Title 17 ILL. ADM. CODE, CH. I, SEC. 1010, Illinois List of Endangered and Threatened Fauna, from 1977-2011, and Title 17 ILL. ADM. CODE, CH. I, SEC. 1050, Illinois List of Endangered and Threatened Flora, from 1980-2009; ESPB Endangered and Threatened Species: Status and Distribution publications (Bowles, et al 1981; Herkert 1991; Herkert 1992; Herkert 1994; Herkert and Ebinger 2002; Nýboer and Ebinger 2002; Nýboer, et al 2006; Mankowski 2010); ESPB Biennial Reports from 1986-2010; and, ESPB meeting minutes from 1973-2011.

Program performance

In addition to the brief summary below, see also, *Part 2: A review of the Illinois List of Endangered and Threatened Species*, beginning page 35, for more details on the process, reasons for listing and delisting, a comprehensive review of the history of the Illinois List, and related information.

When the ESPA was enacted in 1972, it simply adopted by reference those species listed at the time under the Federal Endangered Species Preservation Act of 1966, US Department of Agriculture, Interior, and Defense (the predecessor to the federal Endangered Species Act of 1973). The first Illinois List is most often attributed to 1981, which is when the Board produced the first status and distribution book, but the

respective Administrative Rules that promulgated the lists were actually completed in 1977 and 1980 for animals and plants, respectively. (For ease of reference throughout most of this current document, the year of the first Illinois List will simply be cited as 1981.) The Board made amendments to the Illinois List in 1984 to add a group of federal species, and then following the 1986 ESPA amendment requiring five-year reviews, conducted review and revision of the Illinois List in 1989, 1994, 1999, 2004, and 2009. In addition to these major reviews and revisions, there have been several amendments to the Illinois List due to typographic and editorial corrections, changes regarding federally-listed species, and a few changes regarding Illinois-listed species (Table 2). In each revision that changed status for Illinois-listed species, a public hearing was held prior to the Board finalizing the revision. The Board makes available the current Illinois List in a *Checklist of Illinois Endangered and Threatened Species* on its website at <http://www.dnr.illinois.gov/ESPB/Pages/default.aspx>.

Table 2. The first Illinois List of Endangered and Threatened Species and revisions, 1972-2011.

List date	Animals	Plants	Total species
1972	Adopted by reference, species listed under the Federal Endangered Species Preservation Act of 1966	-	Adopted by reference, species listed under the Federal Endangered Species Preservation Act of 1966
1977	72	-	436
1980	-	364	
1984	81	-	445
1989	144	359	503
(1990)	-	359	503
(1991)	-	Change in definitions	503
1994	148	363	511
(1997)	147	-	510
1998	-	341	478
1999	137	-	
2004	139	334	483
2009	151	332	483
(2010)	Editorial	-	483
(2011)	152	-	484

Notes: **Years in bold type** = major/5-year List revision; (Years in parenthesis) = other changes or editorial corrections, but not considered a List revision.

The process for conducting the 5-year review and revision of the Illinois List has become fairly well established and effective over the course of the six major List revisions. However, over that same time period, the Board has identified several issues and program practices that do not contribute to effective and efficient listing of species nor to the conservation of species once they are listed, including:

- The Illinois List does not clearly identify that all federally listed species are provided legal protections in Illinois, including both those that occur in the state and those that do not. This is confusing to users of the list and confounds the regulatory and enforcement administration of the Act.
- The Board often lacks sufficient data to accurately characterize the population status and trends for individual species – before, during, or after listing. The Illinois Natural Heritage (Biotics 4) Database is the primary data source used by the Board and it contains information sufficient to assess the trend in reported occurrences of listed species, but often does not include information about individual population numbers or demographics. The Database also does not track occurrences of species not designated as endangered or threatened and the Board must make listing decisions based on other information sources. Additionally, information about species' biology and threats is typically not included in the Database. Board staff compiles species information as time and resources allow, but the Board does not have an established process or

schedule for accessing other sources of information to maintain the most accurate and complete information possible for each species.

- The Board's process for evaluating species during the 5-year review would benefit from a more robust and standardized analytical approach. In general, the Board has made an effort to increase the rigor of the process in each List review and revision; however, the Board was required to largely conduct the last two 5-year reviews without staff and relied greatly on the volunteer efforts of technical experts with whom it consults. While the somewhat ad hoc process that resulted did satisfy the Board's legal burden for basing listing decisions on scientific evidence, it lacked standardized rigor across taxonomic groups and did not produce documentation necessary for the Board to use in further evaluating the progress made for each species since listing and for developing status review trigger and recovery information for each species.
- The functionality of the Illinois List as it translates to the overall conservation of listed species would benefit from the Board establishing status review criteria and recovery goals, and identifying essential habitat, for each species either at the time of listing or shortly thereafter. In this way, all conservation actions for individual species could be better prioritized and directed toward clearly defined status thresholds and recovery strategies, and environmental reviews would be better informed.

The Board has been challenged in accomplishing its duties for many years by inadequate budget and staffing. Under these circumstances, the required duty of maintaining the Illinois List represents an underfunded mandate. While it has met the basic requirements of this duty, due to lack of staffing, the Board must rely greatly on the efforts of volunteer experts and staff overtime to meet its legal requirement of basing listing decisions on scientific evidence. If the Board had the necessary resources, this specific requirement would be better met and all aspects of maintaining the Illinois List (administration, research, documentation, and making information more available to the public) would be improved.

Advising the IDNR on the conservation of endangered and threatened species (1972)

In the original Act, the Board had an oversight role for all provisions of the Act, including those administered by the IDNR. There have been changes to the Board's role over the years and the Board's current role of advising the IDNR on the conservation of endangered and threatened species is referenced multiple times in the ESPA and Illinois Administrative Rules that support it. Program performance is described below for each reference.

Information used to describe program performance

ESPB staff used the following information to review the Board's performance in advising the Department on the conservation of endangered and threatened species: ESPA; ESPB files and information gained in the course of day-to-day operations; ESPB Biennial Reports from 1986-2010; and, ESPB meeting minutes from 1973-2011.

Program performance

520 ILCS 10/6: Section 6 of the ESPA requires that the Board advise the Department on methods of assistance, protection, conservation, and management of endangered and threatened species and their habitats, and on related matters. The Board and its staff have provided this type of advice to the IDNR in a number of capacities over the years.

- 1) On an ongoing basis, Board staff provide to IDNR advice and assistance on various aspects of endangered and threatened species research, management, recovery projects and documents, policy, regulation, and law.
- 2) The Board conducts, and when funding is available, contracts surveys and research to answer questions about species' status or biology that will inform the Board about listing decisions and in

advising the IDNR about conservation and recovery strategies. Information from Board surveys and research is also shared with the IDNR and submitted to the IDNR Natural Heritage (Biotics 4) Database so that it is considered by the IDNR in the course of reviews for endangered and threatened species consultation, incidental taking, and possession permits, and for recovery planning. As is discussed in several other places in this volume, there is considerable need for status surveys for both listed species and for unlisted species that are under consideration for listing.

- 3) Board staff have taken the lead, or assisted the IDNR, in the development of several species recovery planning documents (see also *Part 2, Recovery planning*, page 55). Board staff managed a State Wildlife Grant project to develop and implement a recovery plan for the Barn Owl in Illinois (SWG project T-35-P-1, completed in 2010) and is currently co-managing with IDNR a project to develop a recovery plan for the Blanding's Turtle in Illinois. Only four species recovery plans, and seven other species recovery planning documents, have been produced and approved by the ESPB and IDNR. The development of ESPB/IDNR approved recovery plans to date has been insufficient and would benefit from being better prioritized and a greater overall priority for both agencies.
- 4) Ensuring that species location data in the IDNR Natural Heritage (Biotics 4) Database (Database) is current and accurate is important for the most effective and efficient performance of all programs that use the Database, including the ESPB for the Illinois List review and recovery planning and the IDNR endangered and threatened species consultation and incidental take authorization reviews and recovery planning. As of December 2011, there were 4,960 endangered and threatened species occurrences in the Database; 1,691 (34%) of those occurrences had not been surveyed and 2,286 (46%) had surveyed, but not observed within the last 10 years (see also *Part 2, How are we doing at monitoring?*, page 60, for more details). Recognizing the need to resurvey these occurrence locations as a priority, ESPB staff provided the lead in developing a cooperative multi-year project with the IDNR and securing funding to contract surveys around the state to update the information.
- 5) In addition to advising the IDNR, the Board assists the IDNR in many ways. The Board's website serves as the primary portal for all endangered and threatened species information from both the Board and IDNR that is made available to the public via the IDNR's website. Board staff also assist the IDNR in handling questions and inquiries from the public and other state and federal agencies about endangered and threatened species biology, status, management, regulation, law, and policy. Although the Board's staff currently consists of only its Director, in recent years, that single staff person has handled about 400 such inquiries annually.

520 ILCS 10/4 requires that the IDNR consult with and gain written approval from the Board prior to promulgating Administrative Rules for the issuance and maintenance of IDNR endangered and threatened species possession permits. This Administrative Rule was established in 1989 and amended in 1990, 1991, 1993, 1994, and 2003. ESPB files indicate the Board provided consultation and written approval of the initial Administrative Rule and amendments in 1990 and 1991, but there is no evidence of the same for the last three amendments and part of this time-period is the same time when the Board had only part-time clerical or no staff during the last three amendments. Since the Board gained a full-time Director in 2008, the Board has provided advice to the IDNR regarding revising standards for the issuance of permits for propagation of endangered and threatened animal species, establishing policy regarding the use of verbal authorizations or changes to written permits, and for the development of a jointly approved policy for the translocation of endangered and threatened animal species.

520 ILCS 10/11 requires that the IDNR seek advice of the Board as it actively plans and implements its program for the conservation of endangered and threatened species. Both the ESPB and IDNR are challenged with staffing and budget constraints in implementing respective program responsibilities. There is incidental coordination between the agencies regarding the planning and implementation of the

IDNR's program; however, there is no standardized schedule or process for such coordination to take place, which often reduces the functional efficiency and effectiveness of the advice. Some of the types of incidental advice provided by the ESPB to the IDNR are described in other parts of this section and in the IDNR program sections below.

17 ILL. ADM. CODE, CH. I, SEC. 1080.40: The Administrative Rule for incidental taking of endangered or threatened species requires that prior to issuing authorization for incidental taking, the IDNR seek advice of the Board and provide written response to any Board comments regarding the issuance of authorization for incidental taking and on the terms of any authorization to be issued. This Administrative Rule was established in 2001 and from 2001–2008, the Board had only limited part-time or no staff, so had compromised ability to provide review, comment, and advice to the IDNR on individual authorizations and a process for coordinating the required review, comment, and response to comments between the IDNR and Board was not established. Since the Board gained a full-time Director in 2008, it has provided considerable advice to the IDNR about incidental taking, individual authorizations, and the process for coordinating review, comment and response to comments, between the IDNR and Board. See the section below describing the *IDNR's Endangered and Threatened Species Incidental Take Authorization program* (page 32) for more detailed information about ESPB advice to the IDNR regarding incidental taking of endangered and threatened species.

Due to inadequate budget and staffing, the Board has been challenged in accomplishing its duties for many years. Under these circumstances, the required duty of advising the IDNR on the conservation of listed species and related matters represents an underfunded mandate. Despite the lack of necessary resources, the Board has continued efforts to meet the basic requirements of this duty, although this often requires staff overtime and still leaves the Board unable to provide adequate consideration on all issues. The overall conservation and recovery of endangered and threatened species would certainly benefit from the Board having additional professional staff and funding for research to better inform management decisions and more strategically dedicate available resources toward such efforts and activities.

Regularly scheduled business meetings open to the public (1972)

Though originally required to convene only once a year, a 1986 amendment to the Act now requires the Board to meet no less than quarterly (520 ILCS 10/6).

Information used to describe program performance

ESPB staff used the following information to review the Board's performance in holding regularly scheduled business meetings open to the public: ESPA; ESPB files; ESPB Biennial Reports from 1986-2010; and, ESPB meeting minutes from 1973-2011.

Program performance

As of February 2012, the Board has held 153 regular meetings. In 1995, the General Assembly passed the Open Meetings Act (OMA) (5 ILCS 120/) and the Board has since complied with requirements of the OMA in conducting Board business and holding meetings. For many years, the Board rotated the location of its meetings between several different locations in the state. Beginning in 2010, the Board elected to hold all meetings at one location central to its members (currently, Midewin National Tallgrass Prairie, Wilmington, Illinois), in order to reduce member travel costs and overall operating expenses. A current-year schedule of regular meetings and agendas and minutes for those meetings are posted to the Board's website at <http://www.dnr.illinois.gov/ESPB/Pages/default.aspx>.

The Board has been challenged in accomplishing its duties for many years by inadequate budget and staffing. Under these circumstances, the required duty of holding at least quarterly business meetings that meet the requirements of the Open Meetings Act represents an underfunded mandate. The Board's lack

of administrative support staff has made this duty a challenge for many years and during the times when the Board had no staff, the burden fell solely on the volunteer Board members. During the times when the Board has had only partial staffing, accomplishing this duty often requires staff overtime and the Board's professional staff to divert time away from other mandated activities. If the Board had the necessary resources, it could better meet this requirement without diverting time away from other mandated duties.

Biennial report of accomplishments (1986)

The ESPA requires that the Board shall prepare and make available a report of its accomplishments biennially (520 ILCS 10/6).

Information used to describe program performance

ESPB staff used the following information to review the Board's performance in producing and making available a report of accomplishments biennially: ESPA; ESPB files; ESPB Biennial Reports from 1986-2010; and, ESPB meeting minutes from 1973-2011.

Program performance

While the Board has completed the subject reports, it has not always done so in the required timeframe. The first biennial report of accomplishments was prepared and made available for the period of July 1986 to June 1988. Biennial reports were not prepared by staff for the biennia ending in 1990, 1992, 1994, 1996, 1998, and 2000. In order to meet its obligation under the law, a second report was eventually prepared by volunteer Board members and made available for the period of July 2000-June 2002 and included a recap of highlights of the previously omitted biennia. During the period from 2002-2006, the Board had no budget and only part-time contractual or no staff and did not produce additional reports. Beginning in November 2008, a full-time Executive Director was hired and in the spring of 2009, the Executive Director completed a report for the period of July 2006-June 2008 and including recapping highlights for previously omitted biennia ending in 2004 and 2006. A report of accomplishments for the period of July 2008- June 2010 was completed by staff at the conclusion of that biennium. Copies of the July 2006-June 2008 (with addenda covering the biennia ending in 2004 and 2006) and July 2008-June 2010 biennial reports are posted to the Board's website at <http://www.dnr.illinois.gov/ESPB/Pages/Publications.aspx>.

Due to the lack of adequate staffing and budget for many years, the Board has been challenged in accomplishing its duties. Under these circumstances, the required duty of producing and making available a report of accomplishments biennially represents an underfunded mandate. The Board's lack of administrative support staff has made this duty a challenge for many years and during the times when the Board had no staff, the Board was unable to meet this requirement without the burden falling to the volunteer Board members. During the times when the Board has had only partial staffing, accomplishing this duty often requires the Board's professional staff to divert time away from other mandated activities. If the Board had the necessary resources, it could better meet this requirement without diverting time away from other mandated duties.

ESPA provisions and mandates of the IDNR (year added to the Act)

Endangered and Threatened Species Possession Permits (1972)

The Office of Resource Conservation, Division of Natural Heritage (ORC DNH) administers the IDNR program for permitting the possession of specimens or products of Illinois endangered and threatened species. The allowance for such permits was included in the original ESPA of 1972 under two provisions (520 ILCS 10/4 and 520 ILCS 10/5). Title 17 ILL. ADM. CODE, CH. I, SEC. 1070, Possession of

Specimens or Products of Endangered or Threatened Species, is the Administrative Rule that outlines the process and regulations for permits. It was established in 1989 and amended in 1990, 1991, 1993, 1994, and 2003.

520 ILCS 10/4 allows the IDNR to issue to any qualified person a permit which allows the taking, possession, transport, purchase, or disposal of specimens or products of an endangered or threatened species of animal or federal endangered plant after the effective date of this Act for justified purposes, that will enhance the survival of the affected species by zoological, botanical or educational or for scientific purposes only. Allowance for propagation activities and the requirements for such are included under this category of possession permit.

520 ILCS 10/5 allows the IDNR to issue a limited permit authorizing the possession, purchase or disposition of animals or animal products of an endangered or threatened species, or federal endangered plants to any person which had in its possession prior to the effective date of this Act such an item or which obtained such an item legally out-of-state. Such permit shall specifically name and describe each pertinent item possessed by the permit holder and shall be valid only for possession, purchase or disposition of the items so named. The Department may require proof that acquisition of such items was made before the effective date of this Act. The Department may also issue a limited permit authorizing the possession, purchase or disposition of live animals or such item to any person to whom a holder of a valid permit issued pursuant to this section gives, sells, or otherwise transfers the item named in the permit. Limited permits issued pursuant to this section shall be valid only as long as the item remains in the possession of the person to whom the permit was issued. This category of possession permit does not stipulate allowance for propagation activities.

Information used to describe program performance

ESPB staff used the ESPA; Title 17 ILL. ADM. CODE, CH. I, SEC. 1070, Possession of Specimens or Products of Endangered or Threatened Species; ESPB files; and, information gained in the course of day-to-day operations to review and speak to certain aspects of the program. The ORC did not respond to a request by ESPB for a summary of program performance numbers for its Endangered and Threatened Species Possession Permit program, or in the absence of a summary, for copies of or access to files that contain the information, in a timeframe necessary for inclusion in this current publication.

Program performance

Information for the total number of endangered and threatened species possession permits issued, the number issued for any individual species, the number issued to any individual applicant, or the number of either type of permit issued in the 40 years of the program was not made available to the Board during the timeframe necessary for inclusion in this current document, making evaluation difficult. The information that was ultimately received will be used and analyzed as the Board and Department develop recommendations for improving this program.

Limited use permits, by definition, are only allowed for certain applications and mostly involve possession of specimens (such as stuffed/mounted animals) or individuals of a species that were owned by the applicant prior to listing or were legally obtained by the applicant from out-of-state. These uses generally have no negative impacts upon the Illinois population of any species.

Permits issued for justified purposes that will enhance the survival of the affected species by zoological, botanical or educational or for scientific purposes only, should by definition, help the species; indeed a great deal of endangered and threatened species research and management is conducted by numerous individuals and institutions under such permits.

Other program practices may not contribute to, or may inhibit, the continued conservation or recovery of individual species, including:

- The inability to provide information about the permit status or history for individual applicants or for individual species.
- Permits are issued allowing propagation activities without the necessary plan in place describing the process and procedures for propagation and disposition of animals produced.
- Changes to the scope of activities allowed under an existing permit are made between the applicant and IDNR without the required follow-up of making amendment to the actual permit and securing new authorizing signatures.
- Permits are issued allowing the translocation of individuals of a species without an evaluation of how that translocation may negatively impact donor and/or receiving populations.
- Copies of required annual reports from holders of permits often do not make it to the IDNR Natural Heritage (Biotics 4) Database to capture species occurrence and inventory data that is necessary to support all other aspects of the IDNR's E&T conservation program and the ESPB's Illinois List review activities.

520 ILCS 10/4 requires that the IDNR consult with and gain written approval from the Board prior to promulgating Administrative Rules for the issuance and maintenance of IDNR endangered and threatened species possession permits. The Administrative Rule (Title 17 ILL. ADM. CODE, CH. I, SEC. 1070, Possession of Specimens or Products of Endangered or Threatened Species) was established in 1989 and amended in 1990, 1991, 1993, 1994, and 2003. ESPB files indicate the Board provided consultation and written approval of the initial Administrative Rule and amendments in 1990 and 1991, but there is no record of the same for the last three amendments.

The IDNR has been challenged for several years in accomplishing its duties by inadequate budget and staffing. Under these circumstances, meeting the requirements of this allowed provision represents an underfunded mandate. If the IDNR had the necessary resources, it could better administer the program.

Endangered and Threatened Species Conservation Program (1986)

The ESA requires that the Endangered and Threatened Species Conservation Program shall be located within the Department of Conservation (now the Department of Natural Resources) (520 ILCS 10/10) and that the Department, with the advice of the Board, shall actively implement a program for the conservation of endangered and threatened species, by means which should include published data search, research, management, cooperative agreements with other agencies, identification, protection and acquisition of essential habitat, support of beneficial legislation, issuance of grants from appropriated funds and education of the public (520 ILCS 10/11).

Information used to describe program performance

ESPB staff used the ESA, ESPB files, information gained in the course of day-to-day operations, and the IDNR website to review and speak to certain aspects of the program.

The IDNR Endangered and Threatened Species Program is split between two offices at IDNR; the Office of Resource Conservation, Division of Natural Heritage (ORC DNH), and the Office of Realty and Environmental Planning, Impact Assessment Section (OREP IAS). The individual IDNR programs that contribute to the overall Endangered and Threatened Species Program, as well endangered and threatened species management activities of the Illinois Nature Preserves Commission (INPC), are described below.

IDNR programs with primary responsibility for endangered and threatened species conservation

The Office of Resource Conservation, Division of Natural Heritage

The Office of Resource Conservation, Division of Natural Heritage (DNH) contains an Endangered and Threatened Species Program, the Illinois Natural Heritage (Biotics 4) Database Program, a Natural Areas Program, an Invasive Species Program, and oversees the management of the Prairie Ridge State Natural Area. The DNH is the division in the IDNR with primary responsibility for conducting endangered and threatened species habitat management, species monitoring, and recovery planning and implementation, although other divisions within IDNR ORC, and the ESPB and INPC also share some of these responsibilities. Collectively, these responsibilities statewide are considerable and while many basic requirements are being met, many are not. It is estimated that there are currently about \$4,000,000 in unmet stewardship needs for Illinois Nature Preserves alone, which support 26% of endangered and threatened species occurrences statewide. Additionally, over 1/3 of known endangered and threatened species occurrences have not been surveyed in the last 10 years and only 11 ESPB/IDNR approved recovery planning documents have been developed by the IDNR and ESPB (species recovery and monitoring are discussed further in *Part 2, Recovery planning*, beginning page 56, and *How are doing at monitoring?*, beginning page 61). Including all programs, the DNH has 46 staff positions, including 17 administrative positions and 28 field biologist positions. As of April 2012, 26 (56%) of those positions were filled (1, contractually), while 20 (44%) were vacant.

The DNH Endangered and Threatened Species Program has three staff positions; Endangered Species Program Manager, Endangered Species Project Manager, and Incidental Take Coordinator. As of April 2012, only the position of Project Manager was filled, while the Program Manager position was partially covered by other staff from 1995–2009 and then has been vacant since 2009. The Incidental Take Coordinator position was also partially covered by other staff from 1995–2009 and then a part-time contractual staff was hired in 2009 to take over the responsibilities for compliance with federally-listed species and additional duties of that position were transferred to another DNH staff person in 2012. The program administers the IDNR Endangered and Threatened Species Possession Permit and Incidental Taking of Endangered and Threatened Species Authorization programs, coordinates and implements IDNR activities intended to contribute to the conservation of listed species, and acts as the primary contact with the U.S. Fish and Wildlife Service and other agencies regarding coordination with IDNR endangered and threatened species activities.

The DNH Illinois Natural Heritage (Biotics 4) Database (Database) maintains data on endangered and threatened species occurrence, as well as other significant natural features in Illinois. There are three staff positions associated with maintaining and administering the Database: the Database Program Manager, a Database Project Manager, and a Database Data Specialist. As of April 2012, the Program Manager and one of the Data Specialist positions were filled (the Data Specialist position, contractually), while the Project Manager position has been vacant since 2009. The Database is supported by the NatureServe Network, which includes Natural Heritage programs from every state. Species data from the Database is used by the Board in its Illinois List review and by the IDNR in its endangered species consultation, incidental take authorization, and possession permit programs, and by both agencies in planning for species recovery. The Database program produces a monthly report of accomplishments and average monthly activities include: mapping and data entry for about 140 endangered and threatened species occurrences; conducting quality control/review of 120 endangered and threatened species and 5 Illinois Natural Areas Inventory site reports; providing technical support and training to IDNR, ESPB, and INPC staff who utilize the Database and geographic positioning system (GPS) equipment; responding to

approximately 32 intra- and inter-agency requests for information; and, assorted other administrative duties.

The Office of Resource Conservation, Divisions of Wildlife and Fisheries

As mentioned above, the DNH is the ORC division with primary responsibility for endangered and threatened species for IDNR. However, the ORC Divisions of Wildlife and Fisheries also conduct a fair amount of endangered and threatened species work. The Division of Wildlife works with a variety of listed animals and in particular, its Furbearer Program has funded a great deal of endangered and threatened mammal research. Division staff have also developed several species recovery plans and outlines. (Species recovery planning is discussed further in *Part 2, Recovery planning*, beginning page 56). Streams Biologists from the Division of Fisheries work with listed fish and mussels and similarly have developed species recovery planning and reintroduction documents. Additionally, staff from both divisions engage in a variety of management and monitoring activities intended to contribute to the conservation of listed species on a daily basis. As of April, 2012, the Division of Wildlife had 50.5 staff positions, of which 7 (14%) were vacant. The Division of Fisheries had 99 staff positions, of which 18 (18%) were vacant.

The Office of Realty and Environmental Planning, Impact Assessment Section

The Office of Realty and Environmental Planning, Impact Assessment Section (IAS) is responsible for administering all environmental reviews and impact assessments, including endangered and threatened species consultation, for the IDNR. As of April, 2012, the IAS had 12 staff positions, with 10 (83%) of those positions filled (1, contractually), and 2 (17%) vacant.

Other IDNR-affiliated programs that are involved with endangered and threatened species conservation

The Illinois Nature Preserves Commission (INPC)

The INPC is responsible for administering a land protection program aimed at the highest quality natural areas and endangered and threatened species habitat in Illinois. The INPC works cooperatively with the IDNR and ESPB in identifying those properties and with respective landowners to protect and manage them. As of May 2011, the program had dedicated 355 Illinois Nature Preserves, in 83 counties, totaling approximately 49,900 acres, and registered 162 Illinois Land and Water Reserves, in 66 counties, totaling approximately 45,930 acres. As mentioned above, properties enrolled in these programs contain habitat supporting over 25% of all endangered and threatened species occurrences in Illinois. Dedication as an Illinois Nature Preserves and registration as an Illinois Land and Water Reserve provide properties the most comprehensive and highest level of protection available in the state. Activities involving endangered and threatened species on these properties require special permitting by the INPC, in addition to endangered and threatened species possession permits provided by IDNR. The INPC consults the Board in reviewing activities involving endangered and threatened species as part of its permitting process. As of April 2012, the INPC had 15 staff positions, including 6 administrative positions and 9 field positions. Twelve (80%) of those positions were filled, while 3 (20%) were vacant.

Due to inadequate budget and staffing, the IDNR and INPC have been challenged for several years in accomplishing their duties described above. Under these circumstances, while the IDNR is able to meet the minimum required duty of having an Endangered and Threatened Species Conservation program, meeting the requirements of the allowed and required provisions associated with that program constitutes an underfunded mandate. If the IDNR and INPC had the necessary resources, the IDNR could better meet the requirements of its mandates and both agencies could better administer all aspects of their respective programs.

Endangered and Threatened Species Consultation (1986)

Added to the ESPA in 1986, 520 ILCS 10/11(b) requires that State and local governments evaluate through a consultation process with the Department whether actions authorized, funded, or carried out by them are likely to jeopardize the continued existence of Illinois listed species or are likely to result in the destruction or adverse modification of the designated essential habitat of such species. The consultation process may result in the IDNR providing recommendations for avoiding or minimizing impacts to endangered and threatened species or their habitats, but there is no binding agreement that requires any actions from applicants. The IDNR Office of Realty and Environmental Planning, Impact Assessment Section (IAS), administers the program.

Title 17 ILL. ADM. CODE, CH. I, SEC. 1075, Consultation Procedures for Assessing Impacts of Agency Actions on Endangered and Threatened Species and Natural Areas, is the Administrative Rule outlining the procedures for consultations. This Administrative Rule was established in 1990 and has been amended once in 1995 only to change the name of the agency from Department of Conservation to Department of Natural Resources. Title 17 ILL. ADM. CODE, CH. 1, SEC. 1090, Implementation Procedures for the Interagency Wetlands Policy Act, is also used in the consultation process for certain state funded, authorized, or performed activities that may impact wetlands with the presence of endangered or threatened species and/or essential habitat. This Administrative Rule was established in 1996 and has never been amended. Neither the ESPA provision nor the Administrative Rules for endangered and threatened species consultation or implementation procedures for the interagency wetland policy act allow the IDNR to authorize taking of listed species; projects that are likely to result in take are referred to the IDNR Endangered and Threatened Species Incidental Take Authorization program. The IDNR does not have established standards or criteria for evaluating whether a project is likely to result in take, rather projects are reviewed on an individual basis by an ad hoc IDNR committee that makes a determination whether the project should be referred to the IDNR Endangered and Threatened Species Incidental Take Authorization program (see the *Endangered and Threatened Species Incidental Take Authorization* section below, beginning page 31).

Information used to describe program performance

ESPB staff used the IAS report produced in 2007 summarizing program performance numbers for endangered and threatened species consultations and other environmental reviews that it conducted from 2000-2006 (IDNR 2007). In addition to that report, the IAS provided a summary of the number of consultations conducted from 2007-2011. ESPB also used the ESPA, Title 17 ILL. ADM. CODE, CH. I, SEC. 1075, Consultation Procedures for Assessing Impacts of Agency Actions on Endangered and Threatened Species and Natural Areas, and ESPB files and information gained in the course of day-to-day operations to develop the review below.

Program performance

In the 26-year history of the program, the IAS has done a number of things to economize and increase the efficiency and accessibility of the consultation process. The section has developed a webpage explaining their program and the review processes it administers and also issues the monthly on-line publication “Environmental Reporter” that provides the public brief descriptions of projects that have been reviewed through the consultation process. It also developed a web-based tool (Ecological Compliance Assessment Tool – EcoCAT) to assist users in submitting projects for review and guiding them through the review process. The EcoCAT application uses data maintained by the IDNR Natural Heritage (Biotics 4) Database. The EcoCAT application and other information about the IAS and respective review processes can be accessed at <http://www.dnrecocat.state.il.us/ecopublic/>. For ease of reference to visitors to the Board’s website, the Board’s site also includes a link to the EcoCAT application and contact information for the IAS Manager.

During the period of 2000-2011, the IAS performed 60,982 total consultations (for endangered and threatened species, Illinois Natural Areas Inventory sites, Illinois Nature Preserves and Land and Water Reserves, wetlands, and cultural resources; Table 3). Information for consultations performed from 2000-2006, indicates the majority of consultations were closed after an initial review either because there were no resources in the vicinity or they were unlikely to be impacted by the action under review: fully 95% of consultations performed during that time fall into this category (IDNR 2007). The information available for consultations performed from 2007-2011 was not sufficient to identify the percent of consultations closed for the same reasons during that time period.

Table 3. Total consultations conducted by IDNR each year, from 2000-2011.

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
6,182	5,395	4,897	5,179	4,825	5,064	5,385	5,482	4,942	4,751	4,320	4,560	60,982

During the period of 2000-2006, of 36,927 total consultations conducted, there were 442 consultations specifically for impacts to endangered and threatened species. Of those, 171 were performed for 67 plant species and 271 were performed for 43 animal species (Table 4; *after* IDNR 2007). Species most affected were birds (120 consultations involving 14 species), fish (63 consultations involving 11 species) and reptiles (60 consultations involving 5 species). Consultations involved projects in 19 counties; those for animals occurred in 18 counties and those for plants occurred in 6 counties. Not surprisingly, they were concentrated in the areas of the state with the most land development (the Chicago area) and with the highest concentrations of species occurrences; consultations in Lake and McHenry Counties represent 81% and 95% of those performed for animals and plants, respectively (Table 5 ; *after* IDNR 2007). A detailed breakdown of the number of likely impacts to individual species statewide and by county for the period of 2000-2006 can be found in Appendix E. The IAS was not able to provide endangered and threatened species-specific consultation numbers for the period of 2007-2011, but since the trend for total consultations for that period was fairly consistent with the previous seven years, it is likely that the number of endangered and threatened species consultations conducted annually was similar.

Table 4. Endangered and threatened species consultations performed by IDNR and number of species involved, 2000-2006 (*after* IDNR 2007).

	Number of species involved in consultations from 2000-2006	Annual average number of species involved in consultations	Number of consultations performed for each taxonomic group from 2000-2006	Annual average number of consults for each taxon group
Fish	11	1.6	63	9
Amphibians	0	0	0	0
Reptiles	5	0.7	60	8.6
Birds	14	2	120	17
Mammals	1	0.1	3	0.4
Mussels	9	1.3	20	2.9
Other Invertebrates	3	0.4	5	0.7
Animal Totals	43	6	271	39.5
Plants	67	9.6	171	24.4
TOTALS	110	15.6	442	63.9

As indicated above, individuals engaging in consultation are provided recommendations from the IDNR on how to avoid or minimize impacts and applicants may implement those recommendations, so there may be minimal or no effect upon the subject species. Additionally, sometimes the consultation process may result in information that benefits the statewide status of a species because the IDNR often recommends that the applicant perform surveys to confirm the presence of endangered or threatened species that are known from the area, which can result in new information about a species' biology and/or the discovery of new locations. However, since the avoidance and minimization recommendations resulting from consultation are non-binding, there is also no requirement for follow-up monitoring of the

effects of a project upon the subject species and its habitat or progress reporting for projects that have undergone consultation. For these reasons, it is difficult to draw a direct correlation between likely impacts resulting from a project that underwent consultation upon a species, an occurrence of a species, or its habitat, and possible effects upon that species' listing status. For the period of 2000–2006, there were 271 consultations performed for 43 animal species and 171 consultations performed for 67 plant species. Of the species likely impacted by the projects for which consultation was performed, the listing status remained the same for 35 (81%) animals and 61 (91%) plants, the listing status improved for 5 (12%) animals and 4 (6%) plants, and the listing status declined for 4 (9%) animals and 1 (1%) plant (Table 6).

Table 5. Number of likely impacts to endangered and threatened animals and plants in counties where consultations occurred, 2000-2006 (*after* IDNR 2007).

	Number of likely impacts to E&T animals	Number of E&T animal species likely impacted	Number of likely impacts to E&T plants	Number of E&T plant species likely impacted
Lake	104	11	79	51
McHenry	103	25	46	31
Cook	11	10	1	1
Kane	6	3	4	1
Kendall	6	4	0	0
Vermilion	5	5	0	0
Douglas	4	3	0	0
Sangamon	3	2	0	0
Clinton	2	2	0	0
Jersey	2	2	0	0
Carroll	1	1	0	0
DuPage	1	1	0	0
Effingham	1	1	1	1
Jasper	1	1	0	0
Kankakee	1	1	0	0
Peoria	0	0	1	1
Will	1	1	0	0
Williamson	1	1	0	0
Winnebago	1	1	0	0

Table 6. Changes in listing status from 1999-2009 for species likely impacted by projects that underwent IDNR endangered and threatened species consultation, by taxonomic group.

	Status unchanged		Status improved		Status declined	
	Remained T	Remained E	E to T	T to recovered	T to E	Added as T
Fish	7	3	1	0	0	1
Amphibians	0	0	0	0	0	0
Reptiles	2	1	0	0	2	0
Birds	0	10	0	3	1	0
Mammals	0	1	0	0	0	0
Mussels	2	6	1	0	0	0
Other Inverts	1	2	0	0	0	0
Animal Totals	12	23	2	3	3	1
Plants	21	40	4	0	1	0
TOTALS	33	63	6	3	4	1

The IDNR has been challenged for several years in accomplishing its duties by inadequate budget and staffing. Under these circumstances, the required duty of having a program to administer a consultation process to evaluate whether actions authorized, funded, or carried out by state or local units of government are likely to jeopardize the continued existence of Illinois listed species or are likely to result in the destruction or adverse modification of the designated essential habitat of such species represents an underfunded mandate. If the IDNR had the necessary resources, it could better administer the program.

Endangered and Threatened Species Incidental Take Authorization (2000)

The ORC DNH is responsible for administering the IDNR Endangered and Threatened Species Incidental Take Authorization program. Section 5.5 (520 ILCS 10/5.5) of the ESPA allows the IDNR, under prescribed terms and conditions, to authorize any taking that is otherwise prohibited under the Act if that taking is incidental to, and not the purpose of, an otherwise legal activity. Administrative Rule, Title 17 ILL. ADM. CODE, CH. I, SEC. 1080, Incidental Taking of Endangered and Threatened Species, outlines the requirements of applicants seeking authorization for incidental take of listed species and the authority of the IDNR to issue such authorization. The provision for endangered and threatened species incidental take authorization was added to the ESPA in 2000 and the Administrative Rule was established in 2001. The Administrative Rule has not been amended since it was established.

Nearly all requests for an IDNR Endangered and Threatened Species Incidental Take Authorization (ITA) come from individuals and entities who have engaged in the IDNR Endangered and Threatened Species consultation process, where the result of the consultation was a recommendation by IDNR that the project would likely result in take and would require an ITA. The IDNR does not have established standards or criteria for evaluating whether a project is likely to result in take, rather projects are reviewed on an individual basis by an ad hoc IDNR committee that makes a determination whether the project has a likelihood of take and that it should be referred to the IDNR Endangered and Threatened Species Incidental Take Authorization program.

An ITA issued by the IDNR is a binding contract, valid upon signature by both the applicant and the IDNR. It covers only the species identified in the authorization and for taking only associated with the identified project. In addition to other items, the ITA stipulates requirements for project construction specifications, minimization and mitigation measures, fiscal obligations, monitoring of the subject species and its habitat during- and post-construction, and reporting results of monitoring.

Information used to describe program performance

The ORC did not respond to a request by ESPB for a summary of program performance numbers for its Endangered and Threatened Species Incidental Take Authorization (ITA) program. ESPB staff used the following information to review and speak to certain aspects of the program: ESPA; Administrative Rule, Title 17 ILL. ADM. CODE, CH. I, SEC. 1080, Incidental Taking of Endangered and Threatened Species; ESPB files and information gained in the course of day-to-day operations; and, program data developed by the IDNR Office of Realty and Environmental Planning for other purposes (IDNR 2008).

Program performance

The Administrative Rule for incidental taking of endangered or threatened species (17 ILL. ADM. CODE, CH. I, SEC. 1080.40) requires that prior to issuing authorization for incidental taking, the IDNR seek advice of the Board and provide written response to any Board comments regarding the issuance of authorization for incidental taking and on the terms of any authorization to be issued. This Administrative Rule was established in 2001 and from 2001–2008, the Board had only limited part-time or no staff, so had limited ability to provide review, comment, and advice to the IDNR on incidental taking and on individual authorizations and a process for coordinating review, comment, and response to comments between the IDNR and Board was not established. During that time, the IDNR asked the

Board to review and comment on conservation plans submitted by the applicant, but did not ask for Board advice and provide written response to Board comments on the authorization before issuing the final authorization. Since the Board gained a full-time Director in 2008, the Board has provided advice to the IDNR about incidental taking, individual authorizations, and the process for coordinating review, comment and response to comments, between the IDNR and Board. The required process began to be observed by both parties in 2011.

For the period of 2001–July 2011, the IDNR issued a total of 202 incidental take authorizations involving 65 species (62 animals and 3 plants) on 158 projects (IDNR 2008 and ESPB files) (Appendix F). Over the course of the program’s history, there is no record of the IDNR making a determination that issuance of an ITA for any project would impact the continued conservation and recovery of a subject species and therefore denying the authorization. With regard to plants, under the ESPA, taking of listed plants requires the expressed written permission of the landowner. While the IDNR has issued 3 ITAs for plants in the past, since the time this provision was added to the ESPA, the IDNR has adopted an interpretation that ITA is not required for taking listed plants, even from properties of landowners subject to the requirements of consultation (state and local governments). There is currently a lack of consensus between the IDNR and ESPB about this interpretation, about who has the authority to provide written permission for taking listed plants from properties owned by the State of Illinois, and whether an ITA should be required for such action.

Projects requiring ITAs occurred in 48 counties (Table 7). Of those, one ITA was issued in each of 12 counties and 2 ITAs were issued in each of 18 counties. The most ITAs have been issued in Vermilion County, with 24 ITAs (12% of total ITAs issued); 19 for mussels, 4 for fish, and 1 for a mammal. The next most active county is McHenry, with 20 ITAs (10% of total ITAs issued); 8 for reptiles, 7 for mussels, 3 for birds, and 2 for fish. Washington and St. Clair Counties follow with 15 ITAs (7% of total ITAs issued) each; 10 for birds, 2 for mammals, 2 for plants, and 1 for an amphibian.

Table 7. Number of incidental take authorizations (ITAs) issued in each county, by the number issued, 2001-July 2011 (one ITA/species involved).

County	ITAs	County	ITAs	County	ITAs	County	ITAs
Vermilion	24	Lee	5	Hardin	2	Christian	1
McHenry	20	Bureau	4	Jersey	2	Grundy	1
St. Clair	15	Cook	4	Johnson	2	Iroquois	1
Washington	15	Piatt	4	Kendall	2	JoDaviess	1
Will	13	LaSalle	3	Massac	2	Lake	1
Cass	8	Monroe	3	Mercer	2	Madison	1
Whiteside	7	Alexander	2	Morgan	2	McDonough	1
Adams	6	Champaign	2	Pope	2	McLean	1
Brown	6	Clinton	2	Sangamon	2	Schuyler	1
Mason	6	DeKalb	2	Scott	2	Stephenson	1
Rock Island	6	DuPage	2	Union	2	Wabash	1
Kane	5	Edgar	2	Williamson	2	Winnebago	1
Total = 202 ITAs							

Of the 202 species occurrences involved in the ITAs, 147 (73%) were known for recent (<10 years old) observation of the species. Species most affected were mussels (66 ITAs involving 15 species), reptiles (32 ITAs involving 7 species), and birds (34 ITAs involving 13 species) (Table 8). Individual species

with the most ITAs were Slippershell (*Alasmidonta viridis*) (16 ITAs) and Blanding's Turtle (*Emydoidea blandingii*) and Illinois Chorus Frog (*Pseudacris illinoensis*) (13 ITAs each). The Snowy Egret (*Egretta thula*) had the most total occurrences potentially affected by ITAs (100%), followed by Illinois Chorus Frog (45%), Gray Bat (*Myotis grisescens*) (44%), and Eastern Massasauga (*Sistrurus catenatus*) (42%). The Snowy Egret also had the most recent (< 10 years old) occurrences potentially affected by ITAs (100%), followed by Eastern Massasauga (67%), Green Trillium (*Trillium viride*) and Ottoe Skipper (*Hesperia ottoe*) (50% for each), Western Hognose (*Heterodon nasicus*) (44%), and Illinois Mud Turtle (*Kinosternon flavescens*) and Sheepsnose (*Plethobasus cyphus*) (43% for each) (Appendix F).

Table 8. Endangered and threatened species incidental take authorizations issued by IDNR and number of species involved, by taxonomic group, 2001-2011.

	Number of ITAs issued for each taxonomic group	Number of species involved in ITAs	For species involved in ITAs, % of occurrences potentially impacted by ITAs	For species involved in ITAs, % of recent (<10 yrs old) occurrences potentially impacted by ITAs
Fish	22	15	7%	14%
Amphibians	32	7	20%	22%
Reptiles	16	3	19%	27%
Birds	34	13	18%	15%
Mammals	18	4	22%	20%
Mussels	66	15	14%	18%
Other Invertebrates	9	5	13%	21%
Animal Totals	197	62	16%	20%
Plants	5	3	46%	17%
TOTALS	202	65	20%	19%

As indicated above, the ITA stipulates requirements for project construction specifications, fiscal obligations, monitoring of the effects of the project upon the subject species and its habitat during- and post-construction, and reporting results of monitoring. In addition to the required monitoring mentioned above, IDNR may require additional progress reporting. It is anticipated that in the course of the project there will be impacts to the species and its habitat, but impacts may vary, so all monitoring and reporting of results is important to improve management techniques and evaluate impacts upon the species. As of 2008, of the progress reports required by the IDNR, only 38% were submitted, and of the projects in default, half were state-funded (IDNR 2008). A separate review of some projects from the history of the program suggests a similar record for reporting the results of project effects upon the subject species and its habitat and in some instances there is no record that monitoring was ever conducted.

The lack of monitoring data makes it difficult to evaluate the successes or failures of project activities with regard to the continued conservation and recovery of the subject species. It also confounds evaluating any direct correlation between likely impacts resulting from a project that received an ITA upon a species, an occurrence of a species, or its habitat, and that species' listing status. For the period of 2001–July 2011, there were 197 ITAs issued for 62 animal species and 5 ITAs issued for 3 plant species. Of the species affected by the projects for which ITAs were issued, the listing status remained the same for 49 (79%) animals and all 3 (100%) of the plants, the listing status improved for 5 (8%) animals, and the listing status declined for 8 (13%) animals (Table 9).

Table 9. Changes in listing status from 2001-2011 for endangered and threatened species for which IDNR issued incidental take authorizations, by taxonomic group.

	Status unchanged		Status improved		Status declined	
	Remained T	Remained E	E to T	T to recovered	T to E	Added as T
Fish	5	8	1	0	0	1
Amphibians	1	0	0	0	0	2
Reptiles	3	2	0	0	2	0
Birds	0	9	1	2	1	0

Mammals	1	2	0	0	0	1
Mussels	6	8	1	0	0	0
Other Inverts	2	2	0	0	1	0
Animal Totals	18	31	3	2	4	4
Plants	1	2	0	0	0	0
TOTALS	19	33	3	2	4	4

Other program practices may not contribute to, or may inhibit, the continued conservation or recovery of individual species, including:

- The absence of standards or criteria for evaluating whether a project under consultation is likely to result in take and should be referred to the IDNR ITA program. Instead projects are reviewed on an individual basis by an ad hoc IDNR committee that makes a determination, which has resulted in inconsistent outcomes for similar projects.
- The lack of evaluation standards or criteria for determining that issuing an ITA and impacts to habitat and the potential taking from a project will not reduce the likelihood of the survival or recovery of the endangered or threatened species in the wild in Illinois, the biotic community of which the species is a part, or the habitat essential to the species' existence in Illinois.
- The inconsistent application of the legal requirements for minimizing and mitigating impacts upon the subject species and its habitat and for monitoring the effects of the project upon the subject species and its habitat.
- The lack of follow-up and monitoring to ensure that recipients of ITAs have met their legal responsibilities under the authorization and have submitted necessary progress and monitoring reports.

The IDNR has been challenged for several years in accomplishing its duties by inadequate budget and staffing. Under these circumstances, meeting the requirements of this allowed provision represents an underfunded mandate. If the IDNR had the necessary resources, it could better administer the program.

PART 2: A REVIEW OF THE ILLINOIS LIST OF ENDANGERED AND THREATENED SPECIES

Illinois List review and revision process

According to the ESPA (Section 10/7), "any species or subspecies of animal or plant designated as endangered or threatened by the Secretary of the Interior of the United States pursuant to the Endangered Species Act of 1973, P.L. 93-205, as amended (16 U.S.C. Section 1531 et seq.), shall be automatically listed as an endangered or threatened species under this Act and thereby placed on the Illinois List by the Board without notice or public hearing." In addition, the Board may list, as endangered or threatened, species of animals or plants which have reproduced in or otherwise significantly used the area which is now the state of Illinois if there is scientific evidence that the species qualify as endangered or threatened as the terms are defined in the Act (Section 10/7). The Board reviews and revises, as necessary, the Illinois List at least every 5 years. To accomplish this, the Board uses the following process, which is in compliance with the ESPA (520 ILCS 10/1) and the Illinois Administrative Procedures Act (5 ILCS 100/1).

- 1) Over the course of several years and multiple quarterly meetings, the Board and its staff review and evaluate all available data and other information collected since the original and current lists were generated. The IDNR Natural Heritage (Biotics 4) Database is used as a primary source of

information, but surveys or research, reported sightings, and reports shared by other agencies, universities, individuals, and organizations are also used. Information reviewed for each species includes range in Illinois (present and historic), abundance in Illinois (total numbers, if known), number of known populations or locations where it occurs, number of these locations which are known to be protected from disturbance, the types of threats the species faces, and how fragile or sensitive the species is (species biology/ecology). When conducting major (5 year) review and revision of the Illinois List, the Board will consult with its technical expert consultants (ESPB TECs).

- 2) Following this review, Board staff compile information, including recommendations from the ESPB TECs, and make recommendations to the Board for changes to the List (additions, deletions, or change in status from one category to another) at one or more of the Board's quarterly meetings and the Board preliminarily approves a list of proposed changes.
- 3) The Board holds a public hearing for comments on the proposed changes to the List. The hearing record remains open for two weeks following the hearing date.
- 4) After considering public comments received from the hearing record, the Board makes final approval of changes at a subsequent quarterly meeting and submits the List to the IDNR.
- 5) The IDNR conducts an internal review of the List and then submits Administrative Rule changes to the List to the Secretary of State for publication in the Illinois Register and review by the Joint Committee on Administrative Rules (JCAR). This first notice for Administrative Rule changes to the List published in the Illinois Register includes a 45-day comment period.
- 6) If substantive comments are received during the 45-day comment period, the IDNR, with assistance from the Board, provides a response to comments to the JCAR.
- 7) JCAR approves the List at a regularly scheduled meeting of its committee.
- 8) Upon approval by JCAR, the IDNR will submit the final Administrative Rule changes to the List to the Secretary of State for publication in the Illinois Register and the List becomes official.

A review of listing efforts from the first through the current Illinois List (1981–2011)

The Illinois List is actually promulgated as two separate Illinois Administrative Rules: the Illinois List of Endangered and Threatened Fauna (Title 17 ILL. ADM. CODE, CH. I, SEC. 1010) and the Illinois List of Endangered and Threatened Flora (Title 17 ILL. ADM. CODE, CH. I, SEC 1050). The development of the first Illinois List took several years of effort in a project entitled the Endangered Species Project. While a number of attempts had previously been made to develop a list of species endangered in Illinois, the Endangered Species Project was a comprehensive effort to determine the status of our native species through literature reviews, museum searches, personal contacts, and workshops. The status information compiled during that project served as the basis for the first Illinois List of 436 species, which was adopted by the Board and protected by state law; the Fauna list was completed in 1977 and included 72 species and the Flora list was completed in 1980 and included 364 species.

As a result of that project, in 1981, *Endangered and Threatened Species of Illinois: Status and Distribution* was published and the 1981 date is therefore most often attributed to the first Illinois List. For this reason and ease of reference, the year of the first Illinois List is most often cited as 1981 and is also used in this current document.

Since the days of the first Illinois List, considerable information has been accumulated about our native species and the process of determining species to be listed as endangered or threatened in Illinois has become more complex, with increasing rigor applied to the compilation and evaluation of scientific evidence. Additionally, a review, and revision as necessary, of the List is now required no less often than once every five years. As a result, a major revision of the List was completed in 1989 (503 species; 144 animals and 359 plants). In January of 1994, the second major revision of the List was completed, resulting in a List with a total of 511 species (148 animals and 363 plants). The List was reviewed and revised again in 1999, resulting in the listing of 478 species (147 animals and 331 plants). The 2004 revision produced a listing of 483 species (144 animals and 339 plants). Another review and revision was completed in 2009, resulting in a List of 483 species (151 animals and 332 plants). In 2011, an amendment to the Illinois List of Endangered and Threatened Fauna was completed adding one additional federally endangered animal species and resulting in the current list of 484 species (152 animals and 332 plants).

Illinois Endangered and Threatened Species: by the numbers

In addition to the summary below, see also *Appendix G. Species status, by List revision, 1977-2011* and *Appendix K. Illinois endangered and threatened species – history of listing, status changes, delisting, and nomenclature changes, by species* for specific information for individual species.

Listed species by taxonomic group, 1981-2011

During the history of the Illinois List, a total of 644 species have been listed as endangered or threatened. Plants make up 69% of all listed species and animals make up 31%. While some species' status has changed over time, using the initial listing status for each of the 644 species, endangered species comprise 78%, and threatened species 22%, of all species ever listed (Figure 1 and Table 10) (see also *Appendix G. Species status, by List revision, 1977-2011*).

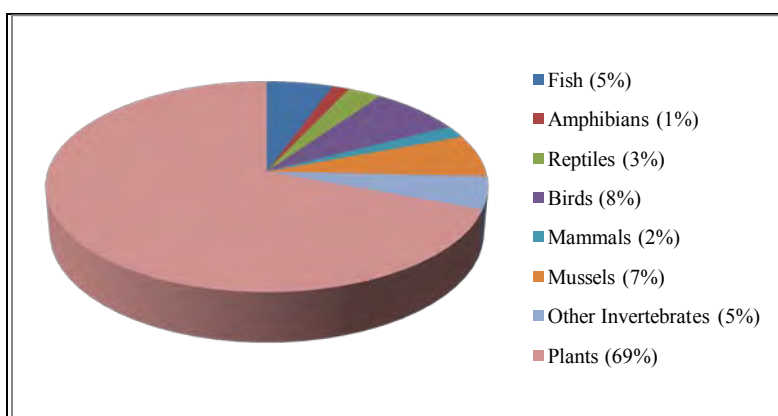


Figure 1. Proportion of species listed as endangered or threatened in Illinois 1981-2011, by taxonomic group.

It is estimated that there are over 53,000 species native to Illinois, including about 17,000 species of insects and 20,000 species of fungi (Page and Jeffords 1991). Relative to the total number of native animal and plant species in the state, the proportion that are endangered or threatened is strongly biased toward vertebrates and vascular plants, compared with invertebrates and non-vascular plants. This is largely explained by a combination of the vastly fewer numbers of vertebrates and vascular plants, the greater number of researchers dealing with those groups, and the resultant far larger body of information

available for each of the species in those groups. Overall, endangered and threatened vertebrates represent about 19% of native Illinois vertebrates, while endangered and threatened invertebrates represent only about 0.3% of those species in Illinois. The gap is wider for plants, with about 22% of native vascular plants listed as endangered or threatened, while only about 0.005% of non-vascular plants have been listed (Table 11).

Table 10. Number of species, by initial listing as endangered or threatened, 1981-2011, by taxonomic group.

	Species listed by the ESPB as endangered in Illinois	Species listed by the ESPB as threatened in Illinois	Total species listed by the ESPB
Fish	18	18	36
Amphibians	4	5	9
Reptiles	7	11	18
Birds	39	10	49
Mammals	6	6	12
Mussels	33	9	42
Other Invertebrates	26	6	32
Animal Totals	133	65	198
Plants	368	78	446
TOTALS	501	143	644

Table 11. Total number of species native to Illinois, and the number and percent of those listed as endangered and threatened.

	Species native to Illinois (after Page and Jeffords 1991)	Species listed as endangered or threatened in Illinois	% of Illinois species listed as endangered and threatened
Fish	187	36	19%
Amphibians	39	9	23%
Reptiles	59	18	31%
Birds	297	49	16%
Mammals	67	12	18%
Vetebrate Totals	649	124	19%
Mussels	104	42	40%
Other Invertebrates	>28,900	32	~0.1%
Invertebrate Totals	>29,004	74	~0.3%
Animal Totals	>29,653	198	~0.7%
Plants (vascular)	2,056	445	22%
Plants (non-vascular)	>20,000	1	~0.005%
Plant Totals	>22,056	446	~2%
TOTALS	>51,709	644	~1%

Trends in the number of listed species by List revision and taxonomic group 1981-2011

Overall, the number of animals on the Illinois List has increased over time, while the number of plants has decreased (Figure 2 and Table 12). By taxonomic group, fish, amphibians, reptiles, and invertebrates other than mussels have experienced general increases in the number of listed species over the history of the Illinois List. The number of mammals on the list has remained almost constant and the number of birds, mussels, and plants has generally decreased over time (Table 12 and Figures 3, 4, 5, and 6).

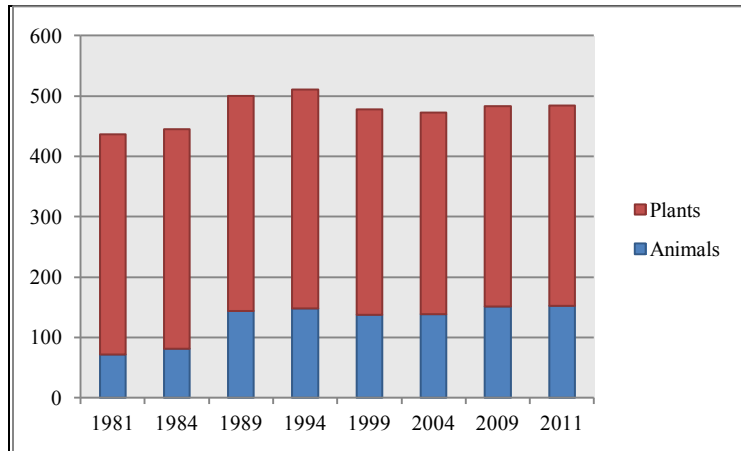


Figure 2. Proportion of endangered and threatened plants and animals for the first Illinois List and each revision, 1981-2011.

Table 12. Number of endangered and threatened species for the first Illinois List and each revision, 1981-2011, by taxonomic group.

	1981	1984	1989	1994	1999	2004	2009	2011
Fish	13	12	28	30	31	31	31	31
Amphibians	3	3	6	5	7	8	9	9
Reptiles	8	8	9	13	15	16	18	18
Birds	40	40	43	42	35	32	30	30
Mammals	8	8	10	9	8	9	9	9
Mussels	0	9	33	25	27	24	24	25
Other Invertebrates	0	1	15	24	25	24	30	30
Total Animals	72	81	144	148	137	148	151	152
Plants	364	364	359	363	341	334	332	332
TOTALS	436	445	503	511	478	483	483	484

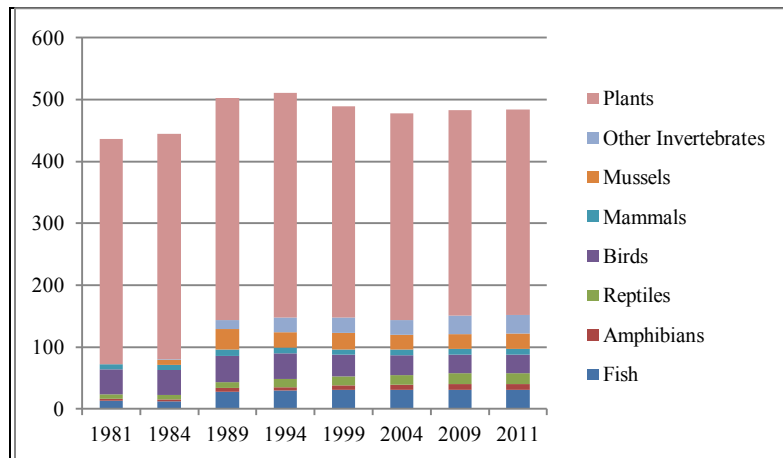


Figure 3. Number of endangered and threatened species, from the first Illinois List and by each revision, 1981-2011, by taxonomic group.

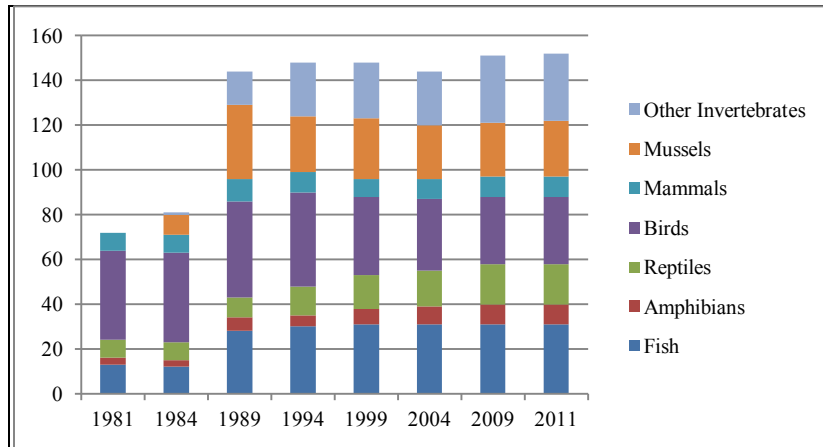


Figure 4. Number of endangered and threatened animal species, from the first Illinois List and by each revision, 1981-2011, by taxonomic group.

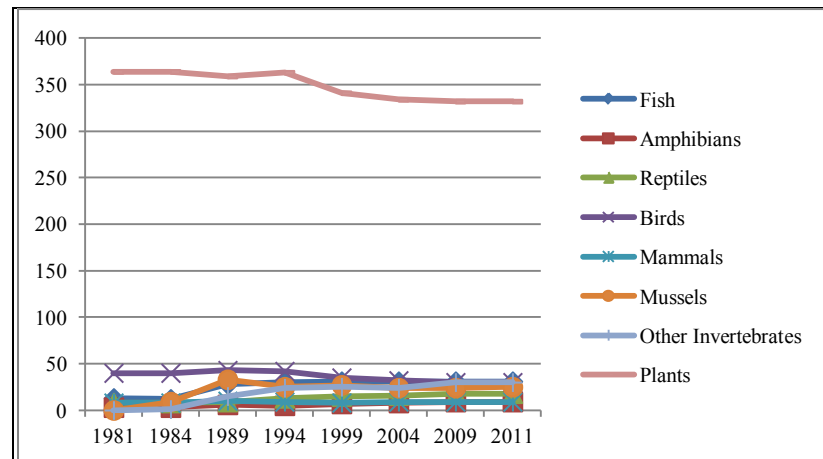


Figure 5. Trend in the number of endangered and threatened species, from the first through the current Illinois List, 1981-2011, by taxonomic group.

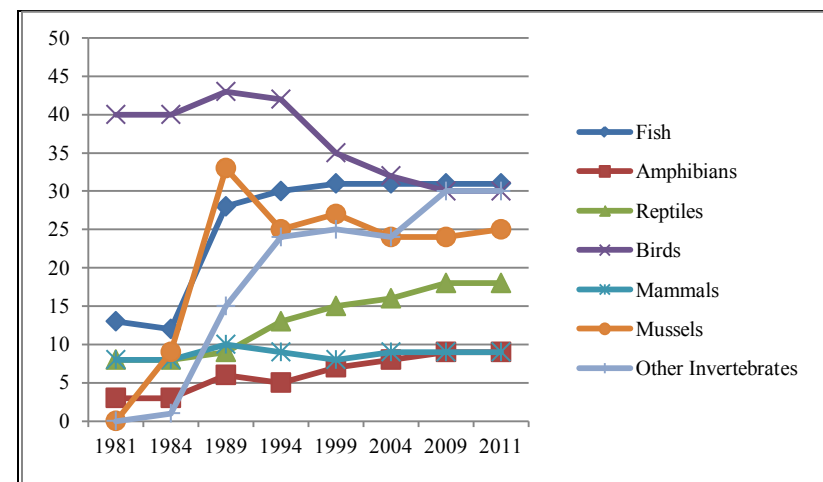


Figure 6. Trend in the number of endangered and threatened animal species, from the first through the current Illinois List, 1981-2011, by taxonomic group.

Trends in the status of listed species by taxonomic group 1981-2011

As indicated in Part 1 in the review of the Board's responsibility for maintaining the Illinois List, we do not generally have robust enough population data for most listed species to develop accurate Illinois population trends for each species, and this is an area of performance which the Board endeavors to improve. When conducting the review of the Illinois List, the Board uses species occurrence data from the Illinois Natural Heritage (Biotics 4) Database and is able to consider trends in the number of known occurrences. This current document does not attempt to review trends by species (using either population or occurrence data), but a review of changes in listing status over the history of the List for species by taxonomic group gives some indication of the general trends.

In a review of the 644 species included in the Illinois List (where additions to the List since the time of the first List are considered a decline for the overall status of that group in Illinois), status was unchanged for 277 (43%), improved for 125 (19%), and declined for 242 (38%). It is noteworthy that extirpations and extinctions are responsible for nearly 1/3 (32%; 77 species) of species included in the group for which status declined (see also the discussion for *Species now considered extirpated or extinct* under the *Delisting Species* section, beginning page 49). For animals, status was unchanged for 64 species (32%), improved for 30 (15%), and declined for 104 (53%). For plants, status was unchanged for 213 species (48%), improved for 95 (21%), and declined for 138 (31%). The taxonomic groups with the greatest percentages of species with unchanged status were mammals at 50% (6 species), followed by plants at 48% (213 species). Birds had the greatest percentage of species with status improvement at 35% (17 species), followed by plants at 21% (95 species). Fish had the greatest percentage of species for which status declined at 75% (27 species), followed by amphibians and reptiles at 67% each (6 and 12 species, respectively) (Table 13 and Figure 7).

Table 13. Additions to the Illinois List and changes in listing status for all endangered and threatened species as an indication of the overall status of each taxonomic group in Illinois, from 1981-2011.

	Status unchanged		Status improved		Status declined				Total listed
	Remained T since the first List*	Remained E since the first List*	E to T since added to the List	Delisted for reason other than extirpated / extinct	Added and remained T after the first List*	Added and remained E after the first List*	T to E since added to the List	Delisted as extirpated/ extinct	
Fish	2	3	3	1	9	10	4	4	36
Amphibians	1	2	0	0	5	1	0	0	9
Reptiles	1	4	1	0	6	2	4	0	18
Birds	0	19	2	15	2	1	6	4	49
Mammals	3	3	0	2	1	2	0	1	12
Mussels+	1	13	2	2	5	3	1	15	42
Other Invertebrates+	1	11	0	2	3	14	1	0	32
Animal Totals	9	55	8	22	31	33	16	24	198
	64		30		104				
Plants	25	188	34	61	21	47	17	53	446
	213		95		138				
TOTALS	34	243	42	83	52	80	33	77	644
	277		125		242				

* numbers include species that changed from original category to the other and back

+ first List for this group = the 1989 revision

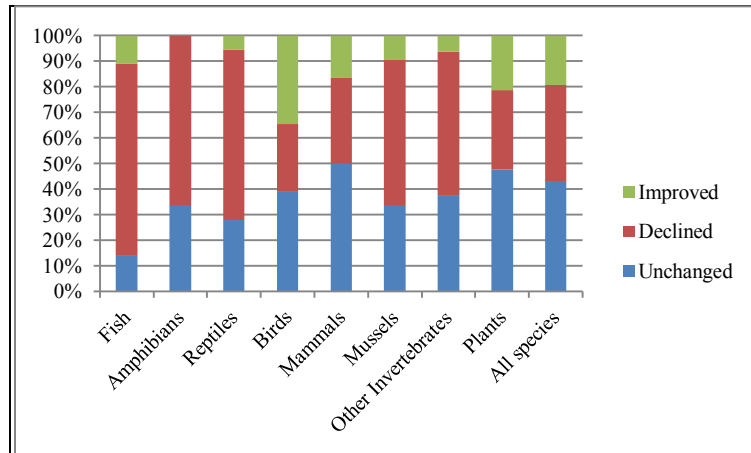


Figure 7. Percentage of all endangered and threatened species, by status change, from 1981-2011, where additions since the first List represent a decline for that group, by taxonomic group.

An indication of the trend for species once listed can be gained by including in the “status unchanged” group those species added to the List since the time of the first List and for which status remained the same after listing. In this review of the 644 species included in the Illinois List, once listed, status was unchanged for 409 (64%), improved for 125 (19%), and declined for 110 (17%). The percentage of species for which extirpation and extinction is responsible for their status decline becomes more dramatic in this analysis, with fully 70% (77 species) included for this reason. For animals, status was unchanged for 128 species (65%), improved for 30 (15%), and declined for 40 (20%). For plants, status was unchanged for 281 species (63%), improved for 95 (21%), and declined for 70 (16%). The taxonomic groups with the greatest percentages of species with unchanged status once listed, were other invertebrates at 90% (29 species), followed by mammals at 75% (9 species). The trends for status improvement in this review remained the same as compared with the review above for overall trends for each taxonomic group, with birds experiencing the greatest improvement at 35% (17 species), followed by plants at 21% (95 species). Mussels had the greatest percentage of species for which status declined at 38% (16 species), followed by fish and reptiles at 22% each (8 and 4 species, respectively) (Table 14 and Figure 8).

Table 14. Changes in listing status once listed, for all listed species from 1981-2011, by taxonomic group.

	Status unchanged				Status improved		Status declined		Total listed
	Remained T since the first List*	Remained E since the first List*	Added and remained T since after the first List*	Added and remained E since after the first List*	E to T since added the to List	Delisted for reason other than extirpated/ extinct	T to E since added to the List	Delisted as extirpated/ extinct	
Fish	2	3	9	10	3	1	4	4	36
Amphibians	1	2	5	1	0	0	0	0	9
Reptiles	1	4	6	2	1	0	4	0	18
Birds	0	19	2	1	2	15	6	4	49
Mammals	3	3	1	2	0	2	0	1	12
Mussels	1	13	5	3	2	2	1	15	42
Other Invertebrates	1	11	3	14	0	2	1	0	32
Animal Totals	9	5	31	33	8	22	16	24	198
	128				30		40		
Plants	25	188	21	47	34	61	17	53	446
	281				95		70		
TOTALS	34	243	52	80	42	83	33	77	644
	409				125		110		

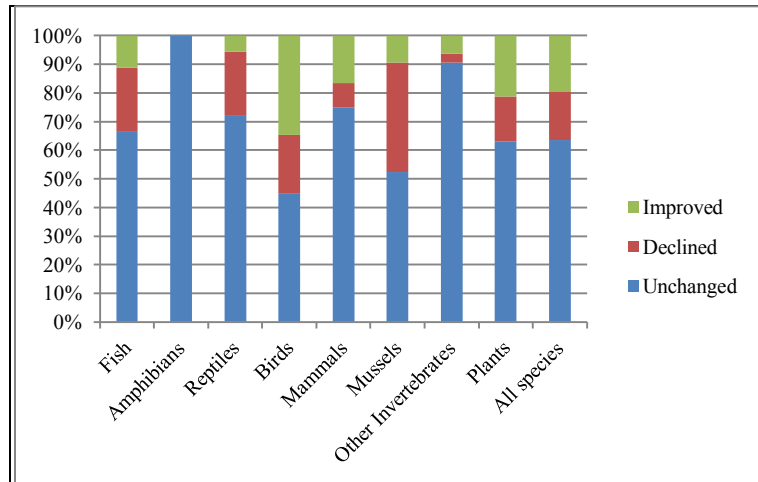


Figure 8. Percentage of all endangered and threatened species, by status change once listed, from 1981-2011, by taxonomic group.

Listing Species

In addition to the summary below, see also *Appendix G. Species status, by List revision, 1977-2011* and *Appendix K. Illinois endangered and threatened species – history of listing, status changes, delisting, and nomenclature changes by species* for specific information for individual species.

Definitions of endangered and threatened

The ESPA (520 ILCS 10/2) includes the following definitions for endangered and threatened species:

“Endangered Species” means any species of plant or animal classified as endangered under the Federal Endangered Species Act of 1973, P.L. 93-205, and amendments thereto, plus such other species which the Board may list as in danger of extinction in the wild in Illinois due to one or more causes including but not limited to, the destruction, diminution or disturbance of habitat, overexploitation, predation, pollution, disease, or other natural or manmade factors affecting its prospects of survival.

"Threatened Species" means any species of plant or animal classified as threatened under the Federal Endangered Species Act of 1973, P.L. 93-205, and amendments thereto, plus such other species which the Board may list as likely to become endangered in the wild in Illinois within the foreseeable future.

Listing criteria

For the purposes of evaluating species against the definitions of endangered and threatened and other requirements of the ESPA, the ESPB developed six basic criteria to use when making listing decisions (Table 15). The criteria identify significant elements of status and distribution, ecology, and threats that might cause a species to become threatened or endangered in Illinois. Species may be listed as endangered or threatened for one or more reasons. The first and second criterion are very similar, but reflect a distinction made to accommodate adding a species to the Illinois List that had already been designated as “proposed” for federal listing, but where the federal process to finalize listing might take several years.

Table 15. ESPB criteria for listing species as endangered or threatened on the Illinois List

- 1) Species included in the Federal list of Endangered or Threatened species.
- 2) Species proposed for Federal Endangered or Threatened status, which occur in Illinois.
- 3) Species which formerly were widespread in Illinois, but have been nearly extirpated from the State due to habitat destruction, collecting, or other pressures resulting from the development of Illinois.
- 4) Species which exhibit very restricted geographic ranges of which Illinois is a part.
- 5) Species which exhibit restricted habitats or low populations in Illinois.
- 6) Species which are significant disjuncts in Illinois, i.e., the Illinois population is far removed from the rest of the species' range.

Reasons for listing by taxonomic group 1981-2011

All taxonomic groups have species listed because they exhibit restricted habitats or low populations in Illinois. Plants are the only taxonomic group for which species have been listed for every reason. Fish, amphibians, reptiles, and plants are the only taxonomic groups with species listed because the Illinois population is disjunct from the rest of the species' range. Mussels, other invertebrates, and plants are the only taxonomic groups with species listed because they exhibit a very restricted geographic range of which Illinois is a part (Table 16 and Figure 9).

Table 16. Number of endangered and threatened species listed, by reasons for listing, from 1981-2011, by taxonomic group (note – some species have been listed for more than one reason, so numbers do not equal the actual number of species ever listed).

	Designated or proposed Federal E or T	Formerly widespread in Illinois, but have been nearly extirpated due to habitat destruction, over collecting, or other pressures from the development of Illinois	Very restricted geographic range of which Illinois is a part	Restricted habitats or low populations in Illinois	Significant disjuncts in Illinois, i.e the Illinois population is far removed from the rest of the species' range	TOTALS
Fish	2	9	0	27	3	41
Amphibians	0	1	0	8	1	10
Reptiles	0	7	0	11	2	20
Birds	3	22	0	27	0	52
Mammals	3	3	0	8	0	14
Mussels	10	16	3	25	0	54
Other Invertebrates	2	1	7	30	0	40
Animal Totals	20	59	10	136	6	231
Plants	11	43	6	403	7	470
TOTALS	31	102	16	539	13	698

Species listings by reason for listing

Habitat destruction, fragmentation, and degradation is clearly the leading cause for species endangerment in Illinois, affecting species that occupy restricted habitats, those that might occur in more than one habitat-type, and those associated with habitats or natural communities that historically occupied a much greater area of the state. It is estimated that prior to European settlement, prairie covered about 60% and forest and savanna about 38% of the state (Anderson 1970) and by the mid-1970s, undisturbed examples of these community types occupied less than 0.01% of the state (White 1978). Similarly, it is estimated that Illinois originally had approximately 8 million acres of wetlands and as of the 1990s more than 90% had been drained and otherwise altered (Sulloway and Hubble 1994). These habitat changes are indicated in the reasons for listing of most terrestrial endangered and threatened species. Additionally, degraded water quality and substrate structure resulting from dredging, channelization, and sedimentation are cited

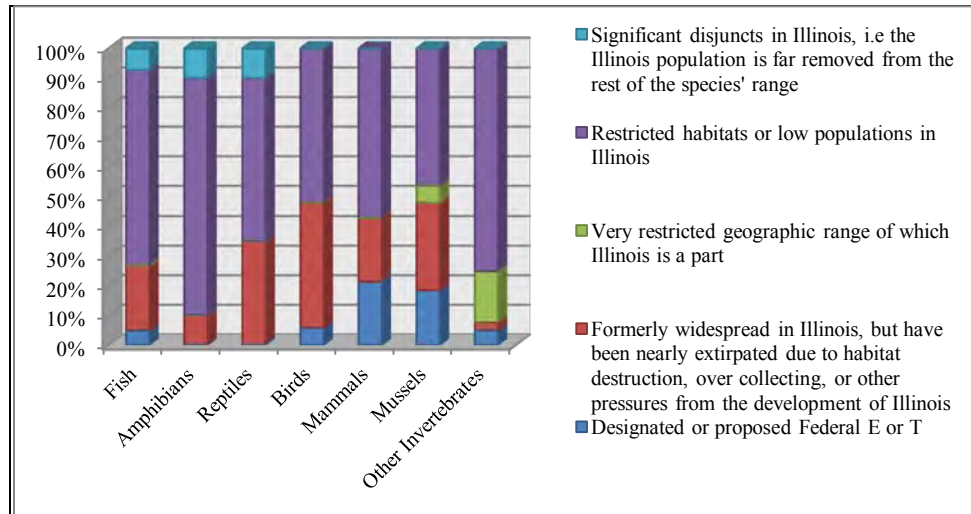


Figure 9. Percentage of endangered and threatened species listed, by reasons for listing, from 1981-2011, by taxonomic group (note – some species have been listed for more than one reason, so numbers do not equal the actual number of species ever listed).

as at least part of the reasons for listing for almost all aquatic endangered and threatened species. The majority of species (77%) have been listed because they exhibit restricted habitats or low populations in Illinois and another 15% have been listed because they were formerly widespread but have been nearly extirpated in Illinois. Indeed, of the 484 species on the current (2011) Illinois List, approximately 60% have 5 or fewer, and approximately 80% have 10 or fewer occurrences in the state (see also *The current Illinois List (2011), How rare is rare?*, beginning page 57). The fewest number of species (13; 2%) have been listed because the Illinois population is disjunct, or far removed, from the rest of the species' range (Figure 10 and Table 17; see also *Appendix H. Illinois endangered and threatened species – reasons for listing, by species*).

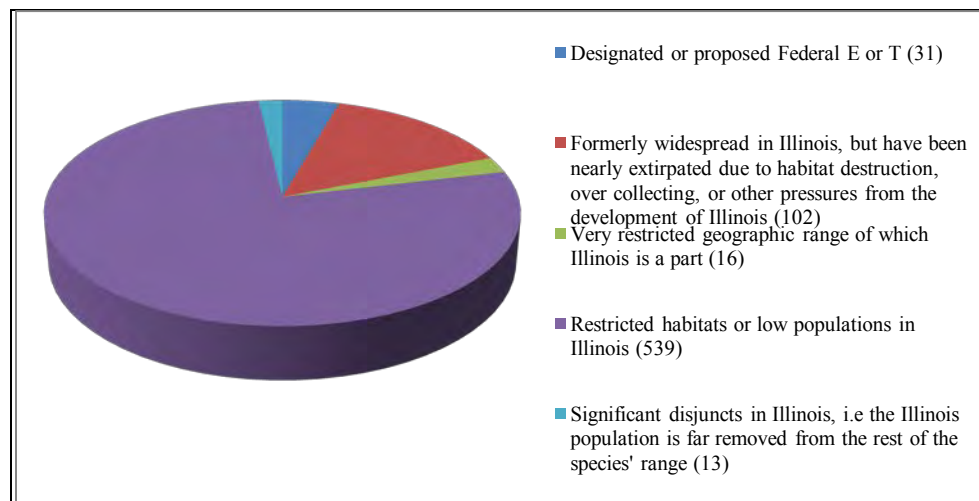


Figure 10. Proportion of endangered and threatened species listed by each reason for listing, from 1981-2011 (note – some species have been listed for more than one reason, so numbers do not equal the actual number of species ever listed).

Table 17. Approximate number of endangered and threatened plant and animal species listed, by each reason for listing, from 1981-2011 (note – some species have been listed for more than one reason, so numbers do not equal the actual number of species ever listed).

	Designated or proposed Federal E or T	Formerly widespread in Illinois, but have been nearly extirpated due to habitat destruction, over collecting, or other pressures from the development of Illinois	Very restricted geographic range of which Illinois is a part	Restricted habitats or low populations in Illinois	Significant disjuncts in Illinois, i.e the Illinois population is far removed from the rest of the species' range
Animals	20	59	10	136	6
Plants	11	43	6	403	7
TOTALS	31	102	16	539	13

Species designated, or proposed for designation, as federally endangered or threatened

As indicated above, the ESPA (520 ILCS 10/7) requires that any species or subspecies of animal or plant designated as endangered or threatened by the Secretary of the Interior of the United States pursuant to the Endangered Species Act of 1973, P.L. 93-205, as amended (16 U.S.C. Section 1531 et seq.), is automatically placed on the Illinois List. Additionally, the Board does not have the authority under the ESPA to delist federally-listed species from the Illinois List until the time when the species is either federally delisted or the USFWS has removed Illinois from the designated geographic area associated with the species' federal listing status.

These stipulations have several effects upon the Illinois List and regulatory programs in Illinois. For example, all federally-designated endangered and threatened species, including those that are not extant in Illinois, such as polar bears, are automatically protected by the ESPA as soon as federal listing becomes official, even if the Board does not amend the Administrative Rule until a later date. For this reason, individuals who possess federally-listed species or specimens thereof in Illinois, or are transporting federally-listed species across Illinois, require an IDNR endangered and threatened species possession permit. The Board has traditionally not included on the Illinois List those federally-listed species that do not occur in Illinois. However, over the years it has become evident that it would be helpful to users of the Illinois List if it included some clarification about the state-level protection status and regulatory requirements for all federally-listed species. Also, the Board has in error delisted one federally-listed plant species after it deemed the species extirpated following multiple years of surveys that did not relocate the occurrence. The Board intends to address and correct these issues during the next required review and revision of the Illinois List, ending in 2014.

A total of 38 federally endangered and threatened species that occur in Illinois have been included in the Illinois List since 1981. Of those, 15 were first listed as endangered or threatened in Illinois and then gained federal listing status and 23 were proposed for or federally-listed before being added to the Illinois List. Another eight species that were proposed for federal listing, but for which federal listing was never finalized, are also included on the Illinois List (Table 18).

Species formerly widespread, but nearly extirpated

102 species have been added to the List because they were formerly widespread, but at the time of listing were considered to have been nearly extirpated from Illinois due to habitat destruction, over collecting, or other pressures from the development of the state. This includes 59 animals and 43 plants. Of the 102 species, 7 (2 animals and 5 plants) were listed for other reasons also, including 6 (1 animal and 5 plants) that were also designated or proposed for federal listing status. This listing category includes species such as Blanding's turtle (*Emydoidea blandingii*), Loggerhead Shrike (*Lanius ludovicianus*), and Bunchflower (*Melanthium virginicum*).

Table 18. Species designated or proposed for listing as federally endangered or threatened that occur in Illinois and have been included in the Illinois List, from 1977-2011, by taxonomic group.

	Species added to the Illinois List because they were listed as federally endangered or threatened prior to Illinois listing	Species added to the Illinois List because they were proposed for federal listing prior to Illinois listing (and then federal listing was never finalized)	Species added to the Illinois List as endangered or threatened in Illinois prior to gaining federal listing status	Total federally endangered and threatened species included in the Illinois List
Fish	2	0	0	2
Amphibians	0	0	0	0
Reptiles	0	0	0	0
Birds	3	0	3	6
Mammals	3	0	0	3
Mussels	10	0	4	14
Other Invertebrates	2	0	2	4
Plants	3	8	6	9
TOTALS	23	8	15	38

Species with very restricted geographic ranges of which Illinois is a part

Only 16 species, 10 animals and 6 plants, have been listed because they have a very restricted geographic range of which Illinois is a part. All 16 species were listed for other reasons also, including 9 (6 animals and 3 plants) that were also designated or proposed for federal listing status. Endemic species such as the Illinois Cave Amphipod (*Gammarus acherondytes*) that is only known in the world from two counties in southwestern Illinois and Sangamon Phlox (*Phlox pilosa* subsp. *sangamonensis*) that is also only known from two counties in central Illinois, are examples of species listed under this criteria.

Species with very restricted habitats or low populations

A total of 539 species, including 136 animals and 403 plants, have been listed because they occupy very restricted habitats and/or have very low populations in Illinois. This category covers the reason for listing for the majority of species, although 54 species listed for this reason were listed for other reasons also. Of the species included in this category, 35 (23 animals and 12 plants) were listed because they also were designated or proposed for federal listing status, 16 (11 animals and 5 plants) because they also have a very restricted geographic range of which Illinois is a part, and 12 (5 animals and 7 plants) because the Illinois population is also considered a significant disjunct from the rest of the range. The Rainbow (mussel) (*Villosa iris*), Rafinesque's Big-eared Bat (*Corynorhinus rafinesquii*), and Bantam Sunfish (*Lepomis symmetricus*) are species included in this listing category.

Species for which the Illinois population is a significant disjunct from the rest of the range

There are 13 species, including 6 animals and 7 plants, which have been listed because the Illinois populations are significant disjuncts from the rest of the species' range. All 13 species were listed for other reasons also, including 12 (5 animals and 7 plants) because they also occupy very restricted habitats or low populations. Species included in this category are Harlequin Darter (*Etheostoma histrio*) and Gray Birch (*Betula populifolia*).

Delisting species

In addition to the summary below, see also *Appendix G. Species status, by List revision, 1977-2011* and *Appendix K. Illinois endangered and threatened species – history of listing, status changes, delisting, and nomenclature changes by species* for specific information for individual species.

Reasons for delisting

Species are delisted for one or more of the reasons established by the Board (Table 19). These criteria are considered for each currently listed species when the Board conducts its 5-year review of the Illinois List.

Table 19. ESPB reasons for delisting species from the Illinois List

- 1) This number does not indicate a reason, but has always been used as superscript or footnote in ESPB documents to indicate reference to #s 2 – 9.
- 2) A peripheral species that presently occurs only in disturbed/non-native habitats in Illinois.
- 3) A species now considered to be only a vagrant breeding species in Illinois.
- 4) All native populations are now considered to be extirpated in Illinois.
- 5) Illinois records for this species are now believed to be based on mis-identified specimens.
- 6) Now known to be more common in Illinois than previously thought.
- 7) Commercial fishing regulations determined by the Illinois Department of Natural Resources provide adequate protection for this species in Illinois.
- 8) The species is now considered extinct.
- 9) A species now considered to be recovered from endangerment or the threat of endangerment in Illinois.

Reasons for delisting, by taxonomic group 1984-2011

Since the first Illinois List, 160 species, including 12 federally listed species, have been delisted. Proportionately, mussels have had the greatest percentage of species delisted at 40% (35% extirpated/extinct and 5% more common than thought), with birds having the next highest percentage at 38% (12% more common than thought, 10% vagrant/peripheral, 8% each for recovered and extirpated/extinct). Neither amphibians nor reptiles have had any species delisted for any reason. Fish, birds, mammals, mussels, and plants have all experienced extirpations/extinctions, while only birds and mammals have experienced recoveries. For obvious reasons, only fish have been delisted because commercial fishing regulations provide adequate protection (Table 20 and Figure 11).

Table 20. Number of endangered and threatened species delisted, by primary reason for delisting, from 1984 – 2011, by taxonomic group.

	Extirpated/ Extinct	Recovered	More Common Than Thought	Misidentified	Vagrant/ Peripheral/ Occurs in Distb. Habitats	Commercial Fish Regs Adequately Protect	Total species delisted	Total species listed
Fish	4	0	0	0	0	1	5	36
Amphibians	0	0	0	0	0	0	0	9
Reptiles	0	0	0	0	0	0	0	18
Birds	4	4	6	0	5	0	19	49
Mammals	1	1	1	0	0	0	3	12
Mussels	15	0	2	0	0	0	17	42
Other Invertebrates	0	0	1	1	0	0	2	32
Animal Totals	24	5	10	1	5	1	46	198
Plants	53	0	31	24	6	0	114	446
TOTALS	77	5	41	25	11	1	160	644

Species delistings, by reason for delisting

The largest proportion of delistings have been due to extirpation/extinction (77 species; 48%) and the fewest number have been because Illinois commercial fishing regulations developed by IDNR were deemed by the Board to provide adequate protection for the species (1 species; 0.6%) (Table 21 and Figure 12). Each reason for delisting is discussed below; delistings due to extirpation/extinction and due to recovery are given greater coverage since these reasons for delisting most significantly represent failures and successes associated with protecting endangered and threatened species in Illinois.

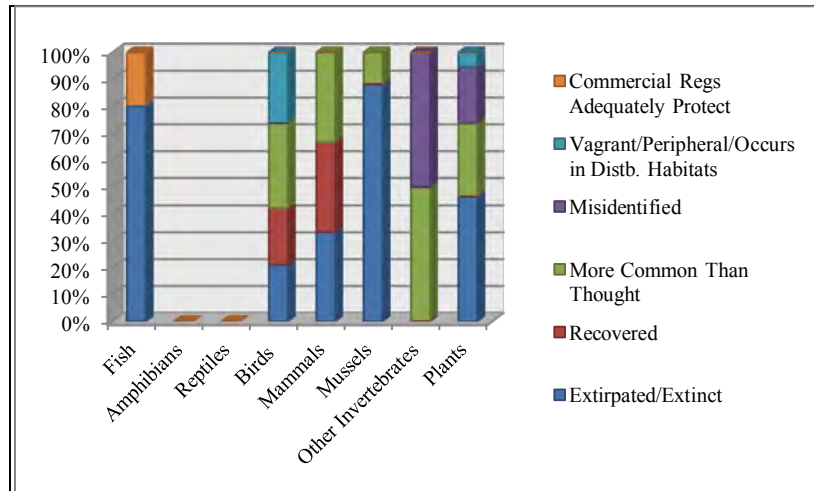


Figure 11. Percentage of endangered and threatened species delisted, by primary reason for delisting, from 1984-2011, by taxonomic group.

Table 21. Number of endangered and threatened species delisted, by primary reason for delisting, from 1984-2011.

	All species on the Illinois List (includes federally-listed species)	Federally-listed species only
Extirpated/Extinct	77	12
Recovered	5	1
More Common Than Thought	41	0
Misidentified	25	0
Vagrant/Peripheral/Occurs in Disturbed Habitats	11	0
Commercial Fishing Regulations Adequately Protect	1	0
TOTAL	160	13

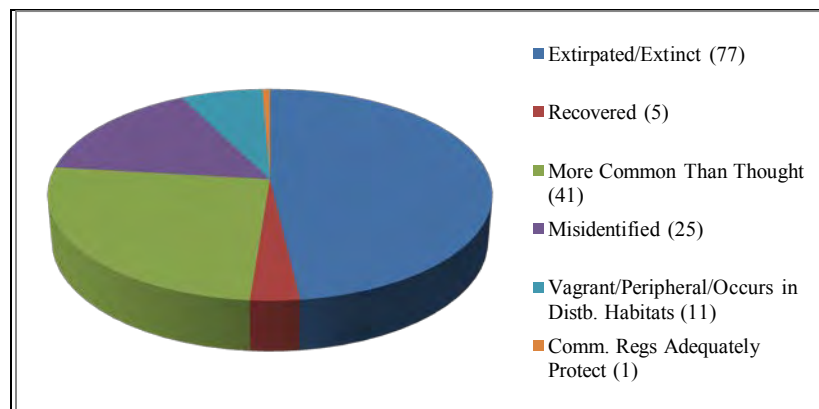


Figure 12. Proportion of endangered and threatened species delisted by primary reason for delisting, from 1984-2011.

Species now considered extirpated or extinct

Some inventorying of Illinois' biological resources began by the mid-1800s. Certainly an unknown number of species had been extirpated from Illinois from the time prior to when researchers began recording the status of individual species in the state. A compendium produced by the Illinois Natural History Survey in 1991 (Page and Jeffords 1991) of the status of the State's biological resources included a list of 115 species considered extirpated from Illinois at the time. Excluding from that list those species

that had already been placed on the Illinois List of Endangered and Threatened Species or were subsequently rediscovered/reintroduced, results in a list of 70 species considered extirpated from Illinois prior to the development of the Illinois Endangered Species Protection Act and the Illinois List. Since the ESPA was enacted and an Illinois List was developed, 77 species have been removed from the List by the ESPB as extirpated or extinct from Illinois from 1984-2011; including 69 extirpated and 8 extinct species. This brings to 147 the total number of species considered extirpated/extinct in Illinois since the mid-1800s, with 48% (70 species) attributed to a time prior to, and 52% (77 species) attributed to the time since, the establishment of the ESPA and the Illinois List (Table 22). By taxonomic group, plants have experienced the most delistings due to extirpation and extinction (53 species or 69% of all extirpations/extinctions), with mussels having the next highest number (15 species) and representing 63% of animal extirpations/extinctions (Tables 22 and 23 and see Appendix J for a list of all species delisted as extirpated or extinct).

Table 22. Number of species considered extirpated prior to and after the development of ESPA and Illinois List, and respective listing outcomes, from 1984-2011, by taxonomic group .

	Fish	Amphibians	Reptiles	Birds	Mammals	Mussels	Other Invertebrates	Plants	TOTALS
Recommended as extirpated/extinct by others, rediscovered and listed by ESPB	3	1	0	0	0	0	0	1	5
Recommended as extirpated/extinct by others, rediscovered and kept on list by ESPB	0	0	1	0	0	0	0	1	2
Federal species (which ESPB cannot delist) recommended as extirpated/extinct by others or ESPB, but kept on list or relisted by ESPB after delisting in error	0	0	0	0	1	0	0	1	2
Listed, delisted as extirpated/extinct, rediscovered and re-listed by ESPB	0	0	0	0	0	0	0	6	6
TOTAL species recommended as extirpated/extinct by others, but rediscovered or otherwise kept on or added to the list by ESPB	3	1	1	0	1	0	0	9	15
Deemed extirpated/extinct prior to ESPA/ESPB listing and not subsequently rediscovered/reintroduced ¹	7	0	0	7	8	4	9	35	70
Listed and subsequently delisted as extirpated/extinct by ESPB	4	0	0	4	1	15	0	53	77
TOTAL species considered extirpated/extinct prior to and since the development of the ESPA and Illinois List	11	0	0	11	9	19	9	87	147

¹ = after Page and Jeffords 1991

Sheer rarity at the time of listing may explain the vulnerability to extirpation for many species. Of the 77 species, 21 (27%) were known for only one occurrence in the state at the time of listing. This includes 1 fish (25% of extirpated species from that taxon), 1 mammal (100% of extirpated species from that taxon), and 19 plants (36% of extirpated species from that taxon) delisted for this reason. Thirteen species (all plants) were known for 2-5 occurrences, 1 species (a plant) was known for 12 occurrences, and the number of occurrences was unknown for the remaining 42 species (3 fish, 4 birds, 15 mussels, 20 plants) (Table 23).

While species listings are based on the best evidence available at the time, in some instances, there may be enough evidence that the species is in trouble to support a listing decision, but not enough to be certain of the degree of endangerment and the Board will subsequently support species status surveys to try to better answer that question. For this reason, it is likely that several of the 42 species for which the number of recent occurrences was not known at the time of listing may actually have been extirpated

Table 23. Total number of known occurrences at the time of listing for species that were later delisted due to extirpation/extinction, by taxonomic group.

	Number of species extirpated / extinct	Number of species with the number of occurrences known for each at time of listing (species/occurrences)
Fish	4	2/? , 1/0, 1/1
Amphibians	0	n/a
Reptiles	0	n/a
Birds	4	4/?
Mammals	1	1 / 1
Mussels	15	15/?
Other Invertebrates	0	n/a
Plants	53	20/? , 19/1, 7/2, 2/3, 3/4, 1/5, 1/12
TOTALS	77	41/? , 1/0, 21/1, 7/2, 2/3, 3/4, 1/5, 1/12

prior to, or shortly after, listing and it took years of surveying and monitoring to have adequate information for the Board to consider the species no longer extant in Illinois. Many of the mussels considered extirpated probably fall into this category, but it is unknown exactly how many total species do. The likelihood that several species may have been extirpated prior to or shortly after listing is further illustrated by the fact that the majority of delistings due to extirpation/extinction took place during the 1989, 1994, and 1999 List revisions, following several years of further evaluating species on the first Illinois List (Tables 24). The same status surveys may also rediscover a species previously considered extirpated. A total of 15 species have been rediscovered and kept on or added to the Illinois List after a recommendation as extirpated was considered by the Board (Table 22.)

Table 24. Number of endangered and threatened species delisted as extirpated or extinct, from 1984-2009, by taxonomic group and List revision.

	1984	1989	1994	1999	2004	2009	TOTALS
Fish	1	0	1	0	2	0	4
Amphibians	0	0	0	0	0	0	0
Reptiles	0	0	0	0	0	0	0
Birds	0	2	0	2	0	0	4
Mammals	0	0	1	0	0	0	1
Mussels	0	0	11	1	3	0	15
Other Inv	0	0	0	0	0	0	0
Animal Totals	0	2	13	3	5	0	24
Plants	0	19	2	19	7	6	53
TOTALS	1	21	15	22	12	6	77

With respect to if and how the type of ownership and/or protection of properties where species occurred may or may not have affected their fate, based on the information available, the majority of extirpated/extinct species (51 species; 66%) occurred solely on private properties or in streams, rivers, or Lake Michigan, while 10 species (13%) occurred solely on public properties (Table 25). A total of 26 species (34%) had at least one occurrence on public lands or in Illinois Nature Preserves; 21 species (27%) were associated with public properties, and 5 (6%) were associated with Illinois Nature Preserves. Of the species occurring on public properties, those with at least one occurrence on IDNR properties (7 species; 9%) had fewer extirpations/extinctions compared with those with at least one occurrence on other public properties, such as lands owned by county Forest Preserve Districts or the U.S. Forest Service (14

species; 18%). The 14 extirpated/extinct species occurring on those other public lands included 4 species with at least one occurrence, and all 10 species for which the only known occurrences were from those public properties.

Across all ownership and protection types, plant extirpations/extinctions outnumbered those for animals in general by greater than 2:1, which may at least partly reflect the different legal protections afforded plants versus animals. For the 65 extirpated/extinct species that had at least one occurrence on private properties or in streams, rivers, or Lake Michigan, 42 (65%) were plants and 23 (35%) were animals. The difference in the fate of plants compared to animals is more dramatic when applied to those species with occurrences on public properties and Illinois Nature Preserves. Of the 26 extirpated/extinct species with at least one occurrence on public properties and Illinois Nature Preserves, 24 (92%) were plants while only 2 (8%) were animals (Table 25).

Table 25. Number of occurrences known on IDNR sites, Illinois Nature Preserves, Other Public Lands (County Forest Preserve Districts, U.S. Forest Service, etc), and private properties at the time of listing, for species that were later delisted due to extirpation/extinction, by taxonomic group.

	Number of species extirpated /extinct	Number species with number of occurrences known for each on IDNR sites (other than NPs) at time of listing (species/occurrences)	Number species with number of occurrences known for each on NPs at time of listing (species/occurrences)	Number species with number of occurrences known for each on other public sites (Co FPD, USFS, etc) at time of listing (species/occurrences)	Number of species with number of occurrences known for each from private properties, streams, rivers, or Lake Michigan at time of listing (species/occurrences)
Fish	4	2/1	0	0	1/0, 2/?
Amphibians	0	n/a	n/a	n/a	n/a
Reptiles	0	n/a	n/a	n/a	n/a
Birds	4	0	0	0	4/?
Mammals	1	0	0	0	1/1
Mussels	15	0	0	0	15/?
Other Invertebrates	0	n/a	n/a	n/a	n/a
Plants	53	5/1	4/1, 1/2	14/1	20/? , 10/1, 7/2, 2/3, 1/4, 1/5, 1/12
TOTALS	77	7/1	4/1, 1/2	14/1	1/0, 41/? , 11/1, 7/2, 2/3, 1/4, 1/5, 1/12

A look at habitat associated with extirpations/extinctions illustrates the impacts of habitat degradation and destruction upon these species that are often especially environmentally sensitive and/or have specific habitat area and structure requirements. For animals, 19 (79%) were aquatic species (4 fish and 15 mussels) where degraded water quality and substrate structure resulting from dredging, channelization, and sedimentation are attributed to their extirpations. Two animals (White-tailed Jackrabbit, *Lepus townsendi*, and Bachman's sparrow, *Aimophila aestivalis*) were associated with large expanses of prairie and open oak woods with adjoining grass, respectively. These are natural community types that have been largely eliminated across Illinois and remaining examples are often small and degraded. The remaining three species (Yellow rail, *Coturnicops noveboracensis*; Eskimo Curlew, *Numenius borealis*; and, Bachman's Warbler, *Vermivora bachmanii*) were associated with wetland communities (marsh/sedge meadow, wet prairie, bottomland forest/swamp, respectively), which have also undergone considerable destruction, fragmentation, and degradation in Illinois (Table 26).

Many of the plant species that have experienced extirpations/extinctions were associated with more than one type of natural community/habitat. In reviewing the number of plant extirpations/extinctions for each habitats/natural community type, they were assessed by looking at the number of species associated with each of six community types – prairie, savanna/barrens, forest/woodland, wetland, disturbed (such as

shifting sand dunes), and outcrop – where some species are counted under more than one community type. For the 53 extirpated/extinct plants; 37% were associated with wetlands; 26% with forests/woodlands; 12% each with savannas/barrens and prairies; 10% with disturbed communities; and, 3% with outcrops (Table 26).

Table 26. Number of species delisted as extirpated/extinct, from 1984-2011, by habitat/natural community type and taxonomic group (note – some species occupy more than one habitat/natural community type, so are counted more than once and numbers do not equal the actual number of species ever delisted for this reason).

	Prairie	Savanna/Barrens	Forest/Woodland	Wetland	Disturbed	Outcrop	Aquatic
Fish	-	-	-	-	-	-	4
Amphibians	-	-	-	-	-	-	-
Reptiles	-	-	-	-	-	-	-
Birds	1	1	1	3	-	-	-
Mammals	1	-	-	-	-	-	1
Mussels	-	-	-	-	-	-	15
Other Invertebrates	-	-	-	-	-	-	-
Plants	8	8	18	25	7	2	-
TOTALS	9	9	19	28	7	2	19

A majority of the extirpated/extinct species (50 species; 65%) were only known from one (30 species; 39%) or two (20 species; 26%) counties at the time of listing. Twenty-six species were known from between 3 (8 species; 10%) and 16 (1 species; 1%) counties, and 1 fish was not known from any counties because it was a federally listed species automatically added to the Illinois List and known from Lake Michigan, but never attributed to Illinois (Table 27). The geographic areas associated with extirpations /extinctions differ slightly between animals and plants and largely reflects where respective habitat has been most impacted and/or areas with unique habitats/natural communities. Because mussels account for most of the animals in this category, the counties with the most animal extirpations/extinctions are those where most of the mussels formerly occurred, including those in the Vermilion River, Embarras River, Upper Wabash River, and Lower Wabash River drainages. For plants, the counties with the most extirpations/extinctions reflect areas of the state with the highest concentrations of occurrences and the most development (Chicago, Metro-East), followed by counties in areas with some of the most unique natural division features in the state, such as those in the Northeastern Morainal, Rock River Hill Country, Wisconsin Driftless, Western Forest-Prairie, Shawnee Hills, and Coastal Plain Divisions (Figure 13 and Appendix B).

Table 27. Number of counties with recent and historic records at the time of listing for species that were later delisted due to extirpation/extinction, by taxonomic group.

	Number of species extirpated / extinct	Number of species with the number of counties with recent and historic occurrences of each at time of listing (species/occurrences)
Fish	4	1/0, 1/1, 1/2, 1/5
Amphibians	0	n/a
Reptiles	0	n/a
Birds	4	2/1, 1/2, 1/3
Mammals	1	1 / 1
Mussels	15	3/1, 3/2, 3/4, 2/5, 2/6, 1/7, 1/12
Other Invertebrates	0	n/a
Plants	53	23/1, 15/2, 7/3, 6/4, 1/9, 1/16
TOTALS	77	1/0, 30/1, 20/2, 8/3, 9/4, 3/5, 2/6, 1/7, 1/9, 1/12, 1/16

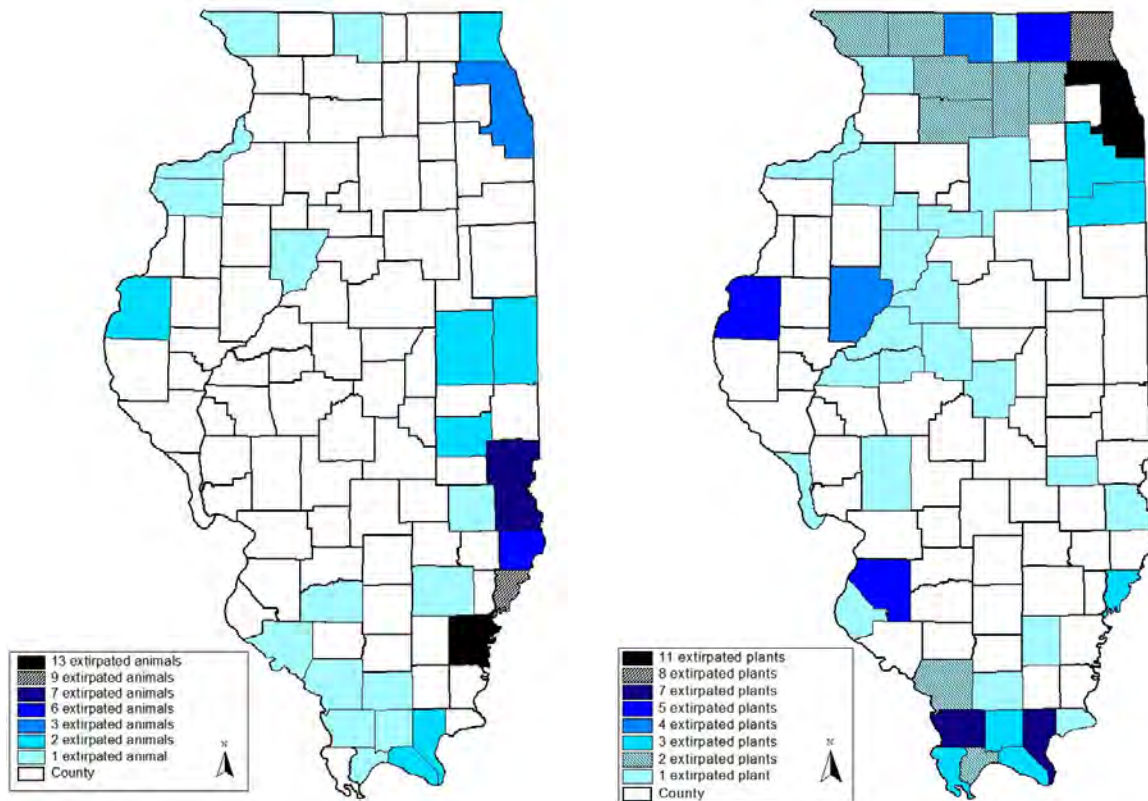


Figure 13. County-level distribution of animals and plants delisted as extirpated or extinct, from 1984-2011.

Species now considered recovered

Species recovery is generally understood to be difficult and complicated work. Reasons for this include: there are often multiple reasons for the species' endangerment that need to be addressed; there may be elements of a species' biology that are not fully understood and difficult and costly to research; it can be difficult to monitor and evaluate successes and failures of actions taken; it often requires working across political, administrative, and different landownership boundaries; it may take many years (often spanning a resource professional's career and beyond) to achieve results; and, in addition to research costs, other activities can also be costly, and recovery efforts must compete with all other funding needs of respective agencies and organizations.

Witness to the difficulty and complicated nature of recovery, is the fact that only five species (four birds and one mammal) have been delisted by the ESPB as recovered from 1984-2011 (Table 28). A brief description for each species recovery is provided below. It is worth noting that possibly more than five species have actually recovered from at risk population levels in Illinois; some species delisted as *Species now considered more common than previously thought* may have experienced (at least partial) recovery during the time that the Board was collecting more data on the species in order to reevaluate its status following its initial listing. The Board considers whether there are improvements in habitat or mitigation of other threats that might explain an apparent improvement in status that should therefore be attributed to "recovery", or if it is largely explained by the increased search effort, but often the data is not detailed enough to be certain.

Table 28. Species delisted by the ESPB as recovered from 1984-2011.

Scientific Name at Listing	Common Name at Listing	Year Listed	Year Delisted
<i>Accipiter cooperii</i>	Cooper's Hawk	1977	1997
<i>Lutra canadensis</i>	River Otter	1977	2004
<i>Ammodramus henslowii</i>	Henslow's Sparrow	1977	2009
<i>Grus canadensis</i>	Sandhill Crane	1989	2009
<i>Haliaeetus leucocephalus</i> *	Bald Eagle	1977	2009

Cooper's Hawk

The Cooper's Hawk was included in the original Illinois List as endangered and was delisted from endangered status in 1997. Similar to the reasons for the recovery of the Bald Eagle described below, this species benefitted from its listing under the ESA, environmental laws prohibiting the use of the pesticide DDT (which contributed to egg shell thinning and decreased reproductive success), public education, and habitat protection and conservation efforts. Between 1977 and 1996, the incidence of Cooper's Hawk during the Illinois Spring Bird Count increased by about 11% each year and during the same time period, the number of breeding records also increased dramatically. When listed in 1977, the Cooper's Hawk was only known to breed in 4 counties in Illinois and by the time it was delisted 20 years later, it was known to have nested in 25 counties over the recent 10-year period.

River Otter

The River Otter was included in the first Illinois List as threatened, it was downgraded to endangered in 1989, upgraded back to threatened in 1999, and delisted in 2004. This is a species for which the IDNR developed and implemented a recovery plan. The plan evaluated threats to the species and determined that trapping regulations had improved protection of the species, adequate amounts of riparian and forest/wetland habitat away from large river channels had been restored and protected and that water quality had improved in appropriate parts of the state. The plan then prescribed a program of reintroductions to reestablish adequate numbers to support breeding populations in areas of the state that had previously supported the species. The combined improvements in species habitat and results of reintroductions sufficiently improved the species' status in the state and the Board determined it had met prescribed thresholds and delisting was warranted.

Henslow's Sparrow

The Henslow's Sparrow was also included in the original Illinois List, as a threatened species. In 1994 it was downgraded to endangered, it was then upgraded back to threatened in 2004, and was delisted from threatened status in 2009. The recovery of this species is an endorsement for the benefits of large-scale habitat establishment programs such as the US Department of Agriculture, Conservation Reserve Program (CRP). This species certainly benefitted from decades of grassland establishment in the state under CRP with the number of breeding records doubling from about 25 to nearly 60 between 1997 and 2007 and the number of counties with records doubling between 2002 and 2007. Coupled with that habitat establishment was protection of some portion of habitat by multiple partners to ensure it would remain intact where breeding populations occurred. During the 2009 List review, the Board agreed that thresholds identified in a recovery outline for the Henslow's Sparrow for considering removal from the state list had been met and also evaluated projected changes in grassland habitat maintained under the CRP program, to make a decision to delist the species.

Sandhill Crane

This species was listed in Illinois as endangered in 1989, upgraded to threatened in 1999, and delisted from threatened in 2009. The species was never known for very extensive occupancy into Illinois, with most historic records only from the very northeastern part of the state. Over the years, the population within the state continued to increase and also became established in six counties outside of northeastern

Illinois and stretching into northwestern and central Illinois. The number of breeding Sandhill Cranes increased from about 20 to about 40, and the number of wetland sites where they occurred also doubled, between 1995 and 2005. This species benefitted from habitat establishment and protection in other parts of the state by multiple partners, and information gained through funded research to better monitor the species' occurrences and breeding activity informed the Board of improvements in its status.

Bald Eagle

The Bald Eagle was included in the first Illinois List as endangered, it was upgraded to threatened in 1999 and was delisted from threatened in 2009. The recovery of the Bald Eagle is a good example of the complexities involved in recovery as well as an illustration of the importance of partners. Recovery of the bald eagle, nationally and within Illinois, is due to a combination of reasons including its listing under the ESA (1977) and the federal Endangered Species Act (1978), environmental laws prohibiting the use of the pesticide DDT (which contributed to egg shell thinning and decreased reproductive success), public education, and habitat protection and conservation efforts. Within Illinois, multiple partners played a role in protecting winter roosting areas and nest locations. In 1990, there were fewer than 10 nests in Illinois and by 2007 there were over 100, with the number of counties with nests increasing from 1 in 1975 to 67 in 2008. When making the decision to delist the species, the Board considered these data, data demonstrating a generally increasing winter population with a healthy age structure, and the fact that the species would still receive certain protections under the Illinois Wildlife Code (520 ILCS 5/), The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c), and the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755) as amended through P.L. 105-312; October 30, 1998; 112 Stat. 2956.

Recovery planning

The most deliberate strategy for approaching species recovery includes some degree of planning to assess existing threats, identify ways to minimize and/or mitigate those threats, design processes for implementation and monitoring the effects of implementation, and then implementing and reviewing results to confirm the current approach or identify how it needs to be modified. As discussed previously in this document, habitat destruction, fragmentation, and degradation are the primary reasons for species endangerment in Illinois. For this reason, conducting recovery activities in the absence of also addressing habitat needs is not considered a reasonable strategy for most species.

There are three recovery plans for currently listed Illinois endangered or threatened species that have been approved by the ESPB and IDNR: Eastern Woodrat (*Neotoma floridana*) recovery plan (2003); Plan for the recovery of the Greater Prairie Chicken (*Tympanuchus cupido*) in Illinois (2004); and, Illinois Barn Owl (*Tyto alba*) recovery plan (2010). Additionally, IDNR developed a recovery plan for the River Otter (*Lontra canadensis*) that was approved by both agencies and led to the recovery and delisting of that species. The plans identify and prescribe prioritized management, protection, and monitoring strategies and activities for each species. Elements of the plans are considered when the Board reviews the status of each species during the required 5-year review of the Illinois List, or at other times, if warranted. The Board makes plans for currently listed species available on its website at <http://www.dnr.illinois.gov/ESPB/Pages/RecoveryPlans.aspx>.

In addition to the more comprehensive plans, the IDNR and Board have developed and approved recovery outlines and/or status review criteria for several state-listed species. These documents do not go into the level of detail found in full recovery plans, but briefly outline species biology, the reasons for status, general recommendations for management and monitoring strategies and actions, and Illinois population thresholds at which the Board will review and consider a change in the species' listing status. Sometimes they may serve as a precursor to the development of a full recovery plan. There are currently recovery outlines and/or status review criteria for the Peregrine Falcon (*Falco peregrinus*, 2000, amended 2009), Short-eared Owl (*Asio flammeus*, 2010), Northern Harrier (*Circus cyaneus*, 2010), Osprey (*Pandion*

halieatus, 2010), Eastern Woodrat (*Neotoma floridana*, 2009), Rice Rat (*Oryzomys palustris*, 2009), and Golden Mouse (*Ochrotomys nuttallii*, 2009). Elements of these documents are considered when the Board reviews the status of each species during the required 5-year review of the Illinois List, or at other times, if warranted.

Species now considered more common than previously thought

A total of 41 species (10 animals and 31 plants) have been delisted because after gathering more data and conducting additional surveys, the Board determined that they were more common than previously thought and did not meet the definitions of threatened or endangered. As mentioned above, under *Species now considered recovered*, it is possible that some species under this category could also be considered as recovered since during the time the Board was collecting more data on the species it may have experienced recovery from at-risk population levels. The Board considers whether there are improvements in habitat or mitigation of other threats that might explain an apparent improvement in status that should therefore be attributed to “recovery”, or if it is largely explained by the increased search effort, but often the data is not detailed enough to be certain. Great Egret (*Casmerodius albus*), Bobcat (*Lynx rufus*), and Hill’s Thistle (*Cirsium hillii*) are species that have been delisted for this reason.

Species found to have been previously misidentified

A total of 25 species (1 invertebrate and 24 plants) have been delisted because upon further evaluation, the species were found to have been previously misidentified and therefore, listed in error. The invertebrate that was delisted for this reason was mistaken for the amphipod (*Crangonyx antennatus*) and examples of plant species that were misidentified include False Dragonhead (*Physostegia intermedia*) and Knotted Spikerush (*Eleocharis equisetoides*).

Species now considered vagrant, peripheral, or occurring only in disturbed habitats

Species that fall into this category are those for which it took some years of evaluation to determine that their occurrence in Illinois was only vagrant or peripheral or indicative of an introduced and adventive species. A total of 11 species (5 birds and 6 plants) have been delisted for this reason. Species delisted for this reason include Purple Gallinule (*Porphyryla martinica*) and Plains Violet (*Viola viarum*).

Species for which IDNR developed commercial fishing regulations that adequately protect

There is only one species, Lake Whitefish (*Coregonus clupeaformis*), that has been delisted for this reason.

The current Illinois List (2011)

In addition to the summary below, see also *Appendix G. Species status, by List revision, 1977-2011* and *Appendix K. Illinois endangered and threatened species – history of listing, status changes, delisting, and nomenclature changes by species* for specific information for individual species.

The 2011 Illinois List includes a total of 484 species; 152 animals and 332 plants. Endangered species make up 74% and threatened species make up 26% of the List (Table 29 and Figure 14).

How rare is rare?

Of the 484 species on the current (2011) Illinois List, approximately 60% have 5 or fewer, and approximately 80% have 10 or fewer occurrences in the state. Proportionately by taxonomic group, plants have the most species with the fewest statewide occurrences, with 64% having 5 or fewer and 87% having 10 or fewer occurrences. The next rarest group is invertebrates, with 55% of species having 5 or fewer and 76% having 10 or fewer occurrences statewide. Amphibians could be described as the “least” rare, with 22% of species having 5 or fewer and 22% of species having 10 or fewer occurrences statewide (Table 30 and Figure 15).

Table 29. Number of endangered and threatened animals and plants on the 2011 Illinois List, by taxonomic group.

	Endangered	Threatened	Totals
Fish	19	12	31
Amphibians	3	6	9
Reptiles	10	8	18
Birds	25	5	30
Mammals	5	4	9
Invertebrates	43	12	55
Total Animals	105	47	152
Plants	251	81	332
TOTALS	356	128	484

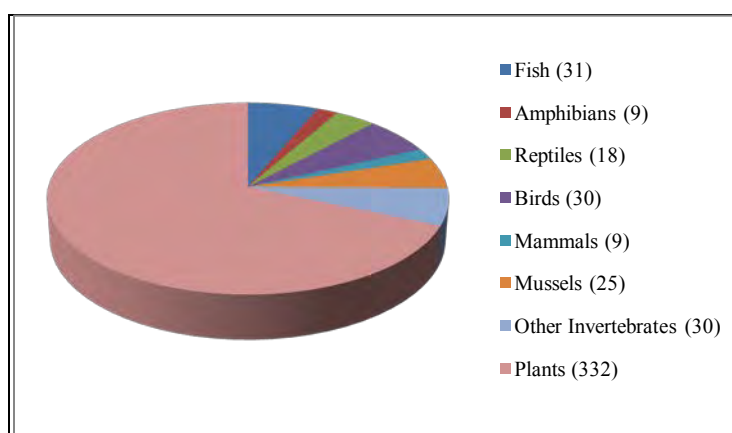


Figure 14. Proportion of endangered and threatened species on the 2011 Illinois List, by taxonomic group.

Table 30. Number of endangered and threatened species with 5 or fewer, and with 10 or fewer, occurrences, by taxonomic group, from the 2011 Illinois List.

	Species with ≤ 5 occurrences	Species with > 5 occurrences	Species with ≤ 10 occurrences	Species with > 10 occurrences	Total # of species
Fish	10	21	12	19	31
Amphibians	2	7	2	7	9
Reptiles	7	11	10	8	18
Birds	5	25	11	19	30
Mammals	2	7	4	5	9
Invertebrates	30	25	42	13	55
Animal Totals	56	96	81	71	152
Plants	211	121	289	43	332
TOTALS	267	217	370	114	484

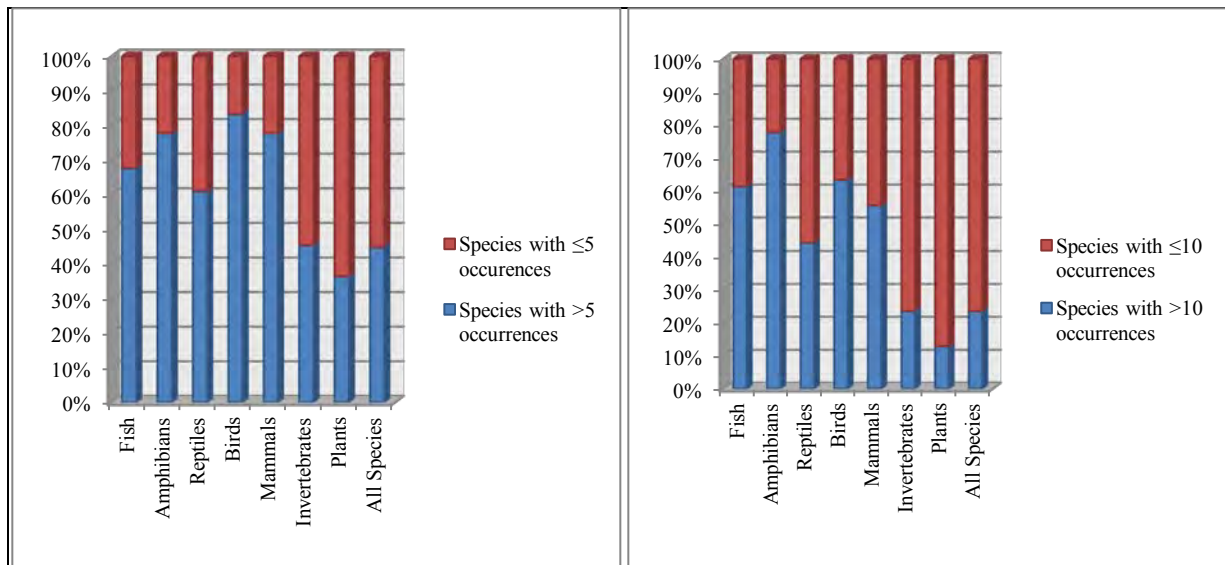


Figure 15. Percentage of endangered and threatened species with 5 or fewer, and with 10 or fewer, occurrences, by taxonomic group, from the 2011 Illinois List.

Where do endangered and threatened species occur in Illinois?

Endangered and threatened species occur in every county of Illinois. The distribution of endangered and threatened in Illinois is somewhat similar to the maps illustrating counties associated with species extirpations/extinctions (see Figure 13, above). The counties with the highest number of species (Figure 16) largely reflects areas with specialized habitats/natural communities associated with some of the more unique natural division features in the state, such as those in the Northeastern Morainal, Rock River Hill Country, Wisconsin Driftless, Western Forest-Prairie, Shawnee Hills, and Coastal Plain Divisions and some of the sections associated with sand areas and river floodplain areas (Appendix B). The distribution also illustrates that a number of listed species are at the edge of their range in Illinois and have a very limited distribution here, occurring only in counties near the state's borders. Examples include Golden Mouse (*Ochrotomys nuttalli*) that is at the northernmost edge of its range in southern Illinois; Cisco (*Coregonus artedii*) and Common Tern (*Sterna hirundo*), associated with Lake Michigan and its shores, respectively; Slender Heliotrope (*Heliotropium tenellum*), occurring only in Monroe and Randolph Counties; and, Marsh Valerian (*Valeriana uliginosa*), which reaches its southwestern range limit in northeastern Illinois. Separating animal and plant distribution (Figure 17) shows that the concentrations are somewhat similar, but animals are more affiliated than plants with counties proximate to major waterways and have a generally more even distribution across the state. Endangered and threatened animals also occur in every county, while there are eight counties where no listed plants occur.

Maps illustrating the number of endangered and threatened species occurrences by county and as a statewide distribution (Figure 18) are also reflective of areas with specialized habitats/natural communities associated with some of the more unique natural division features in the state, such as those in the Northeastern Morainal, Rock River Hill Country, Wisconsin Driftless, Western Forest-Prairie, Shawnee Hills, and Coastal Plain Divisions and some of the sections associated with sand areas and river floodplain areas (Appendix B).

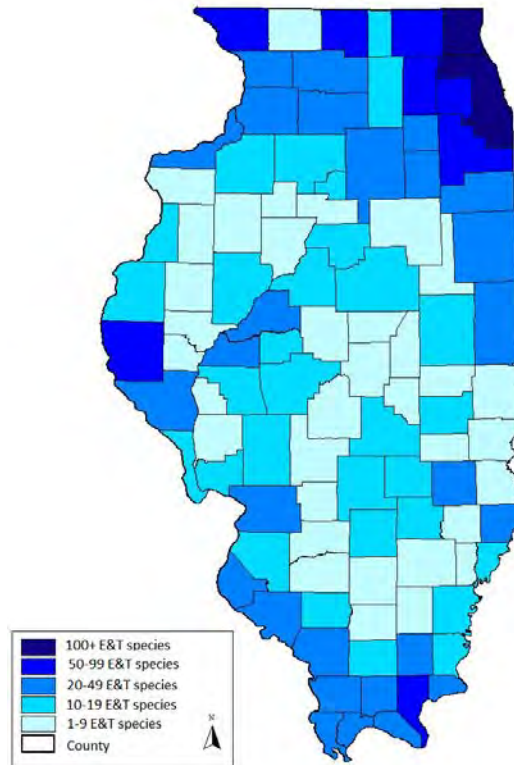


Figure 16. County-level distribution of number of endangered and threatened species on the 2011 Illinois List.

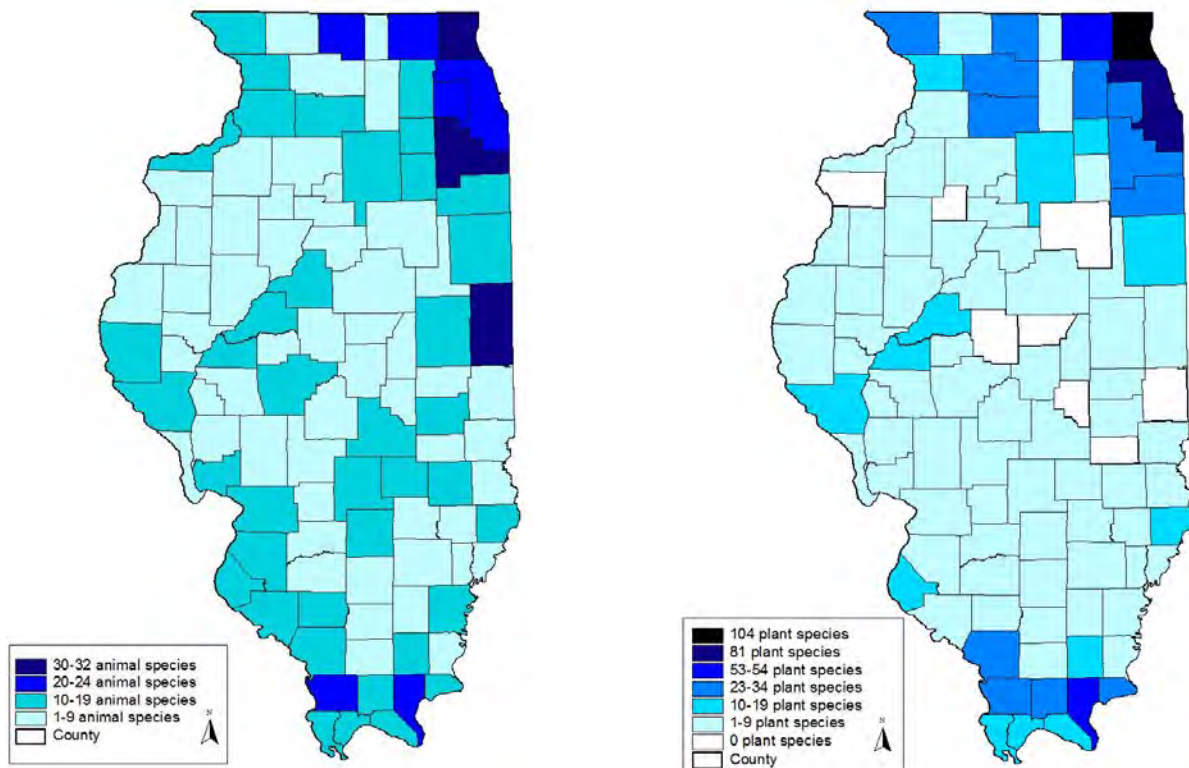


Figure 17. County-level distribution of number of endangered and threatened animal and plant species on the 2011 Illinois List.

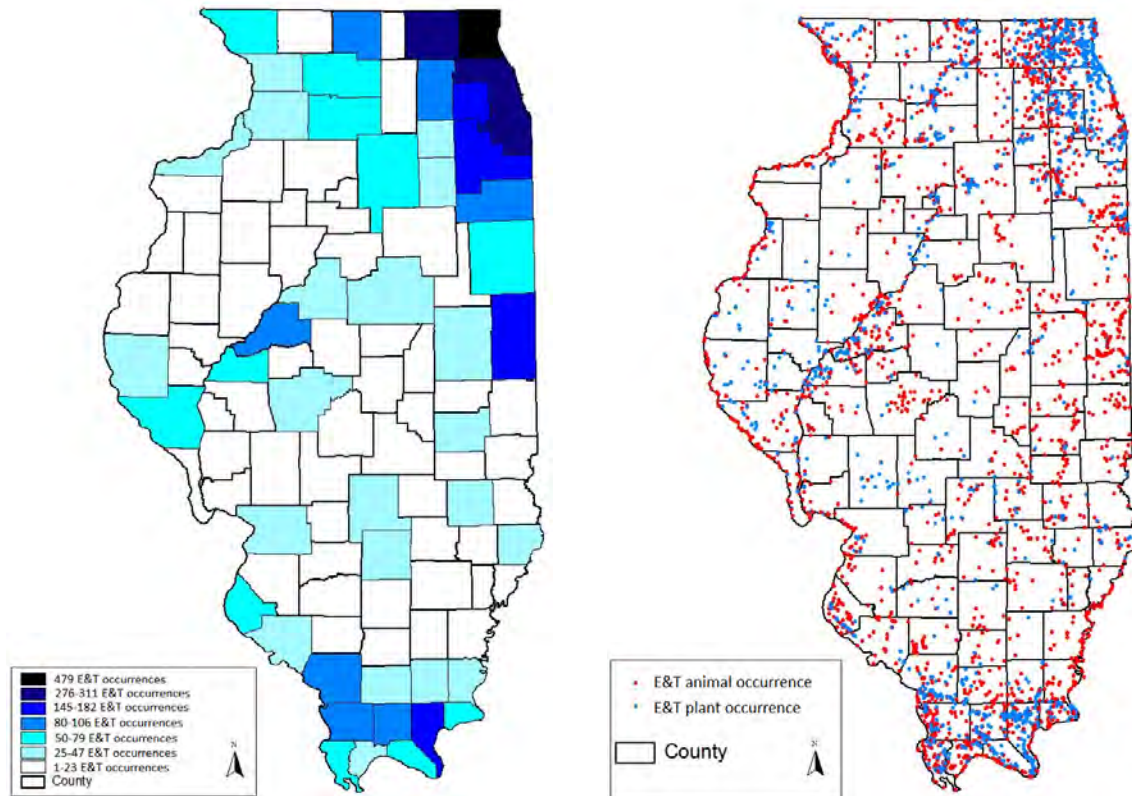


Figure 18. County-level distribution and statewide occurrences of endangered and threatened animals and plants on the 2011 Illinois List.

How are we doing at monitoring endangered and threatened species?

Monitoring of listed species and reporting the information to the IDNR Natural Heritage (Biotics 4) Database (Database) is important for all aspects of endangered and threatened species conservation in Illinois. Species occurrence data in Database is used to support the ESPB's Illinois List review activities; IDNR's endangered and threatened conservation program including possession permits, consultations, and incidental take authorizations; natural area protection by the IDNR and INPC; and, species recovery planning by all three agencies.

For the 5-year period of 2006-2011, over 1,715 endangered and threatened species occurrence reports were submitted to the Database. The ESPB and IDNR, which are the state agencies with primary responsibility for monitoring listed species, and the INPC, which also shares this responsibility, collectively reported about ½ of the occurrence information to the Database. While not all staff within each program are field staff, and some programs have no dedicated field staff, a review of the 1,715 reports indicates that the ESPB (with 1 staff) was responsible for less than 1%, IDNR ORC (with 205.5 staff and 7 interns) was responsible for 39%, INPC (with 10 staff and 3 interns) was responsible for 6%, and IDNR OREP IAS (with 12 staff and 1 intern) was responsible for 3% of reports (staff numbers are as of April 2012). The importance of other partners in this aspect of endangered and threatened species conservation is well illustrated here, with approximately 300 individuals reporting approximately 50% of the endangered and threatened species occurrence information that was submitted to the Database during the 5-year period (Table 31).

Table 31. Number of listed species occurrence reports submitted to the IDNR Natural Heritage (Biotics 4) Database from 2006-2011, by ESPB, IDNR, INPC, and Other Individuals (# of staff/individuals as of April 2012).

	ESPB (1)	IDNR ORC DNH (26, +7 interns)	IDNR ORC Fisheries (99)	IDNR ORC Wildlife (50.5)	INPC (10, +3 interns)	IDNR OREP IAS (12, +1 intern)	Other (>300)	Totals
Fish	0	22	51	2	2	6	43	126
Amphibians/Reptiles	1	89	5	12	14	12	177	310
Birds	5	258	23	12	11	11	259	579
Mammals	3	12	1	0	2	4	24	46
All Invertebrates	0	85	10	1	21	15	65	197
Plants	6	83	3	0	61	8	296	457
Total EORs	15	549	93	27	111	56	864	1,715

Despite the efforts discussed above, there is still great need for surveillance of endangered and threatened species and especially for revisiting known occurrences to check on their status. As of December, 2011, there were 4,960 endangered and threatened species occurrences in Illinois. Listed animals and plants account for 56% and 44% of those occurrences, respectively. Of the 4,960 occurrences, 66% have been, and 34% have not been, surveyed in the last 10 years (since 2002) (Table 32 and Figure 19). With respect to those occurrences with recent observations, 54% have been, and 46% have not been, observed in the last 10 years (since 2002) (Table 33 and Figure 19).

Table 32. Number of listed species occurrences in Illinois that have not been surveyed in the last 10 years (before 2002), by taxonomic group for species on the 2011 Illinois List.

	Total number of occurrences	Occurrences surveyed in last 10 years	Percent surveyed in last 10 years	Occurrences not surveyed in last 10 years	Percent not surveyed in last 10 years
Fish	567	338	60%	229	40%
Amphibians	127	91	72%	36	28%
Reptiles	392	226	58%	166	42%
Birds	761	623	82%	138	18%
Mammals	208	130	63%	78	38%
Invertebrates	700	489	70%	211	30%
Plants	2,205	1,372	62%	833	68%
Totals	4,960	3,269	66%	1,691	34%

Table 33. Number of listed species occurrences in Illinois that have been surveyed, but not observed in the last 10 years (before 2002), by taxonomic group for species on the 2011 Illinois List.

	Total number of occurrences	Occurrences observed in last 10 years	Percent observed in last 10 years	Occurrences not observed in last 10 years	Percent not observed in last 10 years
Fish	567	282	50%	285	50%
Amphibians	127	86	68%	41	32%
Reptiles	392	195	50%	197	50%
Birds	761	360	47%	401	53%
Mammals	208	118	57%	90	43%
Invertebrates	700	432	62%	268	32%
Plants	2,205	1,201	54%	1,004	46%
Totals	4,960	2,674	54%	2,286	46%

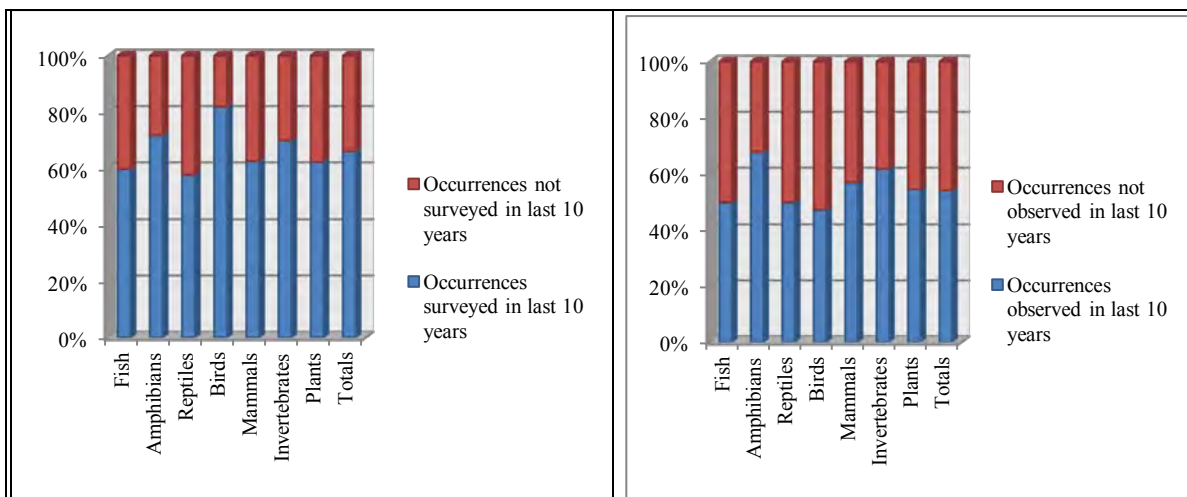


Figure 19. Percentage of endangered and threatened species occurrences in Illinois that have and have not been surveyed and those that have been surveyed, but not observed in the last 10 years (before 2002), by taxonomic group for species on the 2011 Illinois List.

How are we doing at protecting endangered and threatened species habitat?

The importance of partners in endangered and threatened species conservation is again illustrated when looking at the ownership of properties where listed species occur in the state. Of the properties supporting the 4,960 endangered and threatened species occurrences in Illinois, 22% are owned by the IDNR, 17% are owned by County Forest Preserve/Conservation Districts, 13% are owned by the U.S. Fish and Wildlife Service and U.S. Forest Service, and 48% are owned by mostly private land-owners (Table 34 and Figure 20).

Table 34. Number of endangered and threatened species occurrences on lands in Illinois, by major landowner.

	E&T occurrences
Number of occurrences on IDNR-owned land	1,089
Number of occurrences on CFPD-owned land	830
Number of occurrences on USFWS/USFS-owned land	630
Number of occurrences on other land (mostly private)	2,411
Total number of occurrences in the state	4,960

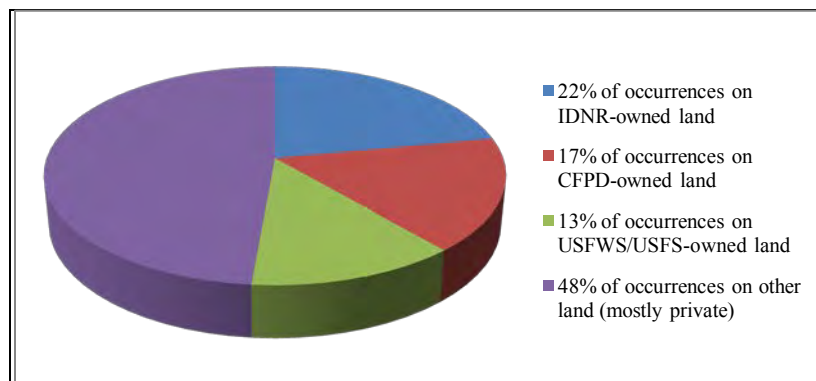


Figure 20. Percentage of endangered and threatened species occurrences on lands in Illinois, by major landowner.

In general, endangered and threatened species habitat on properties owned by state or local natural resources agencies are afforded certain protections against conversion to other uses. Approximately 30% of listed species occurrences in the state occur on such publicly-owned properties. Dedication as an Illinois Nature Preserve and registration as an Illinois Land and Water Reserve are the highest forms of legal protection that can be afforded properties in Illinois. Habitats supporting 26% of endangered and threatened species occurrences have been protected as either an Illinois Nature Preserves or Illinois Land and Water Reserves by multiple state and county land management agencies, non-governmental organizations, and private landowners. The remaining 44% of occurrences are on properties that are mostly in private ownership and are not enrolled in a land protection program (Tables 35 and 36 and Figures 21 and 22).

Table 35. Number of endangered and threatened species occurrences in Illinois, by major land-protection classification.

	E&T occurrences
Number of occurrences on land that is a NP/LWR	1,275
Number of occurrences on land that is publicly-owned (not a NP/LWR)	1,512
Number of occurrences on land that is in other (mostly private) ownership (not a NP/LWR)	2,173
Total number of occurrences in the state	4,960

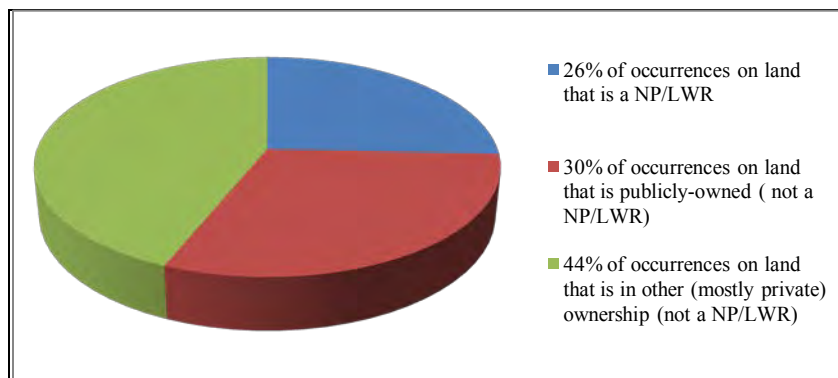


Figure 21. Percentage of endangered and threatened species occurrences in Illinois, by major land-protection classification.

Table 36. Number of endangered and threatened species occurrences in Illinois, by major land-protection classification and landowner.

	Number of occurrences on land that is NP/LWR	Number of occurrences on land that is not NP/LWR	Total number of occurrences on land by ownership
IDNR	695	394	1,089
USFWS	0	530	530
USFS	0	100	100
Cook CFPD	73	120	193
DuPage CFPD	19	124	143
Kane CFPD	18	39	57
Lake CFPD	110	99	209
McHenry CCD	78	84	162
Will CFPD	44	22	66
Other – mostly private	238	2,173	2,411
TOTALS	1,275	3,685	4,960

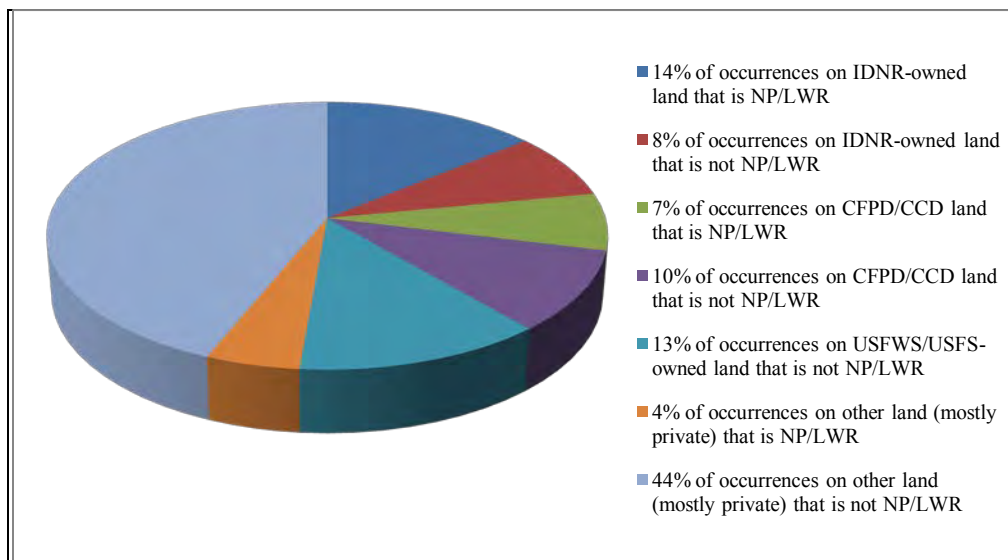


Figure 22. Percentage of endangered and threatened species occurrences in Illinois, by landowner and major land-protection classification.

As mentioned above, Illinois Nature Preserves and Illinois Land and Water Reserves, and some public properties, provide varying levels of protection for listed species habitat. Because fully 44% of endangered and threatened species occurrences are on land in mostly private ownership and without other protections in place, these properties should represent an obvious priority for the use of voluntary protection tools that could benefit many listed species in Illinois.

CONCLUSION

This review suggests that after 40 years of implementation, the Illinois Endangered Species Protection Act has proven mostly successful at slowing species extirpations after the initial period following enactment and at providing a regulatory framework for protecting those species of plants and animals native to Illinois which are in danger of being lost from the wild in Illinois. The findings also aid in identifying those aspects of Illinois endangered and threatened species conservation that have been successful and those that warrant additional review, evaluation, and improvement. As stated in the preface, the Endangered Species Protection Board will use the findings of this review to identify ways to improve the efficiency and effectiveness of its programs, and will also develop in coordination with the Illinois Department of Natural Resources similar recommendations to improve Department programs for consideration by that agency. In this way, the Board hopes to keep Illinois in the forefront of endangered and threatened species conservation, much as it was when the Act was first established in 1972.

DEFINITIONS

"Board" means the Endangered Species Protection Board created by this Act.

"Conservation" means to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation and transplantation.

"Department" means the Department of Natural Resources and "Director" means the Director of that Department.

"Endangered Species" means any species of plant or animal classified as endangered under the Federal Endangered Species Act of 1973, P.L. 93-205, and amendments thereto, plus such other species which the Board may list as in danger of extinction in the wild in Illinois due to one or more causes including but not limited to, the destruction, diminution or disturbance of habitat, overexploitation, predation, pollution, disease, or other natural or manmade factors affecting its prospects of survival.

"Threatened Species" means any species of plant or animal classified as threatened under the Federal Endangered Species Act of 1973, P.L. 93-205, and amendments thereto, plus such other species which the Board may list as likely to become endangered in the wild in Illinois within the foreseeable future.

"Animal" means those organisms commonly included in the science of zoology and generally distinguished from plants by possession of a nervous system and the ability to move from place to place, including all invertebrates such as sponges and mollusks as well as vertebrates such as fishes, amphibians, reptiles, birds, and mammals.

"Animal Product" means the fur, hide, skin, teeth, feathers, tusks, claws, eggs, nests or the body or any portion thereof whether in a green or raw state or as a product manufactured or refined from an animal protected under this Act or under rules issued pursuant to this Act.

"Plant" means any organism not considered to be an animal, and shall include such organisms as algae, fungi, bryophytes, and ferns, as well as flowering plants and conifers.

"Plant Product" means any plant body or part thereof removed from natural habitat, including seeds, fruits, roots, stems, flowers, leaves, or products made from any of these, including extracts or powders.

"Essential Habitat" means the specific ecological conditions required by an endangered or threatened species for its survival and propagation, or physical examples of these conditions.

"Take" means, in reference to animals and animal products, to harm, hunt, shoot, pursue, lure, wound, kill, destroy, harass, gig, spear, ensnare, trap, capture, collect, or to attempt to engage in such conduct.

"Illinois List" means a list of species of animals and plants listed by the Board as endangered or threatened.

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Appendix A. Map of Illinois Counties.



Appendix B. Map of the Natural Divisions of Illinois (Schwegman 1973)

- 1 Wisconsin Driftless Division
- 2 Rock River Hill Country Division
 - a Freeport Section
 - b Oregon Section
- 3 Northeastern Morainal Division
 - a Morainal Section
 - b Lake Michigan Dunes Section
 - c Chicago Lake Plain Section
 - d Winnebago Drift Section
- 4 Grand Prairie Division
 - a Grand Prairie Section
 - b Springfield Section
 - c Western Section
 - d Green River Lowland Section
 - e Kankakee Sand Area Section
- 5 Upper Mississippi River and Illinois River Bottomlands Division
 - a Illinois River Section
 - b Mississippi River Section
- 6 Illinois River and Mississippi River Sand Areas Division
 - a Illinois River Section
 - b Mississippi River Section
- 7 Western Forest-Prairie Division
 - a Galesburg Section
 - b Carlinville Section
- 8 Middle Mississippi Border Division
 - a Glaciated Section
 - b Driftless Section
- 9 Southern Till Plain Division
 - a Effingham Plain Section
 - b Mt Vernon Hill Country Section
- 10 Wabash Border Division
 - a Bottomlands Section
 - b Southern Uplands Section
 - c Vermilion River Section
- 11 Ozark Division
 - a Northern Section
 - b Central Section
 - c Southern Section
- 12 Lower Mississippi River Bottomlands Division
 - a Northern Section
 - b Southern Section
- 13 Shawnee Hills Division
 - a Greater Shawnee Hills Section
 - b Lesser Shawnee Hills Section
- 14 Coastal Plain Division
 - a Cretaceous Hills Section
 - b Bottomlands Section



Appendix C. Illinois Endangered Species Protection Act

(520 ILCS 10/) Illinois Endangered Species Protection Act.

(520 ILCS 10/1) (from Ch. 8, par. 331)

Sec. 1. This Act shall be known and may be cited as the "Illinois Endangered Species Protection Act".

(Source: P. A. 77-2186.)

(520 ILCS 10/2) (from Ch. 8, par. 332)

Sec. 2. As used in this Act the following words have the following meanings:

"Board" means the Endangered Species Protection Board created by this Act.

"Conservation" means to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation and transplantation.

"Department" means the Department of Natural Resources and "Director" means the Director of that Department.

"Endangered Species" means any species of plant or animal classified as endangered under the Federal Endangered Species Act of 1973, P.L. 93-205, and amendments thereto, plus such other species which the Board may list as in danger of extinction in the wild in Illinois due to one or more causes including but not limited to, the destruction, diminution or disturbance of habitat, overexploitation, predation, pollution, disease, or other natural or manmade factors affecting its prospects of survival.

"Threatened Species" means any species of plant or animal classified as threatened under the Federal Endangered Species Act of 1973, P.L. 93-205, and amendments thereto, plus such other species which the Board may list as likely to become endangered in the wild in Illinois within the foreseeable future.

"Animal" means those organisms commonly included in the science of zoology and generally distinguished from plants by possession of a nervous system and the ability to move from place to place, including all invertebrates such as sponges and mollusks as well as vertebrates such as fishes, amphibians, reptiles, birds, and mammals.

"Animal Product" means the fur, hide, skin, teeth, feathers, tusks, claws, eggs, nests or the body or any portion thereof whether in a green or raw state or as a product manufactured or refined from an animal protected under this Act or under rules issued pursuant to this Act.

"Plant" means any organism not considered to be an animal, and shall include such organisms as algae, fungi,

bryophytes, and ferns, as well as flowering plants and conifers.

"Plant Product" means any plant body or part thereof removed from natural habitat, including seeds, fruits, roots, stems, flowers, leaves, or products made from any of these, including extracts or powders.

"Essential Habitat" means the specific ecological conditions required by an endangered or threatened species for its survival and propagation, or physical examples of these conditions.

"Take" means, in reference to animals and animal products, to harm, hunt, shoot, pursue, lure, wound, kill, destroy, harass, gig, spear, ensnare, trap, capture, collect, or to attempt to engage in such conduct.

"Take" means, in reference to plants and plant products, to collect, pick, cut, dig up, kill, destroy, bury, crush, or harm in any manner.

"Illinois List" means a list of species of animals and plants listed by the Board as endangered or threatened.

"Person" means any individual, firm, corporation, partnership, trust, association, private entity, government agency, or their agents, and representatives.

(Source: P.A. 89-445, eff. 2-7-96.)

(520 ILCS 10/3) (from Ch. 8, par. 333)

Sec. 3. It is unlawful for any person:

(1) to possess, take, transport, sell, offer for sale, give or otherwise dispose of any animal or the product thereof of any animal species which occurs on the Illinois List;

(2) to deliver, receive, carry, transport or ship in interstate or foreign commerce plants listed as endangered by the federal government without a permit therefor issued by the Department as provided in Section 4 of this Act;

(3) to take plants on the Illinois List without the express written permission of the landowner; or

(4) to sell or offer for sale plants or plant products of endangered species on the Illinois List.

Source: P.A. 91-357, eff. 7-29-99.)

(520 ILCS 10/4) (from Ch. 8, par. 334)

Sec. 4. Upon receipt of proper application and approval of the same, the Department may issue to any qualified person a permit which allows the taking, possession, transport, purchase, or disposal of specimens or products of an endangered or threatened species of animal or federal endangered plant after the effective date of this Act for justified purposes, that will enhance the survival of the affected species by zoological, botanical or educational or for scientific purposes only. Rules for the issuance and maintenance of permits shall be

promulgated by the Department after consultation with and written approval of the Board. The Department shall, upon notice and hearing, revoke the permit of any holder thereof upon finding that the person is not complying with the terms of the permit, the person is knowingly providing incorrect or inadequate information, the activity covered by the permit is placing the species in undue jeopardy, or for other cause.
(Source: P.A. 84-1065.)

(520 ILCS 10/5) (from Ch. 8, par. 335)

Sec. 5. (a) Upon receipt of proper application and approval of same, the Department may issue a limited permit authorizing the possession, purchase or disposition of animals or animal products of an endangered or threatened species, or federal endangered plants to any person which had in its possession prior to the effective date of this Act such an item or which obtained such an item legally out-of-state. Such permit shall specifically name and describe each pertinent item possessed by the permit holder and shall be valid only for possession, purchase or disposition of the items so named. The Department may require proof that acquisition of such items was made before the effective date of this Act. The Department may also issue a limited permit authorizing the possession, purchase or disposition of live animals or such item to any person to whom a holder of a valid permit issued pursuant to this section gives, sells, or otherwise transfers the item named in the permit. Limited permits issued pursuant to this section shall be valid only as long as the item remains in the possession of the person to whom the permit was issued.

(b) The limited permit shall be revoked by the Department if it finds that the holder has received it on the basis of false information, is not complying with its terms, or for other cause.
(Source: P.A. 84-1065.)

(520 ILCS 10/5.5)

Sec. 5.5. Incidental taking.

(a) The Department may authorize, under prescribed terms and conditions, any taking otherwise prohibited by Section 3 if that taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. No taking under this Section shall be authorized by the Department unless the applicant submits to the Department a conservation plan.

(b) The conservation plan shall include but not be limited to the following:

(1) a description of the impact that the proposed taking is likely to have on one or more species on the Illinois list;

(2) the steps the applicant or other parties will take to minimize and mitigate that impact and the funding that will be available to implement those steps, including but not limited to bonds, insurance, or escrow;

3) what alternative actions to the taking the applicant considered and the reasons why those alternatives will not be used;

(4) data and information to assure that the proposed taking will not reduce the likelihood of the survival or recovery of the endangered species or threatened species in the wild within the State of Illinois, the biotic community of which the species is a part, or the habitat essential to the species' existence in Illinois;

(5) an implementing agreement that specifically names, and describes the obligations and responsibilities of, all the parties that will be involved in the taking as authorized by the permit; and

(6) any other measures that the Department may require as being necessary or appropriate for purposes of the plan.

(c) After reviewing the application for incidental taking and the conservation plan, the Department may authorize the incidental taking if the Department finds, in a written decision explaining its conclusions, that the taking will meet all of the following requirements:

(1) the taking will not be the purpose of, but will be only incidental to, the carrying out of an otherwise lawful activity;

(2) the parties to the conservation plan will, to the maximum extent practicable, minimize and mitigate the impact caused by the taking;

3) the parties to the conservation plan will ensure that adequate funding for the conservation plan will be provided;

(4) based on the best available scientific data, the Department has determined that the taking will not reduce the likelihood of the survival or recovery of the of the endangered species or threatened species in the wild within the State of Illinois, the biotic community of which the species is a part, or the habitat essential to the species' existence in Illinois;

(5) any measures required under paragraph (6) of subsection (b) of this Section will be performed; and

(6) the public has received notice of the application and has had the opportunity to comment before the Department made any decision regarding the application.

(d) The Department may require that a party to the conservation plan make additional assurances that the requirements under items (b)(1) through (b)(6) of this Section will be met before authorizing incidental taking.

(e) The Department shall impose on the authorization for incidental taking any terms or conditions that the Department finds necessary to ensure that the requirements under items (b)(1) through (b)(6) of this Section will be met. These terms or conditions may include but are not limited to reporting or monitoring requirements.

(f) If an applicant is party to a

Habitat Conservation Plan approved by the U.S. Fish and Wildlife Service pursuant to Section 10 of the Endangered Species Act of 1973, P.L. 93-205, and amendments thereto, the Department may authorize taking that is incidental to the carrying out of an otherwise lawful activity. Authorization shall be issued only if the provisions of the Habitat Conservation Plan are found to meet the requirements set forth in subsection (c) of this Section.

(g) If an applicant has been authorized to take an endangered or threatened species under the terms of a biological opinion issued by the U.S. Fish and Wildlife Service pursuant to Section 7 of the Endangered Species Act of 1973, P.L. 93-205, and amendments thereto or regulations implementing Section 7 (50 CFR Part 402), the Department may authorize taking that is incidental to the carrying out of an otherwise lawful activity. Authorization shall be issued only if the Department finds that the taking will not reduce the likelihood of the survival or recovery of the endangered species or threatened species in the wild within the State of Illinois, the biotic community of which the species is a part, or the habitat essential to the species' existence in Illinois.
(Source: P.A. 91-556, eff. 1-1-00.)

(520 ILCS 10/6) (from Ch. 8, par. 336)

Sec. 6. There is created the Endangered Species Protection Board whose duties include listing, delisting, or change of listing status of species for the Illinois List, in consultation with and written approval by the Department, in accordance with the Illinois Administrative Procedure Act, on rules for listing species of animals or plants as endangered or threatened and delisting species of animals or plants as endangered or threatened, or changing their status.

The Board shall also advise the Department on methods of assistance, protection, conservation and management of endangered and threatened species and their habitats, and on related matters.

The Board shall be composed of 9 persons appointed by the Governor, and the Director as a non-voting member. Of the 9 appointed members at least 6 shall be persons who are recognized as naturalists by training, avocation or vocation. At least two of these shall be zoologists, at least one a botanist, and at least two ecologists. In making Board appointments, the Governor shall give consideration to recommendations of conservation groups.

Initially, 3 members shall be appointed for terms of 3 years, 3 for 2 years and 3 for 1 year. Thereafter, the terms of all appointive members shall be 3 years. Members shall serve until their successors are appointed. Any vacancy occurring in the position of an appointive member shall be filled by the Governor for the unexpired term.

Board meetings shall be called at

regular intervals set by the Board, on the request of the Department, or upon written notice signed by at least 5 members of the Board, but in no event less than once quarterly. The place of the meeting shall be determined at the convenience of the Board and the Department. A quorum shall consist of 5 appointed members.

Members of the Board shall serve without compensation but shall be reimbursed for actual expenses incurred in the performance of their duties.

The Board may without regard to the Personnel Code, employ and fix the compensation of necessary staff.

The Board shall select from its membership a chairman and such other officers as it considers necessary, and may name an Executive Committee to which it may grant specific powers.

The Board shall review and revise the Illinois List as warranted but in no case less frequently than every 5 years. It shall prepare and make available a report of its accomplishments biennially.

(Source: P.A. 84-1065.)

(520 ILCS 10/7) (from Ch. 8, par. 337)

Sec. 7. Any species or subspecies of animal or plant designated as endangered or threatened by the Secretary of the Interior of the United States pursuant to the Endangered Species Act of 1973, P.L. 93-205, as amended, shall be automatically listed as an endangered or threatened species under this Act and thereby placed on the Illinois List by the Board without notice or public hearing. The Board may list, as endangered or threatened, species of animals or plants which have reproduced in or otherwise significantly used, as in migration or overwintering, the area which is now the State of Illinois, if there is scientific evidence that the species qualify as endangered or threatened as these terms are defined in this Act. The Board may delist any non-federally-listed species for which it finds satisfactory scientific evidence that its wild or natural populations are no longer endangered or threatened. Listing, delisting or change of listing status shall be made only after a public hearing.

Notice of such hearing shall be published at least 7 days before the hearing in a newspaper of general circulation throughout the state and shall be mailed to any person who has, in writing requested such notice from the agency holding the hearing. All persons heard or represented at a hearing and all persons who requested from the responsible agency notice of such hearing, shall be given a written summary of any action taken by the Board or Department relative to the hearing subject.

Upon listing or delisting or change of listing status by the Board, the Director shall file a certified copy of the names of the species so listed, delisted or changed with the Secretary of State as provided in "The Illinois Administrative Procedure Act",

approved September 22, 1975, as amended.
(Source: P.A. 84-1065.)

(520 ILCS 10/8) (from Ch. 8, par. 338)

Sec. 8. Any officer or agent authorized by the Department or any police officer of the State or of any unit of local government within the State of Illinois, may execute any warrant to search for and seize any goods, merchandise or animals, plants, or animal or plant products sold or offered for sale in violation of this Act, or any property or item used in connection with a violation of this Act, or to examine premises for determination of actions in violation of this Act. Seized goods, merchandise, animals, plants or their products shall be held pending proceedings in the circuit court. Upon conviction, such seized goods, merchandise or animals, plants, or their products shall be forfeited and, upon forfeiture, either offered to a recognized institution for scientific or educational purposes, or if a suitable depository is not located for such items, they shall be destroyed.

(Source: P.A. 84-1065.)

(520 ILCS 10/9) (from Ch. 8, par. 339)

Sec. 9. Any person who violates any provision of this Act shall be guilty of a Class A misdemeanor.

(Source: P. A. 77-2830.)

(520 ILCS 10/10) (from Ch. 8, par. 340)

Sec. 10. The Endangered and Threatened Species Program shall be located within the Department of Conservation. All fines collected under this Act shall be paid to the State Treasurer and deposited in the Nongame Wildlife Conservation Fund.

(Source: P.A. 84-1065.)

(520 ILCS 10/11) (from Ch. 8, par. 341)

Sec. 11. Conservation program; public policy; rules.

(a) The Department, with the advice of the Board, shall actively plan and implement

a program for the conservation of endangered and threatened species, by means which should include published data search, research, management, cooperative agreements with other agencies, identification, protection and acquisition of essential habitat, support of beneficial legislation, issuance of grants from appropriated funds, and education of the public.

(b) It is the public policy of all agencies of State and local governments to utilize their authorities in furtherance of the purposes of this Act by evaluating through a consultation process with the Department whether actions authorized, funded, or carried out by them are likely to jeopardize the continued existence of Illinois listed endangered and threatened species or are likely to result in the destruction or adverse modification of the designated essential habitat of such species, which policy shall be enforceable only by writ of mandamus; and where a State or local agency does so consult in furtherance of this public policy, such State or local agency shall be deemed to have complied with its obligations under the "Illinois Endangered Species Act", provided the agency action shall not result in the killing or injuring of any Illinois listed animal species, or provided that authorization for taking a listed species has been issued under Section 4, 5, or 5.5 of this Act. This paragraph (b) shall not apply to any project of a State agency on which a biological opinion has been issued (in accordance with Section 7 of the Federal Endangered Species Act) prior to the effective date of this amendatory Act of 1985 stating that the action proposed by said project will not jeopardize the continued existence of any federal listed endangered or threatened species.

(c) The Department shall have the authority to adopt such rules as are reasonable and necessary to implement the provisions of this Act.

(Source: P.A. 91-556, eff. 1-1-00.)

Appendix D. List of Board members, Board staff, and volunteer technical expert consultants that participated in the development of the first Illinois List and each List review and revision, 1977-2009.

List / Revision	Board members at the time when the revision was completed	Board staff at the time when the revision was completed (* = on staff only for a portion of the review and revision process)	Volunteer technical advisors for the review process
1977/1980 (1981)	Dr. Richard Andrews Dr. Johanna Clausen Ann Broman Fisher Dr. Willard Klimstra Curtis Mason Ray Pawley Joseph Poppie Dr. William Schwab Dr. William Southern	Michael Sweet	Dr. Richard Andrews Dr. Ralph Axtell Dr. Dale Birkenholz Dr. Richard Bjorkland H. David Bohlen Marlin Bowles Dr. Ronald Brandon Dr. Lauren Brown Dr. Brooks Burr Dr. Carter Christianson Dr. Victor Diersing Larry Dunham Dr. Leonard Durham Dr. John Ebinger Donald Elsing Dr. Robert Evers Richard S. Funk Dr. William George Dr. Jean Graber Dr. Richard Graber Dr. Robert Henry Dr. Donald Hoffmeister Dr. L. Barrie Hunt Max Hutchinson Dr. Lawrence Jahn Lee Johnson Dr. Almut Jones Dr. S. Charles Kendeigh Kathryn Kerr Vernon Kleen Dr. William Klimstra Dr. Alfred Koelling Donald Kurz Roger McMannis Walter Matia Dr. Robert Mohlenbrock Dr. Edward Moll Michael Morris John Murphy Dr. Lorin Nevling Jerry Nilsson Dr. Lawrence Page Gerald Paulson Alan Resetar Dr. Kenneth Robertson Dr. Glen Sanderson Raymond Schulenberg John Schwegman Dr. Paul Shildneck William Shepard Charles Sheviak Dr. Philip Smith Dr. Paul Sorenson Dr. Howard Stains Dr. Julius Swayne Floyd Swink Richard Thom Gordon Thurow Harlan Walley John White
1984	Dr. Johanna Clausen Ann Broman Fisher Dr. Lawrence Jahn	Michael Sweet	Dr. Dale Birkenholz Dr. Richard Bjorkland Marlin Bowles

	Curtis Mason Ray Pawley Dr. William Schwab Dr. William Southern Irwin Ware		Dr. Ronald Brandon Warren Brigham Dr. Brooks Burr Dr. Tim Cashatt Dr. Johanna Clausen Dr. John Ebinger George Godfrey George Hubert Dr. Lawrence Jahn Jeanine Kasprowicz Vernon Kleen Dr. Willard Klimstra Dr. Alfred Koelling Dr. Robert Mohlenbrock Dr. Lawrence Page Peter Paladino Richard Purdue Dr. Kenneth Robertson Glen Sanderson John Schwegman Dr. Yale Sedman Dr. Paul Sorenson Dr. William Southern Liane Suloway Michael Sweet Dr. Jamie Thomerson John Warnock
1989/1990	Dr. John Ebinger Jonathon A. Ellis Darlene Fiske Dr. Lawrence Jahn Judith Dolan Mendelson Ray Pawley Joseph Poppie Dr. William Southern Alan Woolf	Sherrie Elzinga (for portion of process) Glen Kruse Susan E. Lauzon	Dr. Ralph Axtell Scott Ballard Dr. Dale Birkenholz Dr. Richard Bjorkland Dr. Ronald Brandon Dr. Brooks Burr Dr. Tim Cashatt Kevin Cummings Dr. John Ebinger Jim Garner George Hubert Dr. Lawrence Jahn Glen Kruse Dr. Alfred Koelling Dr. Robert Mohlenbrock Dr. Edward Moll Randy Nyboer Dr. Lawrence Page Ray Pawley Dr. Scott Robinson Dr. Kenneth Robertson Dr. Glen Sanderson John Schwegman Dr. Paul Sorenson Dr. William Southern Jeanette Thomas Dr. Alan Woolf
1994	Dr. John Ebinger Jonathon A. Ellis Darlene Fiske R. Dan Gooch Dr. Lawrence Jahn Judith Dolan Mendelson Dr. Edward Moll Dr. Scott Robinson Alan Woolf	James R. Herkert Susan E. Lauzon	Dr. Ralph Axtell Scott Ballard Dr. Dale Birkenholz Dr. Richard Bjorkland Dr. Ronald Brandon Dr. Brooks Burr Dr. Tim Cashatt Kevin Cummings Dr. John Ebinger Jim Garner George Hubert Dr. Lawrence Jahn Vern Kleen Glen Kruse Dr. Edward Moll Randy Nyboer

			Dr. Lawrence Page Ray Pawley Rick Purdue Dr. Scott Robinson Dan Sallee Dr. Glen Sanderson John Schwegman Jeanette Thomas Jamie Thomerson Dr. Alan Woolf
1999	John A. Clemetsen Dr. John Ebinger Darlene Fiske R. Dan Gooch Judith Dolan Mendelson Scott Robinson	Janet Boyer (part-time) James R. Herkert (for portion of process) Susan E. Lauzon	Dr. Ron Brandon Dr. Dale Birkenholz Dr. Richard Bjorkland Dr. Brooks Burr Dr. Tim Cashatt Kevin Cummings Dr. John Ebinger Dr. Ed Heske George Hubert Dr. Lawrence Jahn Dr. Al Koelling Vern Kleen Glen Kruse Dr. Robert Mohlenbrock Dr. Edward Moll Randy Nyboer Dr. Larry Page Dr. Ron Panzer Ray Pawley Dr. Chris Phillips Dr. Ken Robertson Dr. Scott Robinson Dan Sallee Dr. Glen Sanderson John Schwegman Dr. Paul Sorenson Larry Stritch Chris Taylor Jeanette Thomas Jamie Thomerson Dr. Alan Woolf
2004	Marilyn F. Campbell John A. Clemetsen Dr. John Ebinger R. Dan Gooch Dr. James R. Herkert Susanne Masi Judith Dolan Mendelson Dr. Chris Phillips	Janet Boyer (part-time for portion of process) Randy Nyboer (part-time for portion of process)	Chris Anchor Dr. Richard Anderson Scott Ballard Bob Bluett Dr. Ron Brandon Dr. Brooks Burr Marilyn Campbell Dr. Tim Cashatt John Clemetsen Dean Corgiat Kevin Cummings Dr. Chris Dietrich Dr. Mike Dreslik Dr. John E. Ebinger John Epifanio Dr. George Feldhamer Dr. Bud Fischer Stan Gehrt R. Dan Gooch Dr. James R. Herkert Dr. Ed Heske Dr. Joyce Hofmann Dr. Lawrence Jahn Joe Kath Vern Kleen Dr. Al Koelling Susanne Masi William McClain Randy Nyboer

			Dr. Charlie Paine Dr. Ron Panzer Dr. William Perry Dr. Loy R. Phillippe Dr. Chris Phillips Mike Redmer Dr. Mike Retzer Dr. Scott Robinson Dr. Ken Robertson Bob Rung Dan Sallee John Schwegman Elizabeth Shimp Dr. Douglas Stotz Larry Stritch Dr. John Taft Dr. Chris Taylor Harlen Walley
2009	Marilyn F. Campbell John A. Clemetsen R. Dan Gooch Dr. James R. Herkert Susanne Masi Dr. Chris Phillips Dr. Mike Retzer John Rogner Dr. John Taft	Anne Mankowski (for portion of process)	Chris Anchor Scott Ballard Bob Bluett Dr. Ron Brandon Dr. Brooks Burr Marilyn Campbell Dr. Tim Cashatt Dean Corgiat Kevin Cummings Dr. Chris Dietrich Dr. Mike Dreslik Dr. John E. Ebinger Dr. George Feldhamer Dr. James R. Herkert Dr. Ed Heske Dr. Joyce Hofmann Dr. Jeff Hoover Joe Kath Vern Kleen Dr. Meredith Mahoney Susanne Masi William McClain Dr. Tom Nelson Randy Nyboer Dr. Loy R. Phillippe Dr. Chris Phillips Mike Redmer Dr. Mike Retzer Dr. Ken Robertson Bob Rung Dan Sallee John Schwegman Brad Semel Beth Shimp Dr. Douglas Stotz Dr. John Taft Dr. Chris Taylor Dr. Steven Taylor Trent Thomas Jeremy Tiemann Dr. Paul Tinerella Dr. Jeff Walk Dr. Mike Ward Dr. Dan Wenny James Wiker

Appendix E. Number of likely impacts to endangered and threatened species and counties where impacts occurred from projects that underwent IDNR endangered and threatened species consultation from, by number of impacts, 2000 – 2007 (after IDNR 2007).

Scientific		Total # of likely impacts to E&T 2000-2006	# of likely impacts to E&T per county 2000-2006
<i>Emydoidea blandingii</i>	Blanding's Turtle	48	Lake 16, McHenry 32
<i>Grus canadensis</i>	Sandhill Crane	40	Lake 25, McHenry 15
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed Blackbird	22	Carroll 1, Cook 1, Kane 1, Lake 12, McHenry 7
<i>Etheostoma exile</i>	Iowa Darter	21	Lake 8, McHenry 12, Will 1
<i>Ixobrychus exilis</i>	Least Bittern	17	Cook 1, Kane 1, Lake 12, McHenry 3
<i>Chlidonias niger</i>	Black Tern	13	Cook 1, Lake 9, McHenry 3
<i>Notropis heterodon</i>	Blackchin Shiner	12	Lake 9, McHenry 3
<i>Buteo swainsoni</i>	Swainson's Hawk	9	Kane 3, McHenry 6
<i>Notropis heterolepis</i>	Blacknose Shiner	8	Lake 5, McHenry 3
<i>Clonophis kirtlandi</i>	Kirtland's Snake	8	Clinton 1, Cook 2, Douglas 2, Effingham 1, Sangamon 2
<i>Fundulus diaphanus</i>	Banded Killifish	6	Cook 1, McHenry 2, Lake 3
<i>Notropis anogenus</i>	Pugnose Shiner	5	Lake 3, McHenry 2
<i>Villosa iris</i>	Rainbow	5	Douglas 1, Kendall 2, McHenry 1, Vermilion 1
<i>Rallus elegans</i>	King Rail	4	Cook 1, Lake 2, McHenry 1
<i>Lanius ludovicianus</i>	Loggerhead Shrike	4	DuPage 1, Kane 1, McHenry 1, Sangamon 1
<i>Alasmidonta viridis</i>	Slippershell	4	Kendall 1, McHenry 2, Winnebago 1
<i>Elliptio dilatata</i>	Spike	4	McHenry
<i>Bartramia longicauda</i>	Upland Sandpiper	4	Cook 1, McHenry 2
<i>Nannothemis bella</i>	Elfin Skimmer	3	McHenry
<i>Canis lupus**</i>	Gray/Timber Wolf	3	McHenry
<i>Moxostoma valenciennesi</i>	Greater Redhorse	3	Kendall 2, McHenry 1
<i>Nycticorax nycticorax</i>	Black-crowned Night Heron	2	Cook 1, McHenry 1
<i>Sistrurus catenatus</i>	Eastern Massasauga	2	Clinton
<i>Ammocrypta pellucida</i>	Eastern Sand Darter	2	Jasper
<i>Toxolasma lividus</i>	Purple Lilliput	2	Douglas 1, Vermilion 1
<i>Moxostoma carinatum</i>	River Redhorse	2	Kendall
<i>Fundulus dispar</i>	Starhead Topminnow	2	McHenry
<i>Haliaeetus leucocephalus*</i>	Bald Eagle	1	Carroll
<i>Pleurobema clava**</i>	Clubshell	1	White
<i>Sterna forsteri</i>	Forster's Tern	1	McHenry
<i>Pantherophis emory</i>	Great Plains Rat Snake	1	Jersey
<i>Ammodramus henslowii</i>	Henslow's Sparrow	1	Cook
<i>Orconectes indianensis</i>	Indiana Crayfish	1	Williamson
<i>Notropis chalybaeus</i>	Ironcolor Shiner	1	Kankakee
<i>Ptychobranhus fasciolaris</i>	Kidneyshell	1	Vermilion
<i>Lampetra aepyptera</i>	Least Brook Lamprey	1	Williamson

<i>Villosa lienosa</i>	Little Spectaclecase	1	Douglas
<i>Circus cyaneus</i>	Northern Harrier	1	McHenry
<i>Quadrula cylindrica</i>	Rabbitsfoot	1	Vermilion
<i>Aflexia rubranura</i>	Redveined Prairie Leafhopper	1	McHenry
<i>Crotalus horridus</i>	Timber Rattlesnake	1	Jersey
<i>Lampsilis fasciola</i>	Wavy-rayed Lampmussel	1	Vermilion
<i>Nyctanassa violacea</i>	Yellow-crowned Night Heron	1	Cook
<i>43 animal species</i>		271	
<i>Potamogeton gramineus</i>	Grass-leaved Pondweed	7	Lake 6, McHenry 1
<i>Triglochin maritima</i>	Common Bog Arrow Grass	6	Kane 4, Lake 1, McHenry 1
<i>Platanthera leucophaea</i>	Eastern Prairie Fringed Orchid	6	Lake
<i>Potamogeton robbinsii</i>	Fern Pondweed	6	Lake 5, McHenry 1
<i>Carex viridula</i>	Little Green Sedge	6	Lake 3, McHenry 3
<i>Lathyrus ochroleucus</i>	Pale Vetchling	6	Lake 4, McHenry 2
<i>Cypripedium candidum</i>	White Lady's Slipper	6	Lake 4, McHenry 2
<i>Calopogon tuberosus</i>	Grass Pink Orchid	5	Lake 3, McHenry 2
?	Sedge	5	Lake 4, McHenry 1
<i>Trioglochin palustris</i>	Slender Bog Arrow Grass	5	Lake 1, McHenry 4
<i>Pogonia ophioglossoides</i>	Snake-mouth	5	Lake 3, McHenry 2
<i>Eleocharis rostellata</i> (?)	Spike Rush	5	Lake 2, McHenry 3
<i>Epilobium strictum</i>	Downy Willow Herb	4	Lake 2, McHenry 2
<i>Tofieldia glutinosa</i>	False Asphodel	4	Lake 1, McHenry 3
<i>Carex aurea</i>	Golden Sedge	4	Lake
<i>Potamogeton praelongus</i>	White-stemmed Pondweed	4	Lake
<i>Beckmannia syzigachne</i>	American Slough Grass	3	Lake
<i>Salix serissima</i>	Autumn Willow	3	Lake 2, McHenry 1
<i>Sarracenia purpurea</i>	Pitcher Plant	3	Lake 2, McHenry 1
<i>Drosera rotundifolia</i>	Round-leaved Sundew	3	Lake 2, McHenry 1
<i>Rhamnus alnifolia</i>	Alder Buckthorn	2	Lake
<i>Rhynchospora alba</i>	Beaked Rush	2	McHenry
<i>Liatris scariosa</i> var. <i>nieuwlandii</i>	Blazing Star	2	Cook 1, Effingham 1
<i>Carex chordorrhiza</i>	Cordroot Sedge	2	Lake
<i>Viola conspersa</i>	Dog Violet	2	Lake
<i>Rubus pubescens</i>	Dwarf Raspberry	2	Lake
<i>Eleocharis pauciflora</i>	Few-flowered Spikerush	2	McHenry
<i>Carex oligosperma</i>	Few-seeded Sedge	2	Lake
<i>Sparganium chlorocarpum</i>	Green-fruited Burreed	2	McHenry
<i>Vaccinium corymbosum</i>	Highbush Blueberry	2	Lake
<i>Utricularia cornuta</i>	Horned Bladderwort	2	McHenry
<i>Hypericum kalmianum</i>	Kalm's St. John's Wort	2	Lake
<i>Vaccinium macrocarpon</i>	Large Cranberry	2	Lake

<i>Chamaedaphne calyculata</i>	Leatherleaf	2	Lake
<i>Valeriana uliginosa</i>	Marsh Valerian	2	McHenry
<i>Geranium bicknellii</i>	Northern Cranesbill	2	Lake
<i>Eriophorum virginicum</i>	Rusty Cotton Grass	2	Lake
<i>Carex disperma</i>	Shortleaf Sedge	2	Lake
<i>Oenothera perennis</i>	Small Sundrops	2	Lake
<i>Cypripedium calceolus</i> var. <i>parviflorum</i>	Small Yellow Lady's Slipper	2	Lake 1, McHenry 1
<i>Schoenoplectus smithii</i>	Smith's Bullrush	2	Lake
<i>Trientalis borealis</i>	Star-flower	2	Lake
<i>Larix laricina</i>	Tamarack	2	Lake
<i>Carex trisperma</i>	Three-seeded Sedge	2	Lake
<i>Platanthera flava</i> var. <i>flava</i>	Tubercled Orchid	2	Lake
<i>Scirpus cespitosus</i>	Tufted Bulrush	2	McHenry
<i>Calla palustris</i>	Water Arum	2	Lake
<i>Betula alleghaniensis</i>	Yellow Birch	2	Lake
<i>Elymus trachycaulus</i>	Bearded Wheat Grass	1	Lake
<i>Cardamine pratensis</i> var. <i>palustris</i>	Cuckoo Flower	1	McHenry
<i>Boltonia decurrens</i>	Decurrent False Aster	1	Peoria
<i>Utricularia intermedia</i>	Flat-leaved Bladderwort	1	McHenry
<i>Aster furcatus</i>	Forked Aster	1	Lake
<i>Trillium erectum</i>	Ill-scented Trillium	1	McHenry
<i>Ammophila breviligulata</i>	Marram Grass	1	Lake
<i>Veronica scutellata</i>	Marsh Speedwell	1	Lake
<i>Sisyrinchium montanum</i>	Mountain Blue-eyed Grass	1	Lake
<i>Trillium cernuum</i>	Nodding Trillium	1	McHenry
<i>Lespedeza leptostachya</i> *	Prairie Bush Clover	1	McHenry
<i>Ranunculus rhomboideus</i>	Prairie Buttercup	1	McHenry
<i>Platanthera psycodes</i>	Purple Fringed Orchid	1	Lake
<i>Juncus alpinus</i>	Richardson's Rush	1	McHenry
<i>Cakile edentula</i>	Sea Rocket	1	Lake
<i>Cypripedium reginae</i>	Showy Lady's Slipper	1	Lake
<i>Utricularia minor</i>	Small Bladderwort	1	Lake
<i>Carex tuckermani</i>	Tuckerman's Sedge	1	Lake
<i>Asclepias lanuginosa</i>	Wooly Milkweed	1	McHenry
67 plant species		171	

Appendix F. Endangered and threatened species incidental take authorizations issued by IDNR, species involved, and occurrences potentially affected, by species and taxonomic group, 2001-2011.

Scientific Name	Common Name	Status	Total # of species occurrences in the state (# of counties) as of July 2011	Recent (< 10 yrs old) species occurrences (# of counties) as of July 2011	Total # of projects involving species (# of counties)	# of occurrences potentially affected by ITAs	# of recent (< 10 yrs old) occurrences potentially affected by ITAs	% of total occurrences potentially impacted by ITAs	% of recent (< 10 yrs old) occurrences potentially impacted by ITAs
<i>Etheostoma camurum</i>	Bluebreast Darter	IL E	15 (1)	13 (1)	1 (1)	1	1	7%	8%
<i>Etheostoma exile</i>	Iowa Darter	IL T	57 (12)	29 (7)	2 (2)	2	2	5%	7%
<i>Fundulus diaphanus</i>	Banded Killifish	IL T	15 (3)	8 (2)	1 (1)	1	1	7%	13%
<i>Fundulus dispar</i>	Starhead Topminnow	IL T	49 (19)	27 (10)	1 (1)	1	1	2%	4%
<i>Hybopsis amblops</i>	Bigeye Chub	IL E	21 (7)	16 (4)	1 (1)	1	1	5%	6%
<i>Hybopsis amnis</i>	Pallid Shiner	IL E	14 (9)	6 (4)	1 (1)	1	1	7%	17%
<i>Lampetra aepyptera</i>	Least Brook Lamprey	IL T	13 (4)	13 (4)	1 (2)	2	2	15%	15%
<i>Moxostoma carinatum</i>	River Redhorse	IL T	31 (9)	16 (8)	4 (4)	4	4	13%	25%
<i>Moxostoma valenciennesi</i>	Greater Redhorse	IL E	18 (5)	7 (4)	2 (2)	2	2	11%	29%
<i>Notropis chalybaeus</i>	Ironcolor Shiner	IL T	27 (4)	15 (3)	1 (1)	1	1	4%	7%
<i>Notropis boops</i>	Bigeye Shiner	IL E	40 (15)	10 (4)	2 (2)	2	2	5%	20%
<i>Notropis texanus</i>	Weed Shiner	IL E	24 (9)	16 (7)	1 (1)	1	1	4%	6%
<i>Notropis heterolepis</i>	Blacknose Shiner	IL E	26 (9)	11 (3)	1 (1)	1	1	4%	6%
<i>Notropis heterodon</i>	Blackchin Shiner	IL T	21 (2)	13 (2)	1 (1)	1	1	5%	8%
<i>Notropis anogenus</i>	Pugnose Shiner	IL E	7 (2)	3 (1)	1 (1)	1	1	14%	33%
<i>Gastrophryne carolinensis</i>	Eastern Narrowmouth Toad	IL T	17 (6)	8 (2)	2 (1)	2	2	12%	25%
<i>Necturus maculosus</i>	Mudpuppy	IL T	24 (18)	8 (6)	1 (1)	1	0	4%	0
<i>Pseudacris illinoensis</i>	Illinois Chorus Frog	IL T	29 (10)	19 (6)	9 (8)	13	8	45%	42%
<i>Clonophis kirtlandii</i>	Kirtland's Snake	IL T	34 (15)	10 (7)	4 (4)	4	1	12%	10%
<i>Crotalus horridus</i>	Timber Rattlesnake	IL T	53 (25)	17 (8)	1 (1)	1	1	2%	6%
<i>Emydoidea blandingii</i>	Blanding's Turtle	IL E	138 (27)	77 (19)	10 (6)	13	13	9%	17%
<i>Heterodon nasicus</i>	Western Hognose Snake	IL T	25 (12)	9 (8)	3 (4)	4	4	16%	44%

Scientific Name	Common Name	Status	Total # of species occurrences in the state (# of counties) as of July 2011	Recent (< 10 yrs old) species occurrences (# of counties) as of July 2011	Total # of projects involving species (# of counties)	# of occurrences potentially affected by ITAs	# of recent (< 10 yrs old) occurrences potentially affected by ITAs	% of total occurrences potentially impacted by ITAs	% of recent (<10 yrs old) occurrences potentially impacted by ITAs
<i>Kinosternon flavescens</i>	Illinois Mud Turtle	IL E	17 (9)	7 (4)	3 (4)	4	3	21%	43%
<i>Pantherophis emoryi</i>	Great Plains Ratsnake	IL E	3 (3)	2 (3)	1 (1)	1	0	33%	0
<i>Sistrurus catenatus</i>	Eastern Massasauga	IL E	12 (10)	6 (5)	4 (4)	5	4	42%	67%
<i>Asio flammeus</i>	Short-eared Owl	IL E	14 (9)	7 (5)	2 (4)	4	1	29%	14%
<i>Bartramia longicauda</i>	Upland Sandpiper	IL E	48 (31)	16 (14)	2 (4)	4	0	8%	0
<i>Circus cyaneus</i>	Northern Harrier	IL E	23 (18)	8 (8)	2 (4)	4	1	17%	13%
<i>Egretta caerulea</i>	Little Blue Heron	IL E	9 (5)	4 (3)	1 (2)	2	1	22%	25%
<i>Egretta thula</i>	Snowy Egret	IL E	2 (2)	1 (1)	1 (2)	2	1	100%	100%
<i>Falco peregrinus</i>	Peregrine Falcon	IL T	29 (6)	21 (4)	1 (1)	1	1	3%	5%
<i>Grus canadensis</i>	Sandhill Crane	delisted 2009			3 (1)	3			
<i>Haliaeetus leucocephalus</i>	Bald Eagle	delisted 2009			1 (2)	2			
<i>Ixobrychus exilis</i>	Least Bittern	IL T	59 (36)	33 (18)	1 (2)	2	1	3%	3%
<i>Lanius ludovicianus</i>	Loggerhead Shrike	IL E	118 (67)	29 (27)	2 (4)	4	0	3%	0
<i>Nyctanassa violacea</i>	Yellow-Crowned Night Heron	IL E	23 (15)	12 (9)	1 (2)	2	0	9%	0
<i>Nycticorax nycticorax</i>	Black-Crowned Night Heron	IL E	65 (18)	31 (8)	1 (2)	2	1	3%	3%
<i>Tyto alba</i>	Barn Owl	IL E	59 (30)	42 (25)	1 (2)	2	2	3%	5%
<i>Myotis grisescens</i>	Gray Bat	IL E, Fed E	9 (9)	3 (4)	2 (4)	4	1	44%	33%
<i>Myotis sodalis</i>	Indiana Bat	IL E, Fed E	65 (30)	34 (23)	2 (4)	4	2	6%	6%
<i>Oryzomys palustris</i>	Rice Rat	IL T	36 (13)	21 (9)	2 (2)	3	3	8%	14%
<i>Spermophilus franklinii</i>	Franklin's Ground Squirrel	IL T	25 (15)	18 (12)	4 (6)	7	5	28%	28%
<i>Alasmidonta viridis</i>	Slippershell	IL T	60 (18)	44 (17)	13 (9)	16	15	27%	34%
<i>Cumberlandia monodonta</i>	Spectaclecase	IL E	16 (9)	4 (4)	1 (1)	1	0	6%	0
<i>Cyclonaias tuberculata</i>	Purple Wartback	IL T	34 (14)	24 (8)	7 (2)	7	7	21%	29%
<i>Ellipsaria lineolata</i>	Butterfly Mussel	IL T	44 (12)	29 (12)	4 (3)	4	4	9%	14%
<i>Elliptio dilatata</i>	Spike	IL T	46 (20)	30 (16)	4 (5)	7	4	23%	13%

Scientific Name	Common Name	Status	Total # of species occurrences in the state (# of counties) as of July 2011	Recent (< 10 yrs old) species occurrences (# of counties) as of July 2011	Total # of projects involving species (# of counties)	# of occurrences potentially affected by ITAs	# of recent (< 10 yrs old) occurrences potentially affected by ITAs	% of total occurrences potentially impacted by ITAs	% of recent (<10 yrs old) occurrences potentially impacted by ITAs
<i>Fusconaia ebena</i>	Ebonysheell	IL T	31 (20)	11 (8)	3 (3)	3	1	10%	9%
<i>Lampsilis fasciola</i>	Wavy-rayed Lampmussel	IL E	17 (2)	13 (2)	3 (1)	3	0	18%	0
<i>Lampsilis higginsii</i>	Higgins Eye	IL E, Fed E	18 (4)	7 (4)	2 (2)	2	2	11%	29%
<i>Ligumia recta</i>	Black Sandshell	IL T	84 (26)	68 (26)	8 (7)	8	8	10%	12%
<i>Plethobasus cyphus</i>	Sheepnose	IL E	21 (11)	7 (4)	3 (2)	3	3	14%	43%
<i>Potamilus capax</i>	Fat Pocketbook	IL E, Fed E	28 (7)	16 (5)	4 (4)	4	3	14%	19%
<i>Quadrula cylindrica</i>	Rabbitsfoot	IL E	7 (3)	5 (2)	1 (1)	1	1	14%	20%
<i>Toxolasma lividus</i>	Purple Lilliput	IL E	9 (4)	7 (3)	1 (1)	1	1	11%	14%
<i>Villosa iris</i>	Rainbow	IL E	9 (2)	5 (2)	1 (1)	1	1	11%	20%
<i>Villosa lienosa</i>	Little Spectaclecase	IL T	42 (11)	32 (10)	5 (2)	5	5	12%	16%
<i>Orconectes indianensis</i>	Indiana Crayfish	IL E	24 (8)	11 (6)	1 (2)	2	2	8%	18%
<i>Gammarus acherondytes</i>	Illinois Cave Amphipod	IL E, Fed E	9 (2)	7 (1)	1 (1)	1	1	11%	14%
<i>Hesperia ottoe</i>	Ottoe Skipper	IL E	10 (5)	2 (1)	1 (1)	1	1	10%	50%
<i>Hesperia metea</i>	Cobweb Skipper	IL T	5 (5)	0	1 (1)	1	0	20%	0
<i>Speyeria idalia</i>	Regal Fritillary	IL T	25 (18)	17 (16)	3 (4)	4	4	16%	23%
<i>Schoenoplectus hallii</i>	Hall's Bulrush	IL T	17 (5)	7 (1)	1 (1)	1	0	6%	0
<i>Ptilimnium nuttallii</i>	Mock Bishop's Weed	IL E	2 (2)	0	1 (2)	2	0	100%	0
<i>Trillium viride</i>	Green Trillium	IL E	6 (6)	2 (2)	1 (2)	2	1	33%	50%

Appendix G. Species status, by List revision, 1997-2011.

Species status, by List revision 1977-2011: Fish

Scientific Name (currently or at time of delisting)	Common Name (currently or at time of delisting)	1977	1984	1989	1991^	1994	1999	2004	2009	2011
<i>Acipenser fulvescens</i>	Lake Sturgeon									
<i>Ammocrypta clarum</i>	Western Sand Darter									
<i>Ammocrypta pellucidum</i>	Eastern Sand Darter									
<i>Catostomus catostomus</i>	Longnose Sucker									
<i>Coregonus alpenae**</i>	Longjaw Cisco		8							
<i>Coregonus artedii</i>	Cisco									
<i>Coregonus clupeaformis</i>	Lake Whitefish					7				
<i>Erimystax x-punctatus</i>	Gravel Chub									
<i>Etheostoma camurum</i>	Bluebreast Darter									
<i>Etheostoma exile</i>	Iowa Darter									
<i>Etheostoma histrio</i>	Harlequin Darter									
<i>Fundulus diaphanus</i>	Banded Killifish									
<i>Fundulus dispar</i>	Starhead Topminnow									
<i>Hybognathus hayi</i>	Cypress Minnow									
<i>Hybopsis amblops</i>	Bigeye Chub									
<i>Hybopsis amnis</i>	Pallid Shiner									
<i>Ichthyomyzon fossor</i>	Northern Brook Lamprey									
<i>Lampetra aepyptera</i>	Least Brook Lamprey									
<i>Lepisosteus spatula</i>	Alligator Gar					4				
<i>Lepomis miniatus</i>	Redspotted Sunfish									
<i>Lepomis symmetricus</i>	Bantam Sunfish									
<i>Macrhybopsis gelida</i>	Sturgeon Chub									
<i>Moxostoma carinatum</i>	River Redhorse									
<i>Moxostoma valenciennesi</i>	Greater Redhorse									
<i>Nocomis micropogon</i>	River Chub									
<i>Notropis anogenus</i>	Pugnose Shiner									
<i>Notropis boops</i>	Bigeye Shiner									
<i>Notropis chalybaeus</i>	Ironcolor Shiner									
<i>Notropis heterodon</i>	Blackchin Shiner									
<i>Notropis heterolepis</i>	Blacknose Shiner									
<i>Notropis maculatus</i>	Taillight shiner									
<i>Notropis texanus</i>	Weed Shiner									
<i>Noturus stigmosus</i>	Northern Madtom									
<i>Platygobio gracilis</i>	Flathead Chub							4		
<i>Pteronotropsis hubbsi</i>	Bluehead Shiner							4		
<i>Scaphirhynchus albus**</i>	Pallid Sturgeon									

Notes:

Yellow = threatened

Red = endangered

Black = delisted

Gray = special Administrative Rule revision, not a List review and revisions, so species was not evaluated at this time

*= federally threatened

**= federally endangered

^ = limited revision special amendment to Administrative Rule that only addressed subject species and not a List review and revision

^^ = ESPB cannot delist federally listed species, so must relist until USFWS determines species extirpated

+ = originally listed incorrectly as E, changed to T in 2010

Reason for IL delisting: 1) LEAVE BLANK; 2) peripheral sp. that occurs in disturbed/non-native habitats; 3) vagrant; 4) extirpated in IL; 5) misidentified/no longer valid taxon; 6) more common than thought; 7) commercial fishing regs by IDNR provide adequate protection; 8) extinct; 9) recovered

Species status, by List revision 1977-2011: Amphibians

Scientific Name (currently or at time of delisting)	Common Name (currently or at time of delisting)	1977	1984	1989	1994	1999	2004	2009	2011
<i>Ambystoma jeffersonianum</i>	Jefferson Salamander								
<i>Ambystoma platineum</i>	Silvery Salamander								
<i>Cryptobranchus alleganiensis</i>	Eastern Hellbender								
<i>Desmognathus conanti</i>	Spotted Dusky Salamander								
<i>Gastrophryne carolinensis</i>	Eastern Narrowmouth Toad								
<i>Hemidactylum scutatum</i>	Four-toed Salamander								
<i>Hyla avivoca</i>	Bird-voiced Treefrog								
<i>Necurus maculosus</i>	Mudpuppy							+	
<i>Pseudacris illinoensis</i>	Illinois Chorus Frog								

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Species status, by List revision 1977-2011: Reptiles

Scientific Name (currently or at time of delisting)	Common Name (currently or at time of delisting)	1977	1984	1989	1994	1999	2004	2009	2011
<i>Apalone mutica</i>	Smooth Softshell								
<i>Clemmys guttata</i>	Spotted Turtle								
<i>Clonophis kirtlandi</i>	Kirtland's Snake								
<i>Crotalus horridus</i>	Timber Rattlesnake								
<i>Pantherophis emoryi</i>	Great Plains Ratsnake								
<i>Emydoidea blandingii</i>	Blanding's Turtle								
<i>Heterodon nasicus</i>	Plains Hog-Nosed Snake								
<i>Kinosternon flavescens</i>	Yellow Mud Turtle								
<i>Macrochelys temminckii</i>	Alligator Snapping Turtle								
<i>Masticophis flagellum</i>	Coachwhip Snake								
<i>Nerodia fasciata</i>	Broad-banded Watersnake								
<i>Nerodia cyclopion</i>	Mississippi Green Watersnake								
<i>Pseudemys concinna</i>	River Cooter								
<i>Sistrurus catenatus</i>	Eastern Massasauga								
<i>Tantilla gracilis</i>	Flathead Snake								
<i>Terrapene ornata</i>	Ornate Box Turtle								
<i>Thamnophis sauritus</i>	Eastern Ribbon Snake								
<i>Troidoclonion lineatum</i>	Lined Snake								

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Species status, by List revision 1977-2011: Birds

Scientific Name (currently or at time of delisting)	Common Name (currently or at time of delisting)	1977	1984	1989	1994	1997^	1999	2004	2009	2011
<i>Accipiter cooperii</i>	Cooper's Hawk					9				
<i>Accipiter striatus</i>	Sharp-shinned Hawk						2, 3			
<i>Aimophila aestivalis</i>	Bachman's sparrow						4			
<i>Ammodramus henslowii</i>	Henslow's Sparrow								9	
<i>Asio flammeus</i>	Short-eared Owl									
<i>Asio otus</i>	Long-eared Owl						2, 3			
<i>Bartramia longicauda</i>	Upland Sandpiper									
<i>Botaurus lentiginosus</i>	American Bittern									
<i>Buteo lineatus</i>	Red-shouldered Hawk							6		
<i>Buteo swainsoni</i>	Swainson's Hawk									
<i>Casmerodius albus</i>	Great Egret						6			
<i>Catharus fuscescens</i>	Veery						6			
<i>Certhia americana</i>	Brown Creeper							6		
<i>Charadrius melodus**</i>	Piping Plover									
<i>Chlidonias niger</i>	Black Tern									
<i>Circus cyaneus</i>	Northern Harrier									
<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo								+	
<i>Coturnicops noveboracensis</i>	Yellow Rail						4			
<i>Dendroica cerulea</i>	Cerulean Warbler									
<i>Egretta thula</i>	Snowy Egret									
<i>Euphagus cyanocephalus</i>	Brewer's Blackbird				2					
<i>Falco peregrinus**</i>	Peregrine Falcon									
<i>Egretta caerulea</i>	Little Blue Heron									
<i>Gallinula chloropus</i>	Common Moorhen									
<i>Grus canadensis</i>	Sandhill Crane								9	
<i>Haliaeetus leucocephalus*</i>	Bald Eagle								9	
<i>Ictinia mississippiensis</i>	Mississippi Kite									
<i>Ixobrychus exilis</i>	Least Bittern									
<i>Lanius ludovicianus</i>	Loggerhead Shrike									
<i>Laterallus jamaicensis</i>	Black Rail									
<i>Limnithlypis swainsonii</i>	Swainson's Warbler									
<i>Numenius borealis*</i>	Eskimo curlew			4						
<i>Nyctanassa violacea</i>	Yellow-crowned Night Heron									
<i>Nycticorax nycticorax</i>	Black-crowned Night Heron									
<i>Pandion haliaetus</i>	Osprey									
<i>Phalacrocorax auritus</i>	Double-crested Cormorant						6			
<i>Phalaropus tricolor</i>	Wilson's Phalarope									
<i>Podilymbus podiceps</i>	Pied-billed Grebe							6		
<i>Porphyryula martinica</i>	Purple Gallinule				3					
<i>Rallus elegans</i>	King Rail									
<i>Spizella pallida</i>	Clay-colored Sparrow				2					
<i>Sternula antillarum**</i>	Least Tern									
<i>Sterna forsteri</i>	Forster's Tern									
<i>Sterna hirundo</i>	Common Tern									
<i>Thryomanes bewickii</i>	Bewick's Wren									
<i>Tympanuchus cupido</i>	Greater Prairie Chicken									
<i>Tyto alba</i>	Barn Owl									
<i>Vermivora bachmanii*</i>	Bachman's Warbler			4						
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed Blackbird									

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Species status, by List revision 1977-2011: Mammals

Scientific Name (currently or at time of delisting)	Common Name (currently or at time of delisting)	1977	1984	1989	1994	1999	2004	2009	2011
<i>Canis lupus</i> **	Gray/Timber Wolf								
<i>Lepus townsendii</i>	White-tailed Jackrabbit				4				
<i>Lontra canadensis</i>	River Otter						9		
<i>Lynx rufus</i>	Bobcat					6			
<i>Myotis austroriparius</i>	Southeastern Myotis								
<i>Myotis grisescens</i> **	Gray Bat								
<i>Myotis sodalis</i> **	Indiana Bat								
<i>Neotoma floridana</i>	Eastern Wood Rat								
<i>Ochrotomys nuttalli</i>	Golden Mouse								
<i>Oryzomys palustris</i>	Rice Rat								
<i>Corynorhinus rafinesquii</i>	Rafinesque's Big-eared Bat								
<i>Spermophilus franklinii</i>	Franklin's Ground Squirrel								

Notes:

Yellow = threatened

Red = endangered

Black = delisted

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*= federally threatened

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Reason for IL delisting: 1) LEAVE BLANK; 2) peripheral sp. that occurs in disturbed/non-native habitats; 3) vagrant; 4) extirpated in IL.; 5) misidentified/no longer valid taxon; 6) more common than thought; 7) commercial fishing regs by IDNR provide adequate protection; 8) extinct; 9) recovered

Species status by, List revision 1977-2011: Mussels

Scientific Name (currently or at time of delisting)	Common Name (currently or at time of delisting)	1977	1984	1989	1991^	1992^	1994	1999	2004	2009	2010^	2011
<i>Alasmodonta viridis</i>	Slippershell											
<i>Cumberlandia monodonta</i>	Spectaclecase											
<i>Cyclonaias tuberculata</i>	Purple Wartyback											
<i>Cyprogenia stegaria</i> **	Fanshell											
<i>Ellipsaria lineolata</i>	Butterfly Mussel											
<i>Elliptio crassidens</i>	Elephant-ear											
<i>Elliptio dilatata</i>	Spike											
<i>Epioblasma flexuosa</i>	Leafshell						4					
<i>Epioblasma obliquata perobliqua</i> **	White Cat's Paw Pearly Mussel						4					
<i>Epioblasma personata</i>	Round Combshell						4					
<i>Epioblasma propinqua</i>	Tennessee Riffleshell						8					
<i>Epioblasma rangiana</i> **	Northern Riffleshell											
<i>Epioblasma sampsonii</i>	Sampson's Pearly Mussel						8					
<i>Epioblasma torulosa torulosa</i> **	Tubercled-blossom Pearly Mussel						4					

<i>Epioblasma triquetra</i>	Snuffbox												
<i>Fusconaia ebena</i>	Ebonysnail												
<i>Hemistena lata</i> **	Cracking Pearly Mussel						4						
<i>Lampsilis abrupta</i>	Pink Mucket												
<i>Lampsilis fasciola</i>	Wavy-rayed Lampmussel												
<i>Lampsilis higginsii</i> **	Higgins Eye												
<i>Lampsilis orbiculata</i> **	Pink Mucket Pearly Mussel						4						
<i>Lasmigona compressa</i>	Creek Heelsplitter						6						
<i>Leptodea leptodon</i>	Scaleshell						4						
<i>Ligumia recta</i>	Black Sandshell												
<i>Obovaria retusa</i> **	Ring Pink						4						
<i>Obovaria subrotunda</i>	Round Hickorynut								4				
<i>Plethobasus cicatricosus</i> **	White Wartyback Pearly Mussel						4						
<i>Plethobasus cooperianus</i> **	Orange-foot Pimpleback												
<i>Plethobasus cyphus</i>	Sheepnose												
<i>Pleurobema clava</i> **	Clubshell												
<i>Pleurobema cordatum</i>	Ohio Pigtoe												
<i>Pleurobema plenum</i> **	Rough Pigtoe						4						
<i>Pleurobema rubrum</i>	Pyramid Pigtoe								4				
<i>Potamilus capax</i> **	Fat Pocketbook												
<i>Ptychobranchius fasciolaris</i>	Kidneyshell												
<i>Quadrula cylindrica</i>	Rabbitsfoot												
<i>Simpsonaias ambigua</i>	Salamander Mussel												
<i>Toxolasma lividus</i>	Purple Lilliput												
<i>Unio merus tetrasmus</i>	Pondhorn						6						
<i>Villosa fabalis</i>	Rayed Bean								4				
<i>Villosa iris</i>	Rainbow												
<i>Villosa lienosa</i>	Little Spectaclecase												

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Species status by List revision 1977-2011: Other Invertebrates

Scientific Name (currently or at time of delisting)	Common Name (currently or at time of delisting)	1977	1984	1989	1991^	1992^	1994	1999	2004	2009	2010^	2011
SNAILS												
<i>Discus macclintocki</i> **	Iowa Pleistocene Snail											
<i>Fontigens antroecetes</i>	Hydrobiid Cave Snail											
<i>Lithasia obovata</i>	Shawnee Rocksnail											
CRUSTACEANS												
<i>Caecidotea lesiei</i>	Isopod											
<i>Caecidotea spatulata</i>	Isopod											
<i>Crangonyx anomalus</i>	Anomalous Spring Amphipod											
<i>Crangonyx antennatus</i>	Appalachian Valley Cave Amphipod								5			
<i>Crangonyx packardii</i>	Packard's Cave Amphipod											

<i>Gammarus acherondytes</i>	Illinois Cave Amphipod											
<i>Gammarus bousfieldi</i>	Bousfield's Amphipod								6			
<i>Orconectes indianensis</i>	Indiana Crayfish											
<i>Orconectes kentuckiensis</i>	Kentucky Crayfish											
<i>Orconectes lancifer</i>	Oxbow Crayfish; Shrimp Crayfish											
<i>Orconectes placidus</i>	Bigelow Crayfish											
<i>Stygobromus iowae</i>	Iowa Amphipod											
SCORPIONS												
<i>Centruroides vittatus</i>	Common Striped Scorpion											
INSECTS												
<i>Aflexia rubranura</i>	Redveined Prairie Leafhopper											
<i>Anthysanella incongrua</i>	a leafhopper											
<i>Atrytone arogos</i>	Arogos Skipper											
<i>Calephelis muticum</i>	Swamp Metalmark											
<i>Diploperla robusta</i>	Robust Springfly											
<i>Hesperia metea</i>	Cobweb Skipper											
<i>Hesperia ottoe</i>	Ottoe Skipper											
<i>Incisalia polios</i>	Hoary Elfin											
<i>Lycaeides melissa samuelis**</i>	Karner Blue Butterfly											
<i>Nannothemis bella</i>	Elfin Skimmer											
<i>Papaipema eryngii</i>	Eryngium Stem Borer											
<i>Paraphlepsius lupalus</i>	Leafhopper											
<i>Prostoia completa</i>	Central Forestfly											
<i>Pygarrhopalites madonnensis</i>	Madonna Cave Springtail											
<i>Somatochlora hineana**</i>	Hine's Emerald's Dragonfly											
<i>Speyeria idalia</i>	Regal Fritillary											

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Species status, by List revision 1980-2011: Plants

Scientific Name (currently or at time of delisting)	Common Name (currently or at time of delisting)	1980	1984	1989	1994	1999	2004	2009	2011
<i>Acalypha deamii</i>	Large-seeded mercury					6			
<i>Adoxa moschatellina</i>	Moschatel								
<i>Agalinus skinneriana</i>	Pale False Foxglove								
<i>Agropyron subsecundum</i>	Bearded Wheat Grass								
<i>Alnus rugosa</i>	Speckled Alder								
<i>Amelanchier interior</i>	Shadbush								
<i>Amelanchier sanguinea</i>	Shadbush								
<i>Ammophila breviligulata</i>	Marram Grass								
<i>Amorpha nitens</i>	Smooth False Indigo								
<i>Andropogon ternarius</i>	Silver Broom Sedge					5			
<i>Apios priceana *</i>	Price's Groundnut					4^^			
<i>Aralia hispida</i>	Bristly Sarsparilla			4					

<i>Arctostaphylos uva-ursi</i>	Bearberry								
<i>Arenaria patula</i>	Slender Sandwort								
<i>Aristida necopina</i>	Three-awn			4					
<i>Aristolochia serpentaria</i> var. <i>hastata</i>	Virginia Snakeroot						5		
<i>Artemisia dracunculus</i>	False Tarragon								
<i>Asclepias lanuginosa</i>	Wooly Milkweed								
<i>Asclepias meadii</i> *	Mead's Milkweed								
<i>Asclepias ovalifolia</i>	Oval Milkweed								
<i>Asclepias stenophylla</i>	Narrow-leaved Green Milkweed								
<i>Asplenium bradleyi</i>	Bradley's Spleenwort								
<i>Asplenium resiliens</i>	Black Spleenwort								
<i>Astragalus crassicaupus</i> var. <i>trichocalyx</i>	Large Ground Plum								
<i>Astragalus distortus</i>	Bent Milk Vetch								
<i>Astragalus tennesseensis</i>	Tennessee Milk Vetch								
<i>Aster furcatus</i>	Forked Aster								
<i>Aster schreberi</i>	Schreber's Aster					6			
<i>Aster undulatus</i>	Aster					6			
<i>Bacopa acuminata</i>	Water Hyssop			4					
<i>Baptisia tinctoria</i>	Yellow Wild Indigo			4					
<i>Bartonia paniculata</i>	Screwstem								
<i>Beckmannia syzigachne</i>	American Slough Grass								
<i>Berberis canadensis</i>	Allegheny Barberry								
<i>Berchemia scandens</i>	Supple-jack								
<i>Besseyia bullii</i>	Kittentails								
<i>Betula lutea</i>	Yellow Birch								
<i>Betula populifolia</i>	Gray Birch						3		
<i>Bidens beckii</i>	Water Marigold								
<i>Boltonia decurrens</i> *	False Aster								
<i>Botrychium biternatum</i>	Southern Grape Fern								
<i>Botrychium campestre</i>	Prairie Moonwort								
<i>Botrychium matricariaefolium</i>	Daisyleaf Grape Fern								
<i>Botrychium multifidum</i>	Northern Grape Fern								
<i>Botrychium simplex</i>	Dwarf Grape Fern								
<i>Bouteloua gracilis</i>	Blue Grama								
<i>Buchera americana</i>	Blue Hearts								
<i>Bumelia lanuginosa</i>	Wooly Buckthorn								
<i>Cakile edentula</i>	Sea Rocket								
<i>Calamagrostis inasperata</i>	Bluejoint Grass								
<i>Calla palustris</i>	Water Arum								
<i>Calopogon tuberosus</i>	Grass Pink Orchid								
<i>Calopogon oklahomensis</i>	Oklahoma Grass Pink Orchid								
<i>Camassia angusta</i>	Wild Hyacinth								
<i>Cardamine pratensis</i> var. <i>palustris</i>	Cuckoo Flower								
<i>Carex alata</i>	Winged Sedge								
<i>Carex arkansana</i>	Sedge								
<i>Carex atherodes</i>	Sedge				6				
<i>Carex atlantica</i>	Sedge								
<i>Carex aurea</i>	Golden Sedge								
<i>Carex austrina</i>	Sedge				5				
<i>Carex baileyi</i>	Sedge					5			
<i>Carex bromoides</i>	Sedge								
<i>Carex brunnescens</i>	Sedge								
<i>Carex canescens</i> var. <i>disjuncta</i>	Sedge								
<i>Carex chordorrhiza</i>	Sedge								
<i>Carex communis</i>	Sedge								

<i>Carex crawei</i>	Sedge					6			
<i>Carex crawfordii</i>	Sedge								
<i>Carex cryptolepis</i>	Sedge								
<i>Carex cumulata</i>	Sedge			4					
<i>Carex decomposita</i>	Sedge								
<i>Carex diandra</i>	Sedge								
<i>Carex disperma</i>	Sedge								
<i>Carex echinata</i>	Sedge								
<i>Carex formosa</i>	Sedge								
<i>Carex garberi</i>	Sedge								
<i>Carex gigantea</i>	Sedge								
<i>Carex heliophila</i>	Sedge								
<i>Carex intumescens</i>	Swollen Sedge								
<i>Carex laxiculmis</i>	Sedge					6			
<i>Carex lucorum</i>	Sedge							5	
<i>Carex nigro-marginata</i>	Sedge								
<i>Carex oligosperma</i>	Sedge								
<i>Carex oxylepis</i>	Sedge								
<i>Carex pallescens</i>	Sedge					4			
<i>Carex physorhyncha</i>	Sedge								
<i>Carex plantaginea</i>	Plantain-leaved Sedge			4					
<i>Carex prasina</i>	Sedge								
<i>Carex reniformis</i>	Sedge								
<i>Carex rostrata</i>	Sedge					6			
<i>Carex striatula</i>	Sedge							5	
<i>Carex styloflexa</i>	Sedge					5			
<i>Carex tonsa</i>	Sedge					6			
<i>Carex trisperma</i>	Sedge								
<i>Carex tuckermanni</i>	Sedge								
<i>Carex viridula</i>	Sedge								
<i>Carex willdenowii</i>	Willdenow's Sedge								
<i>Carex woodii</i>	Sedge								
<i>Carya aquatica</i>	Water Hickory								
<i>Carya pallida</i>	Pale Hickory								
<i>Castanea dentata</i>	American Chestnut				4				
<i>Castilleja sessiliflora</i>	Downy Yellow Painted Cup								
<i>Ceanothus ovatus</i>	Redroot								
<i>Chamaedaphne calyculata</i>	Leatherleaf								
<i>Chamaelirium luteum</i>	Fairy Wand								
<i>Chamaesyce polygonifolia</i>	Seaside Spurge								
<i>Chimaphila maculata</i>	Spotted Wintergreen								
<i>Chimaphila umbellata</i>	Pipsissewa								
<i>Cimicifuga americana</i>	American Bugbane								
<i>Cimicifuga racemosa</i>	False Bugbane								
<i>Cimicifuga rubifolia</i>	Black Cohosh								
<i>Cinna latifolia</i>	Drooping Wood Reed			4					
<i>Circaea alpina</i>	Small Enchanter's Nightshade								
<i>Cirsium carolinianum</i>	Carolina Thistle				6				
<i>Cirsium hillii</i>	Hill's Thistle						6		
<i>Cirsium pitcheri</i> *	Pitcher's (Dune) Thistle								
<i>Cladium mariscoides</i>	Twig Rush			6					
<i>Cladrastis lutea</i>	Yellowwood								
<i>Clematis crispa</i>	Blue Jasmine								
<i>Clematis occidentalis</i>	Mountain Clematis								
<i>Clematis viorna</i>	Leatherflower								

<i>Gaultheria procumbens</i>	Wintergreen						4		
<i>Geranium bicknellii</i>	Northern Cranesbill								
<i>Geum rivale</i>	Purple Avens			4					
<i>Glyceria arkansana</i>	Manna Grass								
<i>Glyceria borealis</i>	Northern Manna Grass					4			
<i>Glyceria canadensis</i>	Rattlesnake Grass			4					
<i>Gnaphalium macounii</i>	Clammy Cudweed			4					
<i>Gratiola quartermantiae</i>	Hedge Hyssop								
<i>Gymnocarpium dryopteris</i>	Oak Fern								
<i>Gymnocarpium robertianum</i>	Scented Oak Fern								
<i>Gymnopogon ambiguus</i>	Beard Grass					4			
<i>Habenaria ciliaris</i>	Orange Fringed Orchid								
<i>Habenaria clavellata</i>	Wood Orchid								
<i>Habenaria flava</i> var. <i>flava</i>	Tubercled Orchid								
<i>Habenaria flava</i> var. <i>herbiola</i>	Tubercled Orchid								
<i>Habenaria hookeri</i>	Hooker's Orchid			4					
<i>Habenaria leucophaea</i> *	Prairie White Fringed Orchid								
<i>Habenaria psycodes</i>	Purple Fringed Orchid								
<i>Hackelia americana</i>	Stickseed								
<i>Halesia carolina</i>	Silverbell Tree								
<i>Helianthus angustifolius</i>	Narrow-leaved Sunflower								
<i>Helianthus giganteus</i>	Tall Sunflower								
<i>Heliotropium tenellum</i>	Slender Heliotrope								
<i>Heteranthera reniformis</i>	Mud Plantain								
<i>Hexaletris spicata</i>	Crested Coralroot Orchid								
<i>Hudsonia tomentosa</i>	False Heather								
<i>Huperzia porophila</i>	Cliff Clubmoss								
<i>Hydrastis canadensis</i>	Golden Seal			6					
<i>Hydrocotyle ranunculoides</i>	Water-pennywort						6		
<i>Hydrolea uniflora</i>	One-flowered Hydrolea								
<i>Hymenopappus scabiosaeus</i>	Old Plainsman								
<i>Hymenoxys acaulis</i> var. <i>glabra</i> *	Lakeside Daisy								
<i>Hypericum adpressum</i>	Shore St. John's Wort								
<i>Hypericum boreale</i>	Northern St. John's Wort			5					
<i>Hypericum densiflorum</i>	St. John's Wort				5				
<i>Hypericum kalmianum</i>	Kalm's St. John's Wort								
<i>Iliamna remota</i>	Kankakee Mallow								
<i>Iresine rhizomatosa</i>	Bloodleaf								
<i>Iris fulva</i>	Swamp Red Iris				6				
<i>Isoetes butleri</i>	Quillwort								
<i>Isotria medeoloides</i> *	Small Whorled Pogonia						4^^		
<i>Isotria verticillata</i>	Whorled Pogonia								
<i>Juncus alpinus</i>	Richardson's Rush								
<i>Juncus vaseyi</i>	Vasey's Rush								
<i>Juniperus communis</i>	Ground Juniper								
<i>Juniperus horizontalis</i>	Trailing Juniper								
<i>Justicia ovata</i>	Water Willow								
<i>Lactuca hirsuta</i>	Wild Lettuce						6		
<i>Lactuca ludoviciana</i>	Western Wild Lettuce					4			
<i>Larix laricina</i>	Tamarack								
<i>Lathyrus maritimus</i>	Beach Pea							8	
<i>Lathyrus ochroleucus</i>	Pale Vetchling								
<i>Lechea intermedia</i>	Pinweed								
<i>Leptochloa panicoides</i>	Salt Meadow Grass					6			
<i>Lespedeza leptostachya</i> *	Prairie Bush Clover								

<i>Lesquerella ludoviciana</i>	Silvery Bladderpod								
<i>Liatris scariosa</i> var. <i>nieuwlandii</i>	Blazing Star								
<i>Lilium superbum</i>	Turk's Cap Lily					6			
<i>Lipocarpa maculata</i>	Mottled Lipocarpa					4			
<i>Lonicera dioica</i> var. <i>glaucescens</i>	Red Honeysuckle								
<i>Lonicera flava</i>	Yellow Honeysuckle								
<i>Luzula acuminata</i>	Hairy Woodrush								
<i>Lycopodium clavatum</i>	Running Pine								
<i>Lycopodium dendroideum</i>	Ground Pine								
<i>Lycopodium inundatum</i>	Bog Clubmoss								
<i>Lycopus amplexans</i>	Sessile Water Horehound			4					
<i>Lysimachia fraseri</i>	Loosestrife						4		
<i>Lysimachia radicans</i>	Creeping Loosestrife								
<i>Malus angustifolia</i>	Narrow-leaved Crabapple								
<i>Malvastrum hispidum</i>	False Mallow								
<i>Matelea decipiens</i>	Climbing Milkweed								
<i>Matelea obliqua</i>	Climbing Milkweed								
<i>Medeola virginiana</i>	Indian Cucumber Root								
<i>Melampyrum lineare</i>	Cow Wheat					4			
<i>Melanthera nivea</i>	White Melanthera								
<i>Melanthium virginicum</i>	Bunchflower								
<i>Melica mutica</i>	Two-Flowered Melic Grass								
<i>Melothria pendula</i>	Squirting Cucumber								
<i>Menyanthes trifoliata</i>	Buckbean								
<i>Microseris cuspidata</i>	Prairie Dandelion								
<i>Milium effusum</i>	Millet Grass							8	
<i>Mimulus glabratus</i>	Yellow Monkey Flower								
<i>Mirabilis hirsuta</i>	Hairy Umbrella-wort								
<i>Nemophila triloba</i>	Baby Blue-eyes								
<i>Oenothera perennis</i>	Small Sundrops								
<i>Onosmodium molle</i>	Marbleseed			4					
<i>Opuntia fragilis</i>	Prickly Pear								
<i>Orobancha fasciculata</i>	Clustered Broomrape								
<i>Orobancha ludoviciana</i>	Broomrape								
<i>Oryzopsis racemosa</i>	Rice Grass					6			
<i>Oxalis grandis</i>	Large Wood Sorrel			5					
<i>Oxalis illinoensis</i>	Illinois Wood Sorrel								
<i>Panax quinquefolius</i>	Ginseng			5					
<i>Panicum boreale</i>	Northern Panic Grass								
<i>Panicum columbianum</i>	Hemlock Panic Grass								
<i>Panicum hians</i>	Panic Grass								
<i>Panicum jorii</i>	Panic Grass								
<i>Panicum longifolium</i>	Long-leaved Panic Grass					4			
<i>Panicum mattamuskeetense</i>	Panic Grass			5					
<i>Panicum nitidum</i>	Panic Grass			5					
<i>Panicum ravenelii</i>	Panic Grass								
<i>Panicum stipitatum</i>	Panic Grass					4			
<i>Panicum yadkinense</i>	Panic Grass								
<i>Paspalum bushii</i>	Hairy Bead Grass				6				
<i>Paspalum dissectum</i>	Bead Grass								
<i>Paspalum lentiferum</i>	Bead Grass			4,5					
<i>Penstemon brevisepalus</i>	Short-sepaled Beard Tongue								
<i>Penstemon grandiflorus</i>	Large-flowered Beard Tongue								
<i>Penstemon tubaeformis</i>	Tube Beard Tongue								
<i>Petalostemum foliosum</i>	Leafy Prairie Clover								

<i>Phacelia gilioides</i>	Phacelia								
<i>Phaeophyscia leana</i>	Lea's Bog Lichen								
<i>Philadelphus pubescens</i>	Mock Orange			4					
<i>Phlox carolina</i> subsp. <i>angusta</i>	Phlox			5					
<i>Phlox pilosa</i> subsp. <i>sangamonensis</i>	Sangamon Phlox								
<i>Physostegia intermedia</i>	False Dragonhead			5					
<i>Pinus banksiana</i>	Jack Pine								
<i>Pinus echinata</i>	Shortleaf Pine								
<i>Pinus resinosa</i>	Red Pine								
<i>Planera aquatic</i>	Water Elm								
<i>Plantago cordata</i>	Heart-leaved Plantain								
<i>Plantago heterophylla</i>	Small Plantain			4					
<i>Poa alsodes</i>	Grove Bluegrass								
<i>Poa autumnalis</i>	Bluegrass					4			
<i>Poa languida</i>	Weak Bluegrass								
<i>Poa wolfii</i>	Wolf's Bluegrass								
<i>Pogonia ophioglossoides</i>	Snake-mouth								
<i>Polanisia jamesii</i>	James' Clammyweed								
<i>Polygala incarnata</i>	Pink Milkwort								
<i>Polygonatum pubescens</i>	Downy Solomon's Seal								
<i>Polygonum arifolium</i>	Halbred-leaved Tearthumb								
<i>Polygonum careyi</i>	Carey's Smartweed								
<i>Polygonum longistylum</i>	Smartweed			6					
<i>Populus balsamifera</i>	Balsam Poplar								
<i>Potamogeton gramineus</i>	Grass-leaved Pondweed								
<i>Potamogeton praelongus</i>	White-stemmed Pondweed								
<i>Potamogeton pulcher</i>	Spotted Pondweed								
<i>Potamogeton robbinsii</i>	Fern Pondweed								
<i>Potamogeton strictifolius</i>	Stiff Pondweed								
<i>Potamogeton vaseyi</i>	Vasey's Pondweed					4			
<i>Potentilla millegrana</i>	Cinquefoil							2,8	
<i>Primula mistassinica</i>	Bird's-eye Primrose								
<i>Ptilimnium costatum</i>	Mock Bishop's Weed				6				
<i>Ptilimnium nuttallii</i>	Mock Bishop's Weed								
<i>Puccinellia pallida</i>	Grass								
<i>Pycnanthemum albescent</i>	White Mountain Mint							8	
<i>Pycnanthemum torrei</i>	Mountain Mint						4		
<i>Pyrola americana</i>	Round-leaved Shinleaf				4				
<i>Pyrola secunda</i>	One-sided Pyrola			4					
<i>Quercus nuttallii</i>	Nuttall's Oak								
<i>Quercus phellos</i>	Willow Oak								
<i>Quercus prinus</i>	Rock Chestnut Oak								
<i>Ranunculus ambigens</i>	Spearwort			4,5					
<i>Ranunculus cymbalaria</i>	Seaside Crowfoot							2	
<i>Ranunculus rhomboideus</i>	Prairie Buttercup								
<i>Rhamnus alnifolia</i>	Alder Buckthorn								
<i>Rhexia mariana</i>	Dull Meadow Beauty								
<i>Rhynchospora alba</i>	Beaked Rush								
<i>Rhynchospora globularis</i>	Grass Beak Rush					4			
<i>Rhynchospora glomerata</i>	Beak Rush								
<i>Rhynchospora macrostachya</i>	Beak Rush			5					
<i>Ribes hirtellum</i>	Northern Gooseberry								
<i>Rorippa islandica</i> var. <i>hispida</i>	Hairy Marsh Yellow Cress					6			
<i>Rorippa truncata</i>	Yellow Cress			2					
<i>Rosa acicularis</i>	Rose								

<i>Rubus enslenii</i>	Arching Dewberry				6				
<i>Rubus odoratus</i>	Purple-flowering Raspberry								
<i>Rubus pubescens</i>	Purple-flowering Raspberry								
<i>Rubus setosus</i>	Bristly Blackberry								
<i>Rudbeckia missouriensis</i>	Missouri Orange Coneflower								
<i>Rumex hastatulus</i>	Sour Dock					4			
<i>Sabatia campestris</i>	Prairie Rose Gentian								
<i>Sagittaria longirostris</i>	Arrowhead								
<i>Salix serissima</i>	Autumn Willow								
<i>Salix syrticola</i>	Dune Willow								
<i>Salvia azurea</i> subsp. <i>pitcheri</i>	Blue Sage								
<i>Sambucus pubens</i>	Red-berried Elder								
<i>Sanguisorba canadensis</i>	American Burnet								
<i>Sanicula smallii</i>	Southern Sanicula								
<i>Sarracenia purpurea</i>	Pitcher Plant								
<i>Saxifraga virginensis</i>	Early Saxifrage								
<i>Scheuchzeria palustris</i>	Arrow-grass					4			
<i>Schizachne purpurascens</i>	False Melic Grass								
<i>Scirpus cespitosus</i>	Tufted Bulrush								
<i>Scirpus hallii</i>	Bulrush								
<i>Scirpus hattorianus</i>	Bulrush								
<i>Scirpus microcarpus</i>	Bulrush			4					
<i>Scirpus paludosus</i>	Alkali Bulrush							2	
<i>Scirpus pedicellatus</i>	Bulrush			4					
<i>Scirpus polyphyllus</i>	Bulrush								
<i>Scirpus purshianus</i>	Weak Bulrush								
<i>Scirpus smithii</i>	Bulrush								
<i>Scirpus torreyi</i>	Bulrush					4			
<i>Scirpus verecundus</i>	Bulrush						4		
<i>Scleria pauciflora</i>	Carolina Whipgrass								
<i>Scleria reticularis</i>	Netted Nut Rush					4			
<i>Sedum telephioides</i>	American orpine								
<i>Shepherdia canadensis</i>	Buffaloberry								
<i>Silene ovata</i>	Ovate Catchfly								
<i>Silene regia</i>	Royal Catchfly								
<i>Silphium pinnatifidum</i>	Rosinweed					5			
<i>Silphium trifoliatum</i>	Rosinweed						4		
<i>Sisyrinchium atlanticum</i>	Eastern Blue-eyed Grass								
<i>Sisyrinchium montanum</i>	Mountain Blue-eyed Grass								
<i>Sorbus americana</i>	American Mountain Ash								
<i>Solidago arguta</i>	Goldenrod					4			
<i>Solidago remota</i>	Goldenrod			5					
<i>Solidago sciaphila</i>	Cliff Goldenrod								
<i>Sparganium americanum</i>	American Burreed								
<i>Sparganium chlorocarpum</i>	Green-fruited Burreed								
<i>Sphaeralcea angusta</i>	Globe Mallow								
<i>Spiranthes lucida</i>	Yellow-lipped Ladies' Tresses								
<i>Spiranthes romanzoffiana</i>	Hooded Ladies' Tresses						4		
<i>Spiranthes vernalis</i>	Spring Ladies' Tresses								
<i>Stachys clingmannii</i>	Hedge Nettle			5					
<i>Stellaria pubera</i>	Great Chickweed								
<i>Stenanthium gramineum</i>	Grass-leaved Lily								
<i>Stylisma pickeringii</i>	Patterson's Bindweed								
<i>Styrax americana</i>	Storax								
<i>Styrax grandifolia</i>	Bigleaf Snowbell Bush								

<i>Sullivantia renifolia</i>	Sullivantia								
<i>Symphoricarpos albus</i> var. <i>albus</i>	Snowberry								
<i>Synandra hispidula</i>	Hairy Synandra								
<i>Talinum calycinum</i>	Fameflower								
<i>Talinum parviflorum</i>	Small Flower-of-an-hour								
<i>Thalia dealbata</i>	Powdery Thalia						4		
<i>Thelypteris noveboracensis</i>	New York Fern								
<i>Thelypteris phegopteris</i>	Long Beech Fern								
<i>Thismia americana</i>	Thismia					4			
<i>Thuja occidentalis</i>	Arbor Vitae						6		
<i>Tilia heterophylla</i>	White Basswood								
<i>Tofieldia glutinosa</i>	False Asphodel								
<i>Tomanthera auriculata</i>	Ear-leaved Foxglove								
<i>Tradescantia bracteata</i>	Prairie Spiderwort								
<i>Triadenum virginicum</i>	Marsh St. John's Wort							8	
<i>Trichomanes boschianum</i>	Filmy fern								
<i>Trientalis borealis</i>	Star-flower								
<i>Trifolium reflexum</i>	Buffalo Clover								
<i>Triglochin maritima</i>	Common Bog Arrow Grass								
<i>Triglochin palustris</i>	Slender Bog Arrow Grass								
<i>Trillium cernuum</i>	Nodding Trillium								
<i>Trillium cuneatum</i>	Trillium				5				
<i>Trillium erectum</i>	Ill-scented Trillium								
<i>Trillium viride</i>	Green Trillium								
<i>Ulmus thomasi</i>	Rock Elm								
<i>Urtica chamaedryoides</i>	Nettle								
<i>Utricularia cornuta</i>	Horned Bladderwort								
<i>Utricularia intermedia</i>	Flat-leaved Bladderwort								
<i>Utricularia minor</i>	Small Bladderwort								
<i>Vaccinium corymbosum</i>	Highbush Blueberry								
<i>Vaccinium macrocarpon</i>	Large Cranberry								
<i>Vaccinium oxycoccos</i>	Small Cranberry								
<i>Vaccinium stamineum</i>	Deerberry				4				
<i>Valeriana uliginosa</i>	Marsh Valerian								
<i>Valerianella chenopodifolia</i>	Corn Salad								
<i>Vallerianella intermedia</i>	Corn Salad			4					
<i>Valerianella umbilicata</i>	Corn Salad								
<i>Veratrum woodii</i>	False Hellebore						6		
<i>Veronica americana</i>	American Brooklime								
<i>Veronica scutellata</i>	Marsh Speedwell								
<i>Viburnum molle</i>	Arrowwood								
<i>Viola canadensis</i>	Canada Violet								
<i>Viola conspersa</i>	Dog Violet								
<i>Viola incognita</i>	Hairy White Violet								
<i>Viola primulifolia</i>	Primrose Violet								
<i>Viola viarum</i>	Plains Violet						3		
<i>Waldsteinia fragarioides</i>	Barren Strawberry						4		
<i>Woodsia ilvensis</i>	Rusty Woodsia								
<i>Woodwardia virginica</i>	Virginia Chain Fern			4					
<i>Zigadenus glaucus</i>	White Camass								

Notes:

Yellow = threatened

Red = endangered

Black = delisted

Gray = special Administrative Rule revision, not a List review and revisions, so species was not evaluated at this time

*= federally threatened

**= federally endangered

^ = limited revision special amendment to Administrative Rule that only addressed subject species and not a List review and revision

^^ = ESPB cannot delist federally listed species, so must relist until USFWS determines species extirpated

+ = originally listed incorrectly as E, changed to T in 2010

Reason for IL delisting: 1) LEAVE BLANK; 2) peripheral sp. that occurs in disturbed/non-native habitats; 3) vagrant; 4) extirpated in IL.; 5) misidentified/no longer valid taxon; 6) more common than thought; 7) commercial fishing regs by IDNR provide adequate protection; 8) extinct; 9) recovered

Appendix H. Illinois endangered and threatened species – reasons for listing, by species.

[Note - the 6 Reasons are primary reasons for listing. Although not specifically noted, threats associated with habitat degradation and/or destruction have been considered relevant factors in almost all species listings. * = federally threatened; ** federally endangered.]

Scientific Name	Common Name	Year Listed	Designated or proposed Federal E or T	Formerly widespread in Illinois, but nearly extirpated due to habitat destruction, over collecting, or other development pressures	Very restricted geographic range of which Illinois is a part	Restricted habitats or low populations in Illinois	Significant disjuncts, i.e. the IL population is far removed from the rest of the species' range
<i>Acipenser fulvescens</i>	Lake Sturgeon	1977		x			
<i>Ammocrypta clara</i>	Western Sand Darter	1989		x			
<i>Ammocrypta pellucida</i>	Eastern Sand Darter	1989				x	
<i>Catostomus catostomus</i>	Longnose Sucker	1977				x	
<i>Coregonus alpenae</i> **	Longjaw Cisco	1977	x			x	
<i>Coregonus artedii</i>	Cisco	1977				x	
<i>Coregonus clupeaformis</i>	Lake Whitefish	1977				x	
<i>Erimystax x-punctatus</i>	Gravel Chub	2004		x			
<i>Etheostoma camurum</i>	Bluebreast Darter	1977				x	
<i>Etheostoma exile</i>	Iowa Darter	1989		x			
<i>Etheostoma histrio</i>	Harlequin Darter	1977				x	x
<i>Fundulus diaphanus</i>	Banded Killifish	1989				x	
<i>Fundulus dispar</i>	Starhead Topminnow	2004		x			
<i>Hybognathus hayi</i>	Cypress Minnow	1989				x	
<i>Hybopsis amblops</i>	Bigeye Chub	1977				x	
<i>Notropis (Hybopsis) amnis</i>	Pallid Shiner (Chub)	1989		x			
<i>Ichthyomyzon fossor</i>	Northern Brook Lamprey	1989				x	
<i>Lampetra aepyptera</i>	Least Brook Lamprey	1989				x	
<i>Lepisosteus spatula</i>	Alligator Gar	1977				x	
<i>Lepomis punctatus</i>	Spotted Sunfish	1989		x			
<i>Lepomis symmetricus</i>	Bantam Sunfish	1977				x	
<i>Macrhybopsis gelida</i>	Sturgeon Chub	1994				x	
<i>Moxostoma carinatum</i>	River Redhorse	1989				x	
<i>Moxostoma valenciennesi</i>	Greater Redhorse	1989				x	
<i>Nocomis micropogon</i>	River Chub	1994				x	
<i>Notropis anogenus</i>	Pugnose Shiner	1977				x	
<i>Notropis boops</i>	Bigeye Shiner	1989		x			
<i>Notropis chalybaeus</i>	Ironcolor Shiner	1989				x	
<i>Notropis heterodon</i>	Blackchin Shiner	1989				x	

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<i>Notropis heterolepis</i>	Blacknose Shiner	1977		x			x
<i>Notropis hubbsi</i>	Bluehead Shiner	1977				x	x
<i>Notropis maculatus</i>	Taillight shiner	1994				x	
<i>Notropis texanus</i>	Weed Shiner	1989				x	
<i>Noturus stigmosus</i>	Northern Madtom	1989				x	
<i>Platygobio gracilis</i>	Flathead Chub	1999				x	
<i>Scaphirhynchus albus**</i>	Pallid Sturgeon	1991	x			x	
<i>Ambystoma jeffersonianum</i>	Jefferson Salamander	1999				x	
<i>Ambystoma platineum</i>	Silvery Salamander	1997				x	
<i>Cryptobranchus alleganiensis</i>	Hellbender	1994				x	
<i>Desmognathus fuscus</i>	Dusky Salamander	1977				x	
<i>Gastrophryne carolinensis</i>	Eastern Narrowmouth Toad	2004				x	
<i>Hemidactylium scutatum</i>	Four-toed Salamander	1994				x	
<i>Hyla avivoca</i>	Bird-voiced Treefrog	1999				x	
<i>Necurus maculosus</i>	Mudpuppy	2009		x			
<i>Pseudacris streckeri</i>	Strecker's Chorus Frog	1977				x	x
<i>Apalone mutica</i>	Smooth Softshell	2009		x			
<i>Clemmys guttata</i>	Spotted Turtle	1977				x	
<i>Clonophis kirtlandi</i>	Kirtland's Snake	1994		x			
<i>Crotalus horridus</i>	Timber Rattlesnake	1994		x			
<i>Elaphe guttata</i>	Great Plains Rat Snake	1977				x	
<i>Emydoidea blandingii</i>	Blanding's Turtle	1999		x			
<i>Heterodon nasicus</i>	Western Hognosed Snake	1977				x	x
<i>Kinosternon flavescens</i>	Yellow Mud Turtle	1977				x	x
<i>Macrochelys temminckii</i>	Alligator Snapping Turtle	1994				x	
<i>Masticophis flagellum</i>	Whip Snake	1977				x	
<i>Nerodia cyclopion</i>	Green Watersnake	1989				x	
<i>Nerodia fasciata</i>	Banded Water Snake	1977				x	
<i>Pseudemys concinna</i> X <i>P. floridana</i>	Slider	1977				x	
<i>Sistrurus catenatus</i>	Eastern Massasauga	1994		x			
<i>Tantilla gracilis</i>	Flathead Snake	1999				x	
<i>Terrepenne ornata</i>	Ornate Box Turtle	2009		x			

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<i>Thamnophis sauritus</i>	Eastern Ribbon Snake	1977				x	
<i>Troidoclonion lineatum</i>	Lined Snake	2004		x			
<i>Accipiter cooperii</i>	Cooper's Hawk	1977		x			
<i>Accipiter striatus</i>	Sharp-shinned Hawk	1989				x	
<i>Aimophila aestivalis</i>	Bachman's sparrow	1977				x	
<i>Ammodramus henslowii</i>	Henslow's Sparrow	1977		x			
<i>Asio flammeus</i>	Short-eared Owl	1977				x	
<i>Asio otus</i>	Long-eared Owl	1977				x	
<i>Bartramia longicauda</i>	Upland Sandpiper	1977		x			
<i>Botaurus lentiginosus</i>	American Bittern	1977		x			
<i>Buteo lineatus</i>	Red-shouldered Hawk	1977		x			
<i>Buteo swainsoni</i>	Swainson's Hawk	1977				x	
<i>Casmerodius albus</i>	Great Egret	1977		x			
<i>Catharus fuscescens</i>	Veery	1977				x	
<i>Certhia familiaris</i>	Brown Creeper	1977				x	
<i>Charadrius melodus**</i>	Piping Plover	1977				x	
<i>Chlidonias niger</i>	Black Tern	1977				x	
<i>Circus cyaneus</i>	Marsh Hawk	1977		x			
<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo	2009		x			
<i>Coturnicops noveboracensis</i>	Yellow Rail	1977				x	
<i>Dendroica cerulea</i>	Cerulean Warbler	2004		x			
<i>Egretta thula</i>	Snowy Egret	1977				x	
<i>Euphagus cyanocephalus</i>	Brewer's Blackbird	1977				x	
<i>Falco peregrinus**</i>	Peregrine Falcon	1977	x			x	
<i>Florida caerulea</i>	Little Blue Heron	1977				x	
<i>Gallinula chloropus</i>	Common Moorhen	1977		x			
<i>Grus canadensis</i>	Sandhill Crane	1989		x			
<i>Haliaeetus leucocephalus*</i>	Bald Eagle	1977		x			
<i>Ictinia mississippiensis</i>	Mississippi Kite	1977				x	
<i>Ixobrychus exilis</i>	Least Bittern	1989		x			
<i>Lanius ludovicianus</i>	Loggerhead Shrike	1977		x			
<i>Laterallus jamaicensis</i>	Black Rail	1977				x	

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<i>Limnithlypis swainsoni</i>	Swainson's Warbler	1977				x	
<i>Numenius borealis</i> *	Eskimo curlew	1977	x			x	
<i>Nyctanassa violacea</i>	Yellow-crowned Night Heron	1994		x			
<i>Nycticorax nycticorax</i>	Black-crowned Night Heron	1977		x			
<i>Pandion haliaetus</i>	Osprey	1977		x			
<i>Phalacrocorax auritus</i>	Double-crested Cormorant	1977				x	
<i>Podilymbus podiceps</i>	Pied-billed Grebe	1989		x			
<i>Porphyryla martinica</i>	Purple Gallinule	1977				x	
<i>Rallus elegans</i>	King Rail	1994		x			
<i>Spizella pallida</i>	Clay-colored Sparrow	1989				x	
<i>Steganopus tricolor</i>	Wilson's Phalarope	1977				x	
<i>Sterna albifrons</i> **	Least Tern	1977				x	
<i>Sterna forsteri</i>	Forster's Tern	1977				x	
<i>Sterna hirundo</i>	Common Tern	1977				x	
<i>Thryomanes bewickii</i>	Bewick's Wren	1977		x			
<i>Tympanuchus cupido</i>	Greater Prairie Chicken	1977		x			
<i>Tyto alba</i>	Barn Owl	1977		x			
<i>Vermivora bachmanii</i> *	Bachman's Warbler	1977	x			x	
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed Blackbird	1977				x	
<i>Canis lupus</i> **	Gray/Timber Wolf	1977	x				
<i>Lepus townsendi</i>	White-tailed Jackrabbit	1977				x	
<i>Lutra canadensis</i>	River Otter	1977		x			
<i>Lynx rufus</i>	Bobcat	1977		x			
<i>Myotis austroriparius</i>	Southeastern Myotis	1989				x	
<i>Myotis grisescens</i> **	Gray Bat	1977	x			x	
<i>Myotis sodalis</i> **	Indiana Bat	1977	x			x	
<i>Neotoma floridana</i>	Eastern Wood Rat	1977				x	
<i>Ochrotomys nuttalli</i>	Golden Mouse	1977				x	
<i>Oryzomys palustris</i>	Rice Rat	1977				x	
<i>Plecotus rafinesquii</i>	Rafinesque's Big-eared Bat	1989				x	
<i>Spermophilus franklinii</i>	Franklin's Ground Squirrel	2004		x			
<i>Alasmidonta viridis</i>	Slippershell	1989		x			

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<i>Cumberlandia monodonta</i> **	Spectacle Case	1999				x	
<i>Cyclonaias tuberculata</i>	Purple Wartyback	1999		x			
<i>Cyprogenia stegaria</i> **	Fanshell	1989				x	
<i>Ellipsaria lineolata</i>	Butterfly Mussel	1994		x			
<i>Elliptio crassidens</i>	Elephant-ear	1989		x			
<i>Elliptio dilatata</i>	Spike	1994		x			
<i>Epioblasma flexuosa</i>	Leafshell	1989		x			
<i>Epioblasma obliquata perobliqua</i> **	White Cat's Paw Pearly Mussel	1984	x			x	
<i>Epioblasma personata</i>	Round Combshell	1989				x	
<i>Epioblasma propinqua</i>	Tennessee Riffleshell	1989				x	
<i>Epioblasma rangiana</i> **	Northern Riffleshell	2010	x				
<i>Epioblasma sampsonii</i> **	Sampson's Pearly Mussel	1984	x		x	x	
<i>Epioblasma torulosa torulosa</i> **	Tubercled-blossom Pearly Mussel	1984	x			x	
<i>Epioblasma triquetra</i> **	Snuffbox	1989		x			
<i>Fusconaia ebena</i>	Ebonyshell	1994		x			
<i>Hemistena lata</i> **	Cracking Pearly Mussel	1989				x	
<i>Lampsilis abrupta</i>	Pink Mucket	1999				x	
<i>Lampsilis fasciola</i>	Wavy-rayed Lampmussel	1989				x	
<i>Lampsilis higginsii</i> **	Higgins' Eye Pearly Mussel	1984	x	x			
<i>Lampsilis orbiculata</i> **	Pink Mucket Pearly Mussel	1984	x			x	
<i>Lasmigona compressa</i>	Creek Heelsplitter	1989		x			
<i>Leptodea leptodon</i>	Scaleshell	1989				x	
<i>Ligumia recta</i>	Black Sandshell	1999		x			
<i>Obovaria retusa</i> **	Ring Pink	1989			x	x	
<i>Obovaria subrotunda</i>	Round Hickorynut	1989				x	
<i>Plethobasis cicatricosus</i> **	White Wartyback Pearly Mussel	1984	x		x	x	
<i>Plethobasis cooperianus</i> **	Orange-footed Pearly Mussel	1984	x			x	
<i>Plethobasus cyphus</i> **	Sheepnose	1989		x			
<i>Pleurobema clava</i> **	Clubshell	1989				x	
<i>Pleurobema cordatum</i>	Ohio Pigtoe	1995				x	
<i>Peurobema plenum</i> **	Rough Pigtoe Pearly Mussel	1984	x			x	
<i>Pleurobema rubrum</i>	Pyramid Pigtoe	1994				x	

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<i>Potamilus capax</i> **	Fat Pocketbook	1984	x	x			
<i>Ptychobranhus fasciolaris</i>	Kidneyshell	1989				x	
<i>Quadrula cylindrica</i>	Rabbitsfoot	1989				x	
<i>Simpsonaias ambigua</i>	Salamander Mussel	1989		x			
<i>Toxolasma lividus</i>	Purple Lilliput	1989				x	
<i>Uniomerus tetralasmus</i>	Pondhorn	1989		x			
<i>Villosa fabalis</i>	Rayed Bean	1989				x	
<i>Villosa iris</i>	Rainbow	1989				x	
<i>Villosa lienosa</i>	Little Spectacle Case	1989		x			
<i>Discus macclintocki</i> **	Iowa Pleistocene Snail	1985	x		x	x	
<i>Fontigens antroecetes</i>	Hydrobiid Cave Snail	2004			x	x	
<i>Lithasia obovata</i>	Shawnee Rocksnail	2009				x	
<i>Caecidotea lesliei</i>	Isopod	1989				x	
<i>Caecidotea spatulata</i>	Isopod	1994				x	
<i>Crangonyx anomalus</i>	Amphipod	1989				x	
<i>Crangonyx antennatus</i>	Amphipod	1989				x	
<i>Crangonyx packardii</i>	Amphipod	1989				x	
<i>Gammarus acherondytes</i> **	Amphipod	1989			x	x	
<i>Gammarus bousfieldi</i>	Amphipod	1989				x	
<i>Orconectes indianensis</i>	Crayfish	1989			x	x	
<i>Orconectes kentuckiensis</i>	Crayfish	1989				x	
<i>Orconectes lancifer</i>	Crayfish	1989				x	
<i>Orconectes placidus</i>	Crayfish	1989				x	
<i>Stygobromus iowae</i>	Amphipod	1989			x	x	
<i>Centruroides vittatus</i>	Common Striped Scorpion	2009				x	
<i>Aflexia rubranura</i>	Redveined Prairie Leafhopper	1994				x	
<i>Anthysanella incongrua</i>	a leafhopper	2009				x	
<i>Arrhopalites madonnensis</i>	Madonna Cave Springtail	2009			x	x	
<i>Atrytone arogos</i>	Arogos Skipper	1989				x	
<i>Calephelis muticum</i>	Swamp Metalmark	1994				x	
<i>Diploperla robusta</i>	Robust Springfly	2009				x	
<i>Hesperia metea</i>	Cobweb Skipper	1989				x	

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<i>Hesperia ottoe</i>	Ottoe Skipper	1989				x	
<i>Incisalia polios</i>	Hoary Elfin	1994				x	
<i>Lycaeides melissa samuelis**</i>	Karner Blue Butterfly	1994	x				
<i>Nannothemis bella</i>	Elfin Skimmer	1994				x	
<i>Papaipema eryngii</i>	Eryngium Stem Borer	1991			x	x	
<i>Paraphlepsius lupalus</i>	Leafhopper	1994				x	
<i>Prostoia completa</i>	Central Forestfly	2009				x	
<i>Somatochlora hineana**</i>	Hine's Bog Skimmer	1991			x	x	
<i>Speyeria idalia</i>	Regal Fritillary	1999		x			
<i>Acalypha deamii</i>	Large-seeded mercury	1994				x	
<i>Adoxa moschatellina</i>	Moschatel	1980				x	
<i>Agalinus skinneriana</i>	Pale False Foxglove	1994		x			
<i>Agropyron subsecundum</i>	Bearded Wheat Grass	1980				x	
<i>Alnus rugosa</i>	Speckled Alder	1980				x	
<i>Amelanchier interior</i>	Shadbush	1980				x	
<i>Amelanchier sanguinea</i>	Shadbush	1989				x	
<i>Ammophila breviligulata</i>	Marram Grass	1980				x	
<i>Amorpha nitens</i>	Smooth False Indigo	1980				x	
<i>Andropogon ternarius</i>	Silver Broom Sedge	1994				x	
<i>Apios priceana *</i>	Price's Groundnut	1980			x	x	
<i>Aralia hispida</i>	Bristly Sarsparilla	1980				x	
<i>Arctostaphylos uva-ursi</i>	Bearberry	1980				x	
<i>Arenaria patula</i>	Slender Sandwort	1980				x	
<i>Aristida necopina</i>	Three-awn	1980				x	
<i>Aristolochia serpentaria</i> var. <i>hastata</i>	Virginia Snakeroot	1980				x	
<i>Artemisia dracunculus</i>	False Tarragon	1980		x			
<i>Asclepias lanuginosa</i>	Wooly Milkweed	1980				x	
<i>Asclepias meadii *</i>	Mead's Milkweed	1980				x	
<i>Asclepias ovalifolia</i>	Oval Milkweed	1980				x	
<i>Asclepias stenophylla</i>	Narrow-leaved Green Milkweed	1980				x	
<i>Asplenium bradleyi</i>	Bradley's Spleenwort	1980				x	
<i>Asplenium resiliens</i>	Black Spleenwort	1980				x	

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<i>Astragalus crassicaupus</i> var. <i>trichocalyx</i>	Large Ground Plum	1989				x	
<i>Artemisia dracuncululus</i>	False Tarragon	1980		x			
<i>Astragalus tennesseensis</i>	Tennessee Milk Vetch	1980				x	
<i>Aster furcatus</i>	Forked Aster	1989		x			
<i>Aster schreberi</i>	Schreber's Aster	1980				x	
<i>Aster undulatus</i>	Aster	1980				x	
<i>Bacopa acuminata</i>	Water Hyssop	1980				x	
<i>Baptisia tinctoria</i>	Yellow Wild Indigo	1980, 2004				x	
<i>Bartonia paniculata</i>	Screwstem	1980				x	
<i>Beckmannia syzigachne</i>	American Slough Grass	1980				x	
<i>Berberis canadensis</i>	Allegheny Barberry	1980				x	
<i>Berchemia scandens</i>	Supple-jack	1980				x	
<i>Besseyia bullii</i>	Kittentails	1990		x			
<i>Betula lutea</i>	Yellow Birch	1980				x	
<i>Betula populifolia</i>	Gray Birch	1980				x	x
<i>Bidens beckii</i>	Water Marigold	1980				x	
<i>Boltonia decurrens</i> *	False Aster	1989	x	x	x		
<i>Botrychium biternatum</i>	Southern Grape Fern	1980				x	
<i>Botrychium campestre</i>	Prairie Moonwort	2004				x	x
<i>Botrychium matricariaefolium</i>	Daisyleaf Grape Fern	1980				x	
<i>Botrychium multifidum</i>	Northern Grape Fern	1980		x			
<i>Botrychium simplex</i>	Dwarf Grape Fern	1980				x	
<i>Bouteloua gracilis</i>	Blue Grama	1998				x	
<i>Botrychium multifidum</i>	Northern Grape Fern	1980		x			
<i>Bumelia lanuginosa</i>	Wooly Buckthorn	1980				x	
<i>Cakile edentula</i>	Sea Rocket	1980				x	
<i>Calamagrostis inasperata</i>	Bluejoint Grass	1994				x	
<i>Calla palustris</i>	Water Arum	1980				x	
<i>Calopogon tuberosus</i>	Grass Pink Orchid	1980		x			
<i>Calopogon oklahomensis</i>	Oklahoma Grass Pink Orchid	2004		x			
<i>Camassia angusta</i>	Wild Hyacinth	1980				x	
<i>Cardamine pratensis</i> var. <i>palustris</i>	Cuckoo Flower	1980				x	

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<i>Carex alata</i>	Winged Sedge	1980				x	
<i>Carex arkansana</i>	Sedge	1994				x	
<i>Carex atherodes</i>	Sedge	1980				x	
<i>Carex atlantica</i>	Sedge	2004				x	
<i>Carex aurea</i>	Golden Sedge	1980				x	
<i>Carex austrina</i>	Sedge	1980				x	
<i>Carex baileyi</i>	Sedge	1994				x	
<i>Carex bromoides</i>	Sedge	2004		x			
<i>Carex brunnescens</i>	Sedge	1989				x	
<i>Carex canescens</i> var. <i>disjuncta</i>	Sedge	1990				x	
<i>Carex chordorrhiza</i>	Sedge	1990				x	
<i>Carex communis</i>	Sedge	1980		x			
<i>Carex crawei</i>	Sedge	1980				x	
<i>Carex crawfordii</i>	Sedge	1994				x	
<i>Carex cryptolepis</i>	Sedge	1994				x	
<i>Carex cumulata</i>	Sedge	1980, 2004				x	
<i>Carex decomposita</i>	Sedge	1980				x	
<i>Carex diandra</i>	Sedge	2004				x	
<i>Carex disperma</i>	Sedge	1980				x	
<i>Carex echinata</i>	Sedge	1990				x	
<i>Carex formosa</i>	Sedge	2004				x	
<i>Carex garberi</i>	Sedge	1980				x	
<i>Carex gigantea</i>	Sedge	1980				x	
<i>Carex heliophila</i>	Sedge	1994				x	
<i>Carex intumescens</i>	Swollen Sedge	1980		x			
<i>Carex laxiculmis</i>	Sedge	1980				x	
<i>Carex lucorum</i>	Sedge	1994				x	
<i>Carex nigro-marginata</i>	Sedge	1980				x	
<i>Carex oligosperma</i>	Sedge	1980				x	
<i>Carex oxylepis</i>	Sedge	1980				x	
<i>Carex pallescens</i>	Sedge	1980				x	
<i>Carex physorhyncha</i>	Sedge	1980				x	

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<i>Carex plantaginea</i>	Plantain-leaved Sedge	1980, 2009				x	
<i>Carex prasina</i>	Sedge	1980		x			
<i>Carex reniformis</i>	Sedge	1980				x	
<i>Carex rostrata</i>	Sedge	1980				x	
<i>Carex striatula</i>	Sedge	1980				x	
<i>Carex styloflexa</i>	Sedge	1980				x	
<i>Carex tosa</i>	Sedge	1980				x	
<i>Carex trisperma</i>	Sedge	1980				x	
<i>Carex tuckermanni</i>	Sedge	1989				x	
<i>Carex viridula</i>	Sedge	1980				x	
<i>Carex willdenowii</i>	Willdenow's Sedge	1989				x	
<i>Carex woodii</i>	Sedge	1980				x	
<i>Carya aquatica</i>	Water Hickory	2004				x	
<i>Carya pallida</i>	Pale Hickory	1980				x	
<i>Castanea dentata</i>	American Chestnut	1980				x	
<i>Castilleja sessiliflora</i>	Downy Yellow Painted Cup	1981				x	
<i>Ceanothus ovatus</i>	Redroot	1980				x	
<i>Chamaedaphne calyculata</i>	Leatherleaf	1980				x	
<i>Chamaelirium luteum</i>	Fairy Wand	2004				x	
<i>Chamaesyce polygonifolia</i>	Seaside Spurge	1980				x	
<i>Chimaphila maculata</i>	Spotted Wintergreen	1980				x	
<i>Chimaphila umbellata</i>	Pipsissewa	1980				x	
<i>Cimicifuga americana</i>	American Bugbane	1989				x	
<i>Cimicifuga racemosa</i>	False Bugbane	1980				x	
<i>Cimicifuga rubifolia</i>	Black Cohosh	1994				x	
<i>Cinna latifolia</i>	Drooping Wood Reed	1980				x	
<i>Circaea alpina</i>	Small Enchanter's Nightshade	1980				x	
<i>Cirsium carolinianum</i>	Carolina Thistle	1980				x	
<i>Cirsium hillii</i>	Hill's Thistle	1994		x			
<i>Cirsium pitcheri</i> *	Pitcher's (Dune) Thistle	1989	x			x	
<i>Cladium mariscoides</i>	Twig Rush	1980				x	
<i>Cladrastis lutea</i>	Yellowwood	1980	x			x	

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<i>Clematis crispa</i>	Blue Jasmine	1980				x	
<i>Clematis occidentalis</i>	Mountain Clematis	1989				x	
<i>Clematis viorna</i>	Leatherflower	1980				x	
<i>Collinsia violacea</i>	Violet Collinsia	1980				x	
<i>Comptonia peregrina</i>	Sweetfern	1980				x	
<i>Conioselinum chinense</i>	Hemlock Parsley	1980				x	
<i>Corallorhiza maculata</i>	Spotted Coral-root Orchid	1980		x			
<i>Cornus canadensis</i>	Bunchberry	1980				x	
<i>Corydalis aurea</i>	Golden Corydalis	1980				x	
<i>Corydalis curvisiliqua</i> var. <i>grandibracteata</i>	Corydalis	1989				x	
<i>Corydalis halei</i>	Hale's Corydalis	1980				x	
<i>Corydalis sempervirens</i>	Pink Corydalis	1980				x	
<i>Corylus cornuta</i>	Beaked Hazelnut	1989				x	
<i>Cynosciadium digitatum</i>	Cynosciadium	1980				x	
<i>Cyperus grayioides</i>	Umbrella Sedge	1989				x	
<i>Cyperus lancastricensis</i>	Galingale	1980				x	
<i>Cypripedium acaule</i>	Mocasin Flower	1980				x	
<i>Cypripedium calceolus</i> var. <i>parviflorum</i>	Small Yellow Lady's Slipper	1980				x	
<i>Cypripedium candidum</i>	White Lady's Slipper	1980	x	x			
<i>Cypripedium reginae</i>	Showy Lady's Slipper	1980		x			
<i>Cystopteris laurentiana</i>	Fragile Fern	1989				x	
<i>Daucus pusillus</i>	Small Wild Carrot	1980				x	
<i>Delphinium carolinianum</i>	Wild Blue Larkspur	2009				x	
<i>Dennstaedtia punctilobula</i>	Hay-scented Fern	1980				x	
<i>Deschampsia flexuosa</i>	Hairgrass	2004				x	
<i>Dioclea multiflora</i>	Boykin's Dioclea	1980				x	
<i>Dodecatheon amethystinum</i>	Jeweled Shooting Star	1980				x	
<i>Dodecatheon frenchii</i>	French's Shooting Star	2004			x	x	
<i>Draba cuneifolia</i>	Whitlow Grass	1980				x	
<i>Drosera intermedia</i>	Narrow-leaved Sundew	1980				x	
<i>Drosera rotundifolia</i>	Round-leaved Sundew	1980				x	
<i>Dryopteris celsa</i>	Log Fern	1980				x	

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<i>Echinodorus tenellus</i>	Small Burhead	1980				x	
<i>Eleocharis equisetoides</i>	Knotted Spikerush	1980				x	
<i>Eleocharis olivacea</i>	Spikerush	1980				x	
<i>Eleocharis parvula</i>	Spikerush	1980				x	
<i>Eleocharis pauciflora</i>	Spikerush	1980				x	
<i>Eleocharis rostellata</i>	Spike Rush	1980				x	
<i>Epilobium strictum</i>	Downy Willow Herb	1980				x	
<i>Equisetum pratense</i>	Meadow Horsetail	1980				x	
<i>Equisetum palustre</i>	Marsh Horetail	1980				x	
<i>Equisetum scirpoides</i>	Dwarf Scouring Rush	1989				x	
<i>Equisetum sylvaticum</i>	Horsetail	1990				x	
<i>Eriophorum virginicum</i>	Rusty Cotton Grass	1980				x	
<i>Eriophorum viridi-carinatum</i>	Tall Cotton Grass	1980				x	
<i>Eryngium prostratum</i>	Eryngo	1980				x	
<i>Erythronium mesochoreum</i>	White Dog-tooth Violet	1989				x	
<i>Euonymus americanus</i>	Strawberry Bush	1980				x	
<i>Eupatorium hyssopifolium</i> var. <i>hyssopifolium</i>	Hyssop-leaved Thoroughwort	1998				x	
<i>Eupatorium incarnatum</i>	Thoroughwort	1980				x	
<i>Euphorbia spathulata</i>	Spurge	1980				x	
<i>Filipendula rubra</i>	Queen-of-the-Prairie	1980		x			
<i>Fimbristylis baldwiniana</i>	Baldwin's Fimbristylis	1980				x	
<i>Fimbristylis vahlII</i>	Vahl's Fimbristylis	1980				x	
<i>Fuirena scirpoides</i>	Umbrella Sedge	1980				x	
<i>Galium labradoricum</i>	Bog Bedstraw	1980				x	
<i>Galium lanceolatum</i>	Wild Licorice	1998				x	
<i>Galium virgatum</i>	Dwarf Bedstraw	1980				x	
<i>Gaultheria procumbens</i>	Wintergreen	1980				x	
<i>Geranium bicknellii</i>	Northern Cranesbill	1980				x	
<i>Geum rivale</i>	Purple Avens	1980				x	
<i>Glyceria arkansana</i>	Manna Grass	1980				x	
<i>Glyceria borealis</i>	Northern Manna Grass	1980				x	
<i>Glyceria canadensis</i>	Rattlesnake Grass	1980				x	

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<i>Gnaphalium macounii</i>	Clammy Cudweed	1980				x	
<i>Gratiola quartermantiae</i>	Hedge Hyssop	2009				x	
<i>Gymnocarpium dryopteris</i>	Oak Fern	1980				x	
<i>Gymnocarpium robertianum</i>	Scented Oak Fern	1989				x	
<i>Gymnopogon ambiguus</i>	Beard Grass	1980				x	
<i>Habenaria ciliaris</i>	Orange Fringed Orchid	1980				x	
<i>Habenaria clavellata</i>	Wood Orchid	1980				x	
<i>Habenaria flava</i> var. <i>flava</i>	Tubercled Orchid	1980				x	
<i>Habenaria flava</i> var. <i>herbiola</i>	Tubercled Orchid	1980		x			
<i>Habenaria hookeri</i>	Hooker's Orchid	1980				x	
<i>Habenaria leucophaea</i> *	Prairie White Fringed Orchid	1980	x	x			
<i>Habenaria psycodes</i>	Purple Fringed Orchid	1980				x	
<i>Hackelia americana</i>	Stickseed	1980				x	
<i>Halesia carolina</i>	Silverbell Tree	1980				x	
<i>Helianthus angustifolius</i>	Narrow-leaved Sunflower	1980				x	
<i>Helianthus giganteus</i>	Tall Sunflower	1980				x	
<i>Heliotropium tenellum</i>	Slender Heliotrope	1980				x	
<i>Heteranthera reniformis</i>	Mud Plantain	1980				x	
<i>Hexalectris spicata</i>	Crested Coralroot Orchid	1980				x	
<i>Hudsonia tomentosa</i>	False Heather	1980				x	
<i>Huperzia porophila</i>	Cliff Clubmoss	2004				x	
<i>Hydrastis canadensis</i>	Golden Seal	1980	x	x			
<i>Hydrocotyle ranunculoides</i>	Water-pennywort	1980				x	
<i>Hydrolea uniflora</i>	One-flowered Hydrolea	1980				x	
<i>Hymenopappus scabiosaeus</i>	Old Plainsman	2004				x	
<i>Hymenoxys acaulis</i> var. <i>glabra</i> *	Lakeside Daisy	1980				x	
<i>Hypericum adpressum</i>	Shore St. John's Wort	1980				x	
<i>Hypericum boreale</i>	Northern St. John's Wort	1980				x	
<i>Hypericum densiflorum</i>	St. John's Wort	1980				x	
<i>Hypericum kalmianum</i>	Kalm's St. John's Wort	1980				x	
<i>Iliamna remota</i>	Kankakee Mallow	1980	x		x	x	x
<i>Iresine rhizomatosa</i>	Bloodleaf	1980				x	

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<i>Iris fulva</i>	Swamp Red Iris	1980				x	
<i>Isoetes butleri</i>	Quillwort	1994				x	
<i>Isotria medeoloides</i> *	Small Whorled Pogonia	1980				x	
<i>Isotria verticillata</i>	Whorled Pogonia	1980				x	
<i>Juncus alpinus</i>	Richardson's Rush	1980				x	
<i>Juncus vaseyi</i>	Vasey's Rush	1980				x	
<i>Juniperus communis</i>	Ground Juniper	1980				x	
<i>Juniperus horizontalis</i>	Trailing Juniper	1980				x	
<i>Justicia ovata</i>	Water Willow	1980				x	
<i>Lactuca hirsuta</i>	Wild Lettuce	1980				x	
<i>Lactuca ludoviciana</i>	Western Wild Lettuce	1980		x			
<i>Larix laricina</i>	Tamarack	1980				x	
<i>Lathyrus maritimus</i>	Beach Pea	1980				x	
<i>Lathyrus ochroleucus</i>	Pale Vetchling	1980				x	
<i>Lechea intermedia</i>	Pinweed	1980				x	
<i>Leptochloa panicoides</i>	Salt Meadow Grass	1980				x	x
<i>Lespedeza leptostachya</i> *	Prairie Bush Clover	1980				x	
<i>Lesquerella ludoviciana</i>	Silvery Bladderpod	1980				x	x
<i>Liatris scariosa</i> var. <i>nieuwlandii</i>	Blazing Star	1989		x			
<i>Lilium superbum</i>	Turk's Cap Lily	1980				x	
<i>Lipocarpa maculata</i>	Mottled Lipocarpa	1980				x	
<i>Lonicera dioica</i> var. <i>glaucescens</i>	Red Honeysuckle	1989				x	
<i>Lonicera flava</i>	Yellow Honeysuckle	1980				x	
<i>Luzula acuminata</i>	Hairy Woodrush	1980				x	
<i>Lycopodium clavatum</i>	Running Pine	1980				x	
<i>Lycopodium dendroideum</i>	Ground Pine	1980				x	
<i>Lycopodium inundatum</i>	Bog Clubmoss	1980				x	
<i>Lycopus amplexans</i>	Sessile Water Horehound	1980				x	
<i>Lysimachia fraseri</i>	Loosestrife	1980				x	
<i>Lysimachia radicans</i>	Creeping Loosestrife	1980				x	
<i>Malus angustifolia</i>	Narrow-leaved Crabapple	1980				x	
<i>Matelea decipiens</i>	Climbing Milkweed	1980				x	

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<i>Matelea obliqua</i>	Climbing Milkweed	1980				x	
<i>Medeola virginiana</i>	Indian Cucumber Root	1980				x	
<i>Melampyrum lineare</i>	Cow Wheat	1980				x	
<i>Melanthera nivea</i>	White Melanthera	1980				x	
<i>Melanthium virginicum</i>	Bunchflower	1994		x			
<i>Melica mutica</i>	Two-Flowered Melic Grass	1994				x	
<i>Melothria pendula</i>	Squirting Cucumber	1980				x	
<i>Menyanthes trifoliata</i>	Buckbean	2004				x	
<i>Microseris cuspidata</i>	Prairie Dandelion	1980		x			
<i>Milium effusum</i>	Millet Grass	1989		x			
<i>Mimulus glabratus</i>	Yellow Monkey Flower	1980				x	
<i>Mirabilis hirsuta</i>	Hairy Umbrella-wort	1989				x	
<i>Nemophila triloba</i>	Baby Blue-eyes	2004				x	
<i>Oenothera perennis</i>	Small Sundrops	1980				x	
<i>Onosmodium molle</i>	Marbleseed	1980				x	
<i>Opuntia fragilis</i>	Prickly Pear	1989				x	
<i>Orobanche fasciculata</i>	Clustered Broomrape	1980		x			
<i>Orobanche ludoviciana</i>	Broomrape	1980		x			
<i>Oryzopsis racemosa</i>	Rice Grass	1980		x			
<i>Oxalis grandis</i>	Large Wood Sorrel	1980				x	
<i>Oxalis illinoensis</i>	Illinois Wood Sorrel	1989				x	
<i>Panax quinquefolius</i>	Ginseng	1980		x			
<i>Panicum boreale</i>	Northern Panic Grass	1980				x	
<i>Panicum columbianum</i>	Hemlock Panic Grass	1980				x	
<i>Panicum hians</i>	Panic Grass	1980				x	
<i>Panicum joorii</i>	Panic Grass	1980				x	
<i>Panicum longifolium</i>	Long-leaved Panic Grass	1980				x	
<i>Panicum mattamuskeetense</i>	Panic Grass	1980				x	
<i>Panicum nitidum</i>	Panic Grass	1980				x	
<i>Panicum ravenelii</i>	Panic Grass	1980				x	
<i>Panicum stipitatum</i>	Panic Grass	1980				x	
<i>Panicum yadkinense</i>	Panic Grass	1980				x	

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<i>Paspalum bushii</i>	Hairy Bead Grass	1980		x			
<i>Paspalum dissectum</i>	Bead Grass	1980				x	
<i>Paspalum lentiferum</i>	Bead Grass	1980				x	
<i>Penstemon brevisepalus</i>	Short-sepaled Beard Tongue	1989				x	
<i>Penstemon grandiflorus</i>	Large-flowered Beard Tongue	1980				x	
<i>Penstemon tubaeformis</i>	Tube Beard Tongue	2004		x			
<i>Petalostemum foliosum</i> **	Leafy Prairie Clover	1980				x	
<i>Phacelia giliioides</i>	Phacelia	1980				x	
<i>Phaeophyscia leana</i>	Lea's Bog Lichen	1994				x	
<i>Philadelphus pubescens</i>	Mock Orange	1980				x	
<i>Phlox carolina</i> subsp. <i>angusta</i>	Phlox	1980				x	
<i>Phlox pilosa</i> subsp. <i>sangamonensis</i>	Sangamon Phlox	1980			x	x	
<i>Physostegia intermedia</i>	False Dragonhead	1980				x	
<i>Pinus banksiana</i>	Jack Pine	1980				x	
<i>Pinus echinata</i>	Shortleaf Pine	1980				x	
<i>Pinus resinosa</i>	Red Pine	1980				x	
<i>Planera aquatica</i>	Water Elm	1980				x	
<i>Plantago cordata</i>	Heart-leaved Plantain	1980	x	x			
<i>Plantago heterophylla</i>	Small Plantain	1980				x	
<i>Poa alsodes</i>	Grove Bluegrass	1980		x			
<i>Poa autumnalis</i>	Bluegrass	1980				x	
<i>Poa languida</i>	Weak Bluegrass	1980				x	
<i>Poa wolfii</i>	Wolf's Bluegrass	1980				x	
<i>Pogonia ophioglossoides</i>	Snake-mouth	1980				x	
<i>Polanisia jamesii</i>	James' Clammyweed	1980				x	
<i>Polygala incarnata</i>	Pink Milkwort	1980		x			
<i>Polygonatum pubescens</i>	Downy Solomon's Seal	1980				x	
<i>Polygonum arifolium</i>	Halbred-leaved Tearthumb	1980				x	
<i>Polygonum careyi</i>	Carey's Smartweed	1980				x	
<i>Polygonum longistylum</i>	Smartweed	1980				x	
<i>Populus balsamifera</i>	Balsam Poplar	1980				x	
<i>Potamogeton gramineus</i>	Grass-leaved Pondweed	1980				x	

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<i>Potamogeton praelongus</i>	White-stemmed Pondweed	1980				x	
<i>Potamogeton pulcher</i>	Spotted Pondweed	1980				x	
<i>Potamogeton robbinsii</i>	Fern Pondweed	1980				x	
<i>Potamogeton strictifolius</i>	Stiff Pondweed	1980				x	
<i>Potamogeton vaseyi</i>	Vasey's Pondweed	1980				x	
<i>Potentilla millegrana</i>	Cinquefoil	1980				x	
<i>Primula mistassinica</i>	Bird's-eye Primrose	1980	x			x	
<i>Ptilimnium costatum</i>	Mock Bishop's Weed	1980				x	
<i>Ptilimnium nuttallii</i>	Mock Bishop's Weed	1980				x	
<i>Puccinellia pallida</i>	Grass	1980				x	
<i>Pycnanthemum albescens</i>	White Mountain Mint	1980				x	
<i>Pycnanthemum torrei</i>	Mountain Mint	1980				x	
<i>Pyrola americana</i>	Round-leaved Shinleaf	1980				x	
<i>Pyrola secunda</i>	One-sided Pyrola	1980				x	
<i>Quercus nuttallii</i>	Nuttall's Oak	1980				x	
<i>Quercus phellos</i>	Willow Oak	1980				x	
<i>Quercus prinus</i>	Rock Chestnut Oak	1980				x	
<i>Ranunculus ambigens</i>	Spearwort	1980				x	
<i>Ranunculus cymbalaria</i>	Seaside Crowfoot	1980				x	
<i>Ranunculus rhomboideus</i>	Prairie Buttercup	1980				x	
<i>Rhamnus alnifolia</i>	Alder Buckthorn	1980				x	
<i>Rhexia mariana</i>	Dull Meadow Beauty	2004				x	
<i>Rhynchospora alba</i>	Beaked Rush	1980				x	
<i>Rhynchospora globularis</i>	Grass Beak Rush	1980				x	
<i>Rhynchospora glomerata</i>	Beak Rush	1980				x	
<i>Rhynchospora macrostachya</i>	Beak Rush	1980				x	
<i>Ribes hirtellum</i>	Northern Gooseberry	1980				x	
<i>Rorippa islandica</i> var. <i>hispida</i>	Hairy Marsh Yellow Cress	1980				x	
<i>Rorippa truncata</i>	Yellow Cress	1980				x	
<i>Rosa acicularis</i>	Rose	1989				x	
<i>Rubus enslenii</i>	Arching Dewberry	1980				x	
<i>Rubus odoratus</i>	Purple-flowering Raspberry	1981				x	

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<i>Rubus pubescens</i>	Purple-flowering Raspberry	1980				x	
<i>Rubus setosus</i>	Bristly Blackberry	1980				x	
<i>Rudbeckia missouriensis</i>	Missouri Orange Coneflower	1980				x	
<i>Rumex hastatulus</i>	Sour Dock	1980				x	
<i>Sabatia campestris</i>	Prairie Rose Gentian	1980		x			
<i>Sagittaria longirostris</i>	Arrowhead	1980				x	
<i>Salix serissima</i>	Autumn Willow	1980				x	
<i>Salix syrticola</i>	Dune Willow	1980				x	
<i>Salvia azurea</i> subsp. <i>pitcheri</i>	Blue Sage	1980				x	
<i>Sambucus pubens</i>	Red-berried Elder	1980				x	
<i>Sanguisorba canadensis</i>	American Burnet	1980				x	
<i>Sanicula smallii</i>	Southern Sanicula	2004				x	
<i>Sarracenia purpurea</i>	Pitcher Plant	1980				x	
<i>Saxifraga virginensis</i>	Early Saxifrage	1980				x	
<i>Scheuchzeria palustris</i>	Arrow-grass	1980				x	
<i>Schizachne purpurascens</i>	False Melic Grass	1980				x	
<i>Scirpus cespitosus</i>	Tufted Bulrush	1980			x	x	
<i>Scirpus hallii</i>	Bulrush	1980				x	
<i>Scirpus hattorianus</i>	Bulrush	1980				x	
<i>Scirpus microcarpus</i>	Bulrush	1980, 2004				x	
<i>Scirpus paludosus</i>	Alkali Bulrush	1980				x	
<i>Scirpus pedicellatus</i>	Bulrush	1980				x	
<i>Scirpus polyphyllus</i>	Bulrush	1980				x	
<i>Scirpus purshianus</i>	Weak Bulrush	1980				x	
<i>Scirpus smithii</i>	Bulrush	1980				x	
<i>Scirpus torreyi</i>	Bulrush	1980				x	
<i>Scirpus verecundus</i>	Bulrush	1980				x	
<i>Scleria pauciflora</i>	Carolina Whipgrass	2004				x	
<i>Scleria reticularis</i>	Netted Nut Rush	1980, 2004				x	x
<i>Sedum telephioides</i>	American orpine	2004				x	x
<i>Shepherdia canadensis</i>	Buffaloberry	1980				x	

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<i>Silene ovata</i>	Ovate Catchfly	1998				x	
<i>Silene regia</i>	Royal Catchfly	1980		x			
<i>Silphium pinnatifidum</i>	Rosinweed	1994				x	
<i>Silphium trifoliatum</i>	Rosinweed	1989				x	
<i>Sisyrinchium atlanticum</i>	Eastern Blue-eyed Grass	1980				x	
<i>Sisyrinchium montanum</i>	Mountain Blue-eyed Grass	1980				x	
<i>Solidago arguta</i>	Goldenrod	1980				x	
<i>Solidago remota</i>	Goldenrod	1980				x	
<i>Solidago sciaphila</i>	Cliff Goldenrod	1980				x	
<i>Sorbus americana</i>	American Mountain Ash	1981				x	
<i>Sparganium americanum</i>	American Burreed	1980				x	
<i>Sparganium chlorocarpum</i>	Green-fruited Burreed	1980				x	
<i>Sphaeralcea angusta</i>	Globe Mallow	1980				x	
<i>Spiranthes lucida</i>	Yellow-lipped Ladies' Tresses	1980				x	
<i>Spiranthes romanzoffiana</i>	Hooded Ladies' Tresses	1980				x	
<i>Spiranthes vernalis</i>	Spring Ladies' Tresses	1980				x	
<i>Stachys clingmannii</i>	Hedge Nettle	1980				x	
<i>Stellaria pubera</i>	Great Chickweed	1980				x	
<i>Stenanthium gramineum</i>	Grass-leaved Lily	1980		x			
<i>Stylisma pickeringii</i>	Patterson's Bindweed	1980				x	
<i>Styrax americana</i>	Storax	1980				x	
<i>Styrax grandifolia</i>	Bigleaf Snowbell Bush	1980				x	
<i>Sullivantia renifolia</i>	Sullivantia	1980				x	
<i>Symphoricarpos albus</i> var. <i>albus</i>	Snowberry	1994				x	
<i>Synandra hispidula</i>	Hairy Synandra	1980	x			x	
<i>Talinum calycinum</i>	Fameflower	1980				x	
<i>Talinum parviflorum</i>	Small Flower-of-an-hour	2004				x	
<i>Thalia dealbata</i>	Powdery Thalia	1980				x	
<i>Thelypteris noveboracensis</i>	New York Fern	1980				x	
<i>Thelypteris phegopteris</i>	Long Beech Fern	1980				x	
<i>Thismia americana</i>	Thismia	1980				x	
<i>Thuja occidentalis</i>	Arbor Vitae	1980				x	

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<i>Tilia heterophylla</i>	White Basswood	1980				x	
<i>Tofieldia glutinosa</i>	False Asphodel	1980				x	
<i>Tomanthera auriculata</i>	Ear-leafed Foxglove	1990		x			
<i>Tradescantia bracteata</i>	Prairie Spiderwort	1980		x			
<i>Triadenum virginicum</i>	Marsh St. John's Wort	1980				x	
<i>Trichomanes boschianum</i>	Filmy fern	1994				x	
<i>Trientalis borealis</i>	Star-flower	1980				x	
<i>Trifolium reflexum</i>	Buffalo Clover	1980		x			
<i>Triglochin maritima</i>	Common Bog Arrow Grass	1980				x	
<i>Triglochin palustris</i>	Slender Bog Arrow Grass	1980				x	
<i>Trillium cernuum</i>	Nodding Trillium	1980				x	
<i>Trillium cuneatum</i>	Trillium	1980				x	
<i>Trillium erectum</i>	Ill-scented Trillium	1980				x	
<i>Trillium viride</i>	Green Trillium	1980				x	
<i>Ulmus thomasii</i>	Rock Elm	1980				x	
<i>Urtica chamaedryoides</i>	Nettle	1980				x	
<i>Utricularia cornuta</i>	Horned Bladderwort	1980				x	
<i>Utricularia intermedia</i>	Flat-leaved Bladderwort	1980				x	
<i>Utricularia minor</i>	Small Bladderwort	1980				x	
<i>Vaccinium corymbosum</i>	Highbush Blueberry	1980				x	
<i>Vaccinium macrocarpon</i>	Large Cranberry	1980				x	
<i>Vaccinium oxycoccos</i>	Small Cranberry	1989				x	
<i>Vaccinium stamineum</i>	Deerberry	1980, 2004				x	
<i>Valeriana uliginosa</i>	Marsh Valerian	1980				x	
<i>Valerianella chenopodifolia</i>	Corn Salad	1989				x	
<i>Vallerianella intermedia</i>	Corn Salad	1980				x	
<i>Valerianella umbilicata</i>	Corn Salad	1980				x	
<i>Veratrum woodii</i>	False Hellebore	1980	x			x	
<i>Veronica americana</i>	American Brooklime	1980				x	
<i>Veronica scutellata</i>	Marsh Speedwell	1980		x			
<i>Viburnum molle</i>	Arrowwood	1980				x	
<i>Viola canadensis</i>	Canada Violet	1980				x	

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<i>Viola conspersa</i>	Dog Violet	1980				x	
<i>Viola incognita</i>	Hairy White Violet	1980				x	
<i>Viola primulifolia</i>	Primrose Violet	1980				x	
<i>Viola viarum</i>	Plains Violet	1980				x	
<i>Waldsteinia fragarioides</i>	Barren Strawberry	1980				x	
<i>Woodsia ilvensis</i>	Rusty Woodsia	1980				x	
<i>Woodwardia virginica</i>	Virginia Chain Fern	1980				x	
<i>Zigadenus glaucus</i>	White Camass	1980				x	

Appendix I. Illinois endangered and threatened species – reasons for delisting, by species.

Extirpated/Extinct			
Scientific Name at Listing	Common Name at Listing	Year Listed	Year Delisted
<i>Coregonus alpenae</i> **	Longjaw Cisco	1977	1984
<i>Lepisosteus spatula</i>	Alligator Gar	1977	1994
<i>Notropis hubbsi</i>	Bluehead Shiner	1977	2004
<i>Platygobio gracilis</i>	Flathead Chub	1999	2004
<i>Aimophila aestivalis</i>	Bachman's sparrow	1977	1999
<i>Coturnicops noveboracensis</i>	Yellow Rail	1977	1999
<i>Numenius borealis</i> *	Eskimo curlew	1977	1989
<i>Vermivora bachmanii</i> *	Bachman's Warbler	1977	1989
<i>Lepus townsendi</i>	White-tailed Jackrabbit	1977	1994
<i>Epioblasma flexuosa</i>	Leafshell	1989	1994
<i>Epioblasma obliquata perobliqua</i> **	White Cat's Paw Pearly Mussel	1984	1994
<i>Epioblasma personata</i>	Round Combshell	1989	1994
<i>Epioblasma propinqua</i>	Tennessee Riffleshell	1989	1999
<i>Epioblasma sampsonii</i>	Sampson's Pearly Mussel	1984	1994
<i>Epioblasma torulosa torulosa</i> **	Tubercled-blossom Pearly Mussel	1984	1994
<i>Hemistena lata</i> **	Cracking Pearly Mussel	1989	1994
<i>Lampsilis orbiculata</i> **	Pink Mucket Pearly Mussel	1984	1994
<i>Leptodea leptodon</i>	Scaleshell	1989	1994
<i>Obovaria retusa</i> **	Ring Pink	1989	1994
<i>Obovaria subrotunda</i>	Round Hickorynut	1989	2004
<i>Plethobasis cicatricosus</i> **	White Wartyback Pearly Mussel	1984	1994
<i>Peurobema plenum</i> **	Rough Pigtoe Pearly Mussel	1984	1994
<i>Pleurobema rubrum</i>	Pyramid Pigtoe	1994	2004
<i>Villosa fabalis</i>	Rayed Bean	1989	2004
<i>Apios priceana</i> *	Price's Groundnut	1980	1989
<i>Aralia hispida</i>	Bristly Sarsparilla	1980	1989
<i>Aristida necopina</i>	Three-awn	1980	1989
<i>Bacopa acuminata</i> @	Water Hyssop	1980	1989
<i>Carex pallescens</i>	Sedge	1980	1998
<i>Castanea dentata</i>	American Chestnut	1980	1994
<i>Cinna latifolia</i>	Drooping Wood Reed	1980	1989
<i>Eriophorum viridi-carinatum</i>	Tall Cotton Grass	1980	1998
<i>Fimbristylis baldwiniana</i>	Baldwin's Fimbristylis	1980	1998
<i>Fuirena scirpoides</i>	Umbrella Sedge	1980	1990
<i>Gaultheria procumbens</i>	Wintergreen	1980	2004
<i>Geum rivale</i>	Purple Avens	1980	1989
<i>Glyceria borealis</i>	Northern Manna Grass	1980	1998
<i>Glyceria canadensis</i>	Rattlesnake Grass	1980	1990
<i>Gnaphalium macounii</i>	Clammy Cudweed	1980	1989
<i>Gymnopogon ambiguus</i>	Beard Grass	1980	1998
<i>Habenaria hookeri</i>	Hooker's Orchid	1980	1989
<i>Lactuca ludoviciana</i>	Western Wild Lettuce	1980	1998
<i>Lathyrus maritimus</i>	Beach Pea	1980	2009
<i>Lipocarpa maculata</i>	Mottled Lipocarpa	1980	1998
<i>Lycopus amplexans</i>	Sessile Water Horehound	1980	1989
<i>Lysimachia fraseri</i>	Loosestrife	1980	2004
<i>Melampyrum lineare</i>	Cow Wheat	1980	1998
<i>Milium effusum</i>	Millet Grass	1989	2009
<i>Onosmodium molle</i>	Marbleseed	1980	1989
<i>Panicum longifolium</i>	Long-leaved Panic Grass	1980	1998
<i>Panicum stipitatum</i>	Panic Grass	1980	1998

<i>Paspalum lentiferum</i> #	Bead Grass	1980	1989
<i>Philadelphus pubescens</i>	Mock Orange	1980	1989
<i>Plantago heterophylla</i>	Small Plantain	1980	1989
<i>Poa autumnalis</i>	Bluegrass	1980	1998
<i>Potamogeton vaseyi</i>	Vasey's Pondwed	1980	1998
<i>Potentilla millegrana</i> @	Cinquefoil	1980	2009
<i>Pycnanthemum albescens</i>	White Mountain Mint	1980	2009
<i>Pycnanthemum torrei</i>	Mountain Mint	1980	2004
<i>Pyrola americana</i>	Round-leaved Shinleaf	1980	1994
<i>Pyrola secunda</i>	One-sided Pyrola	1980	1989
<i>Ranunculus ambigens</i> #	Spearwort	1980	1989
<i>Rhynchospora globularis</i>	Grass Beak Rush	1980	1998
<i>Rumex hastatulus</i>	Sour Dock	1980	1998
<i>Scheuchzeria palustris</i>	Arrow-grass	1980	1998
<i>Scirpus pedicellatus</i>	Bulrush	1980	1989
<i>Scirpus torreyi</i>	Bulrush	1980	1998
<i>Scirpus verecundus</i>	Bulrush	1980	2004
<i>Silphium trifoliatum</i>	Rosinweed	1989	2004
<i>Solidago arguta</i>	Goldenrod	1980	1998
<i>Spiranthes romanzoffiana</i>	Hooded Ladies' Tresses	1980	2004
<i>Thalia dealbata</i>	Powdery Thalia	1980	2004
<i>Thismia americana</i>	Thismia	1980	1998
<i>Triadenum virginicum</i>	Marsh St. John's Wort	1980	2009
<i>Vallerianella intermedia</i>	Corn Salad	1980	1990
<i>Waldsteinia fragarioides</i>	Barren Strawberry	1980	2004
<i>Woodwardia virginica</i>	Virginia Chain Fern	1980	1989
Recovered			
Scientific Name at Listing	Common Name at Listing	Year Listed	Year Delisted
<i>Accipiter cooperii</i>	Cooper's Hawk	1977	1997
<i>Ammodramus henslowii</i>	Henslow's Sparrow	1977	2009
<i>Grus canadensis</i>	Sandhill Crane	1989	2009
<i>Haliaeetus leucocephalus</i> *	Bald Eagle	1977	2009
<i>Lutra Canadensis</i>	River Otter	1977	2004
More Common Than Thought			
Scientific Name at Listing	Common Name at Listing	Year Listed	Year Delisted
<i>Buteo lineatus</i>	Red-shouldered Hawk	1977	2004
<i>Casmerodius albus</i>	Great Egret	1977	1999
<i>Catharus fuscescens</i>	Veery	1977	1999
<i>Certhia familiaris</i>	Brown Creeper	1977	2004
<i>Phalacrocorax auritus</i>	Double-crested Cormorant	1977	1999
<i>Podilymbus podiceps</i>	Pied-billed Grebe	1989	2004
<i>Lynx rufus</i>	Bobcat	1977	1999
<i>Lasmigona compressa</i>	Creek Heelsplitter	1989	1994
<i>Unio merus tetralasmus</i>	Pondhorn	1989	1994
<i>Gammarus bousfieldi</i>	Amphipod	1989	2004
<i>Acalypha deamii</i>	Large-seeded mercury	1994	1998
<i>Aster schreberi</i>	Schreber's Aster	1980	1998
<i>Aster undulatus</i>	Aster	1980	1998
<i>Carex atherodes</i>	Sedge	1980	1994
<i>Carex crawei</i>	Sedge	1980	1998
<i>Carex laxiculmis</i>	Sedge	1980	1998
<i>Carex rostrata</i>	Sedge	1980	1998
<i>Carex tosa</i>	Sedge	1980	1998

<i>Cirsium carolinianum</i>	Carolina Thistle	1980	1994
<i>Cirsium hillii</i>	Hill's Thistle	1994	2004
<i>Cladium mariscoides</i>	Twig Rush	1980	1989
<i>Corydalis curvisiliqua</i> var. <i>grandibracteata</i>	Corydalis	1989	1998
<i>Dodecatheon amethystinum</i>	Jeweled Shooting Star	1980	1989
<i>Erythronium mesochoreum</i>	White Dog-tooth Violet	1989	2004
<i>Eupatorium incarnatum</i>	Thoroughwort	1980	2004
<i>Galium labradoricum</i>	Bog Bedstraw	1980	2004
<i>Hydrastis canadensis</i>	Golden Seal	1980	1989
<i>Hydrocotyle ranunculoides</i>	Water-pennywort	1980	2009
<i>Iris fulva</i>	Swamp Red Iris	1980	1994
<i>Lactuca hirsuta</i>	Wild Lettuce	1980	2004
<i>Leptochloa panicoides</i>	Salt Meadow Grass	1980	1998
<i>Lilium superbum</i>	Turk's Cap Lily	1980	1998
<i>Oryzopsis racemosa</i>	Rice Grass	1980	1998
<i>Panax quinquefolius</i>	Ginseng	1980	1989
<i>Paspalum bushii</i>	Hairy Bead Grass	1980	1994
<i>Polygonum longistylum</i> (<i>bicorne</i>)	Smartweed	1980	1990
<i>Ptilimnium costatum</i>	Mock Bishop's Weed	1980	1994
<i>Rorippa islandica</i> var. <i>hispida</i>	Hairy Marsh Yellow Cress	1980	1998
<i>Rubus enslenii</i>	Arching Dewberry	1980	1994
<i>Thuja occidentalis</i>	Arbor Vitae	1980	2004
<i>Veratrum woodii</i>	False Hellebore	1980	2004
Misidentified			
Scientific Name at Listing	Common Name at Listing	Year Listed	Year Delisted
<i>Crangonyx antennatus</i>	Amphipod	1989	2004
<i>Andropogon ternarius</i>	Silver Broom Sedge	1994	1998
<i>Aristolochia serpentaria</i> var. <i>hastata</i>	Virginia Snakeroot	1980	2004
<i>Carex austrina</i>	Sedge	1980	1994
<i>Carex baileyi</i>	Sedge	1994	1998
<i>Carex lucorum</i>	Sedge	1994	2009
<i>Carex striatula</i>	Sedge	1980	2009
<i>Carex styloflexa</i>	Sedge	1980	1998
<i>Eleocharis equisetoides</i>	Knotted Spikerush	1980	1989
<i>Equisetum palustre</i>	Marsh Horsetail	1980	1989
<i>Hypericum boreale</i>	Northern St. John's Wort	1980	1990
<i>Hypericum densiflorum</i>	St. John's Wort	1980	1994
<i>Oxalis grandis</i>	Large Wood Sorrel	1980	1989
<i>Panicum hians</i>	Panic Grass	1980	1989
<i>Panicum mattamuskeetense</i>	Panic Grass	1980	1989
<i>Panicum nitidum</i>	Panic Grass	1980	1990
<i>Paspalum lentiferum</i> #	Bead Grass	1980	1989
<i>Phlox carolina</i> subsp. <i>angusta</i>	Phlox	1980	1989
<i>Physostegia intermedia</i>	False Dragonhead	1980	1989
<i>Ranunculus ambigens</i> #	Spearwort	1980	1989
<i>Rhynchospora macrostachya</i>	Beak Rush	1980	1989
<i>Silphium pinnatifidum</i>	Rosinweed	1994	1998
<i>Solidago remota</i>	Goldenrod	1980	1989
<i>Stachys clingmannii</i>	Hedge Nettle	1980	1989
<i>Trillium cuneatum</i>	Trillium	1980	1994
Vagrant/Peripheral			
Scientific Name at Listing	Common Name at Listing	Year Listed	Year Delisted
<i>Accipiter striatus</i>	Sharp-shinned Hawk	1989	1999

<i>Asio otus</i>	Long-eared Owl	1977	1999
<i>Euphagus cyanocephalus</i>	Brewer's Blackbird	1977	1984
<i>Porphyryula martinica</i>	Purple Gallinule	1977	1994
<i>Spizella pallid</i>	Clay-colored Sparrow	1989	1994
<i>Bacopa acuminata</i> @	Water Hyssop	1980	1989
<i>Daucus pusillus</i>	Small Wild Carrot	1980	1990
<i>Eleocharis parvula</i>	Spikerush	1980	1990
<i>Potentilla millegrana</i> @	Cinquefoil	1980	2009
<i>Ranunculus cymbalaria</i>	Seaside Crowfoot	1980	2009
<i>Rorippa truncata</i>	Yellow Cress	1980	1990
<i>Scirpus paludosus</i>	Alkali Bulrush	1980	2009
<i>Viola viarum</i>	Plains Violet	1980	2004
Commercial Fishing Regulations Adequately Protect			
Scientific Name at Listing	Common Name at Listing	Year Listed	Year Delisted
<i>Coregonus clupeaformis</i>	Lake Whitefish	1977	1984

Notes:

* = federally threatened

** = federally endangered

= species considered extirpated and misidentified (two specimens, one for each reason)

@ = species considered both extirpated and vagrant/peripheral determination

Appendix J. List of species delisted by the ESPB as extirpated or extinct

Scientific Name at Listing	Common Name at Listing	Year Listed	Year Delisted
<i>Coregonus alpenae</i> **	Longjaw Cisco	1977	1984
<i>Lepisosteus spatula</i>	Alligator Gar	1977	1994
<i>Notropis hubbsi</i>	Bluehead Shiner	1977	2004
<i>Platygobio gracilis</i>	Flathead Chub	1999	2004
<i>Aimophila aestivalis</i>	Bachman's sparrow	1977	1999
<i>Coturnicops noveboracensis</i>	Yellow Rail	1977	1999
<i>Numenius borealis</i> *	Eskimo curlew	1977	1989
<i>Vermivora bachmanii</i> *	Bachman's Warbler	1977	1989
<i>Lepus townsendi</i>	White-tailed Jackrabbit	1977	1994
<i>Epioblasma flexuosa</i>	Leafshell	1989	1994
<i>Epioblasma obliquata perobliqua</i> **	White Cat's Paw Pearly Mussel	1984	1994
<i>Epioblasma personata</i>	Round Combshell	1989	1994
<i>Epioblasma propinqua</i>	Tennessee Riffleshell	1989	1999
<i>Epioblasma sampsonii</i>	Sampson's Pearly Mussel	1984	1994
<i>Epioblasma torulosa torulosa</i> **	Tubercled-blossom Pearly Mussel	1984	1994
<i>Hemistena lata</i> **	Cracking Pearly Mussel	1989	1994
<i>Lampsilis orbiculata</i> **	Pink Mucket Pearly Mussel	1984	1994
<i>Leptodea leptodon</i>	Scaleshell	1989	1994
<i>Obovaria retusa</i> **	Ring Pink	1989	1994
<i>Obovaria subrotunda</i>	Round Hickorynut	1989	2004
<i>Plethobasis cicatricosus</i> **	White Wartyback Pearly Mussel	1984	1994
<i>Peurobema plenum</i> **	Rough Pigtoe Pearly Mussel	1984	1994
<i>Pleurobema rubrum</i>	Pyramid Pigtoe	1994	2004
<i>Villosa fabalis</i>	Rayed Bean	1989	2004
<i>Apios priceana</i> *	Price's Groundnut	1980	1989
<i>Aralia hispida</i>	Bristly Sarsparilla	1980	1989
<i>Aristida necopina</i>	Three-awn	1980	1989
<i>Bacopa acuminata</i>	Water Hyssop	1980	1989
<i>Carex pallescens</i>	Sedge	1980	1998
<i>Castanea dentata</i>	American Chestnut	1980	1994
<i>Cinna latifolia</i>	Drooping Wood Reed	1980	1989
<i>Eriophorum viridi-carinatum</i>	Tall Cotton Grass	1980	1998
<i>Fimbristylis baldwiniana</i>	Baldwin's Fimbristylis	1980	1998
<i>Fuirena scirpoides</i>	Umbrella Sedge	1980	1990
<i>Gaultheria procumbens</i>	Wintergreen	1980	2004
<i>Geum rivale</i>	Purple Avens	1980	1989
<i>Glyceria borealis</i>	Northern Manna Grass	1980	1998
<i>Glyceria canadensis</i>	Rattlesnake Grass	1980	1990
<i>Gnaphalium macounii</i>	Clammy Cudweed	1980	1989

<i>Gymnopogon ambiguus</i>	Beard Grass	1980	1998
<i>Habenaria hookeri</i>	Hooker's Orchid	1980	1989
<i>Lactuca ludoviciana</i>	Western Wild Lettuce	1980	1998
<i>Lathyrus maritimus</i>	Beach Pea	1980	2009
<i>Lipocarpa maculata</i>	Mottled Lipocarpa	1980	1998
<i>Lycopus amplexans</i>	Sessile Water Horehound	1980	1989
<i>Lysimachia fraseri</i>	Loosestrife	1980	2004
<i>Melampyrum lineare</i>	Cow Wheat	1980	1998
<i>Milium effusum</i>	Millet Grass	1989	2009
<i>Onosmodium molle</i>	Marbleseed	1980	1989
<i>Panicum longifolium</i>	Long-leaved Panic Grass	1980	1998
<i>Panicum stipitatum</i>	Panic Grass	1980	1998
<i>Paspalum lentiferum</i>	Bead Grass	1980	1989
<i>Philadelphus pubescens</i>	Mock Orange	1980	1989
<i>Plantago heterophylla</i>	Small Plantain	1980	1989
<i>Poa autumnalis</i>	Bluegrass	1980	1998
<i>Potamogeton vaseyi</i>	Vasey's Pondweed	1980	1998
<i>Potentilla millegrana</i>	Cinquefoil	1980	2009
<i>Pycnanthemum albescens</i>	White Mountain Mint	1980	2009
<i>Pycnanthemum torrei</i>	Mountain Mint	1980	2009
<i>Pyrola americana</i>	Round-leaved Shinleaf	1980	1994
<i>Pyrola secunda</i>	One-sided Pyrola	1980	1989
<i>Ranunculus ambiguus</i>	Spearwort	1980	1989
<i>Rhynchospora globularis</i>	Grass Beak Rush	1980	1998
<i>Rumex hastatulus</i>	Sour Dock	1980	1998
<i>Scheuchzeria palustris</i>	Arrow-grass	1980	1998
<i>Scirpus pedicellatus</i>	Bulrush	1980	1989
<i>Scirpus torreyi</i>	Bulrush	1980	1998
<i>Scirpus verecundus</i>	Bulrush	1980	2004
<i>Silphium trifoliatum</i>	Rosinweed	1989	2004
<i>Solidago arguta</i>	Goldenrod	1980	1998
<i>Spiranthes romanzoffiana</i>	Hooded Ladies' Tresses	1980	2004
<i>Thalia dealbata</i>	Powdery Thalia	1980	2004
<i>Thismia americana</i>	Thismia	1980	1998
<i>Triadenum virginicum</i>	Marsh St. John's Wort	1980	2009
<i>Vallerianella intermedia</i>	Corn Salad	1980	1990
<i>Waldsteinia fragarioides</i>	Barren Strawberry	1980	2004
<i>Woodwardia virginica</i>	Virginia Chain Fern	1980	1989
TOTAL = 77 species			

* = federally threatened

** = federally endangered

Appendix K. Listing and delisting history from 1977-2011 for Illinois endangered and threatened species. (May require legal size paper to print)

Original IL Listing Scientific Name	Original IL Listing Common Name	Date of Federal listing (status)	Reason for IL listing	Date added as IL E	Date IL E to IL T	Date IL E to delisted	Date added as IL T	Date IL T to IL E	Date IL T to delisted	Reason for IL delisting	Scientific name change	Date scientific name change	Common name change	Date common name change
Fish														
<i>Acipenser fulvescens</i>	Lake Sturgeon		3				12/31/1977	1/18/1994						
<i>Ammocrypta clara</i>	Western Sand Darter		3	3/17/1989							<i>Etheostoma clarum</i> ; <i>Ammocrypta clarum</i>	1/18/1994; 4/26/1999		
<i>Ammocrypta pellucida</i>	Eastern Sand Darter		5	3/17/1989	4/26/1999						<i>Etheostoma pellucidum</i> ; <i>Ammocrypta pellucidum</i>	1/18/1994; 4/26/1999		
<i>Catostomus catostomus</i>	Longnose Sucker		5 [a]				12/31/1977				<i>Catostomus catostomus</i> ; <i>C. catostomus</i>	3/17/1989; 12/20/1991		
<i>Coregonus alpenae</i> **	Longjaw Cisco	3/11/1967 (E)	1, 5	12/31/1977		7/25/1984				8				
<i>Coregonus artedii</i>	Cisco		5 [a]				12/31/1977				<i>Coregonus artedi</i>	12/20/1991		
<i>Coregonus clupeaformis</i>	Lake Whitefish		5 [a]				12/31/1977		1/18/1994	7				
<i>Erimystax x-punctatus</i>	Gravel Chub		3				9/1/2004							
<i>Etheostoma camurum</i>	Bluebreast Darter		5	12/31/1977										
<i>Etheostoma exile</i>	Iowa Darter		3		9/1/2004		3/17/1989	1/18/1994						
<i>Etheostoma histrio</i>	Harlequin Darter		5, 6	12/31/1977										
<i>Fundulus diaphanus</i>	Banded Killifish		5				3/17/1989							
<i>Fundulus dispar</i>	Starhead Topminnow		3				9/1/2004							
<i>Hybognathus hayi</i>	Cypress Minnow		5	3/17/1989										
<i>Hybopsis amblops</i>	Bigeye Chub		5	12/31/1977							<i>Notropis amblops</i> ; <i>Hybopsis amblops</i>	12/20/1991; 4/26/1999		
<i>Notropis (Hybopsis) amnis</i>	Pallid Shiner (Chub)		3	3/17/1989							<i>Notropis amnis</i> ; <i>Hybopsis amnis</i>	12/20/1991; 4/26/1999	Pallid Shiner	12/20/1991
<i>Ichthyomyzon fossor</i>	Northern Brook Lamprey		5	3/17/1989										
<i>Lampetra aepyptera</i>	Least Brook Lamprey		5				3/17/1989							
<i>Lepisosteus spatula</i>	Alligator Gar		5				12/31/1977		1/18/1994	4				
<i>Lepomis punctatus</i>	Spotted Sunfish		3				3/17/1989	10/30/2009			<i>Lepomis miniatus</i>	4/26/1999	Redspotted Sunfish	4/26/1999
<i>Lepomis symmetricus</i>	Bantam Sunfish		5				12/31/1977							
<i>Macrhybopsis gelida</i>	Sturgeon Chub		5	1/18/1994										

Notes:
Red text = species deemed extirpated or extinct
Reasons for IL listing: 1) designated Fed E or T; 2) proposed Fed E or T; 3) formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures ; 4) very restricted geographic range of which IL is a part; 5) restricted habitats or low pops in IL; 6) significant disjuncts in IL - IL pop far removed from rest of species' range [Note - the 6 Reasons are primary reasons for listing. Threats associated with habitat degradation and/or destruction have been considered relevant factors in almost all species listings. Some additional specific reason notes include; [a] = invasive competition; [b] = indiscriminant killing; [c] = pesticides; [d] = severe weather; [e] = reintroduction; [f] = fire sensitive; [g] = host plant is endangered in IL
Reasons For IL delisting: 1) LEAVE BLANK; 2) peripheral sp. that occurs in disturbed/non-native habitats; 3) vagrant; 4) extirpated in IL.; 5) misidentified/no longer valid taxon; 6) more common than thought; 7) commercial fishing regulations by IDNR provide adequate protection; 8) extinct; 9) recovered
* = Federally threatened (currently)
** = Federally endangered (currently)
^^ = ESPB cannot delist federally listed species, so must relist until USFWS determines species extirpated
[r] = rediscovered and re-listed after having been previously deemed extirpated

Appendix K. Listing and delisting history from 1977-2011 for Illinois endangered and threatened species. (May require legal size paper to print)

Original IL Listing Scientific Name	Original IL Listing Common Name	Date of Federal listing (status)	Reason for IL listing	Date added as IL E	Date IL E to IL T	Date IL E to delisted	Date added as IL T	Date IL T to IL E	Date IL T to delisted	Reason for IL delisting	Scientific name change	Date scientific name change	Common name change	Date common name change
<i>Moxostoma carinatum</i>	River Redhorse		5				3/17/1989							
<i>Moxostoma valenciennesi</i>	Greater Redhorse		5	3/17/1989										
<i>Nocomis micropogon</i>	River Chub		5	1/18/1994										
<i>Notropis anogenus</i>	Pugnose Shiner		5				12/31/1977	3/17/1989						
<i>Notropis boops</i>	Bigeye Shiner		3				3/17/1989	1/18/1994						
<i>Notropis chalybaeus</i>	Ironcolor Shiner		5				3/17/1989							
<i>Notropis heterodon</i>	Blackchin Shiner		5				3/17/1989							
<i>Notropis heterolepis</i>	Blacknose Shiner		3, 6				12/31/1977	1/18/1994						
<i>Notropis hubbsi</i>	Bluehead Shiner		5, 6	12/31/1977		9/1/2004				4	<i>Pteronotropis hubbsi</i>	4/26/1999		
<i>Notropis maculatus</i>	Taillight shiner		5	1/18/1994										
<i>Notropis texanus</i>	Weed Shiner		5	3/17/1989										
<i>Noturus stigmosus</i>	Northern Madtom		5	3/17/1989										
<i>Platygobio gracilis</i>	Flathead Chub		5	4/26/1999		9/1/2004				4				
<i>Scaphirhynchus albus</i> **	Pallid Sturgeon	09/06/1990 (E)	1, 5	12/20/1991										
Amphibians														
<i>Ambystoma jeffersonianum</i>	Jefferson Salamander		5				4/26/1999							
<i>Ambystoma platineum</i>	Silvery Salamander		5	12/31/1977										
<i>Cryptobranchus alleganiensis</i>	Hellbender		5	1/18/1994									Eastern Hellbender	10/30/2009
<i>Desmognathus fuscus</i>	Dusky Salamander		5	12/31/1977							<i>Desmognathus conanti</i>	9/1/2004	Spotted Dusky Salamander	9/1/2004
<i>Gastrophryne carolinensis</i>	Eastern Narrowmouth Toad		5				9/1/2004							
<i>Hemidactylium scutatum</i>	Four-toed Salamander		5				1/18/1994							
<i>Hyla avivoca</i>	Bird-voiced Treefrog		5				4/26/1999							
<i>Necurus maculosus</i>	Mudpuppy		3	10/30/2009	8/20/2010									
<i>Pseudacris streckeri</i>	Strecker's Chorus Frog		5, 6				12/31/1977				<i>Pseudacris illinoensis</i>	10/30/2009	Illinois Chorus Frog	
Reptiles														
<i>Apalone mutica</i>	Smooth Softshell		3	10/30/2009										
<i>Clemmys guttata</i>	Spotted Turtle		5	12/31/1977										
<i>Clonophis kirtlandi</i>	Kirtland's Snake		3				1/18/1994							

Notes:
Red text = species deemed extirpated or extinct
Reasons for IL listing: 1) designated Fed E or T; 2) proposed Fed E or T; 3) formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures ; 4) very restricted geographic range of which IL is a part; 5) restricted habitats or low pops in IL; 6) significant disjuncts in IL - IL pop far removed from rest of species' range [Note - the 6 Reasons are primary reasons for listing. Threats associated with habitat degradation and/or destruction have been considered relevant factors in almost all species listings. Some additional specific reason notes include; [a] = invasive competition; [b] = indiscriminant killing; [c] = pesticides; [d] = severe weather; [e] = reintroduction; [f] = fire sensitive; [g] = host plant is endangered in IL
Reasons For IL delisting: 1) LEAVE BLANK; 2) peripheral sp. that occurs in disturbed/non-native habitats; 3) vagrant; 4) extirpated in IL.; 5) misidentified/no longer valid taxon; 6) more common than thought; 7) commercial fishing regulations by IDNR provide adequate protection; 8) extinct; 9) recovered
* = Federally threatened (currently)
** = Federally endangered (currently)
^^ = ESPB cannot delist federally listed species, so must relist until USFWS determines species extirpated
[r] = rediscovered and re-listed after having been previously deemed extirpated

Appendix K. Listing and delisting history from 1977-2011 for Illinois endangered and threatened species. (May require legal size paper to print)

Original IL Listing Scientific Name	Original IL Listing Common Name	Date of Federal listing (status)	Reason for IL listing	Date added as IL E	Date IL E to IL T	Date IL E to delisted	Date added as IL T	Date IL T to IL E	Date IL T to delisted	Reason for IL delisting	Scientific name change	Date scientific name change	Common name change	Date common name change
<i>Crotalus horridus</i>	Timber Rattlesnake		3 [b]				1/18/1994							
<i>Elaphe guttata</i>	Great Plains Rat Snake		5				12/31/1977	9/1/2004			<i>Elaphe guttata emoryi</i> ; <i>E. emoryi</i> ; <i>Pantherophis emoryi</i>	12/20/1991; 09/01/2004; 10/30/2009	Great Plains Ratsnake	9/1/2004
<i>Emydoidea blandingii</i>	Blanding’s Turtle		3				4/26/1999	10/30/2009						
<i>Heterodon nasicus</i>	Western Hognosed Snake		5, 6				12/31/1977						Western Hog nose Snake; Western Hognose Snake; Plains Hog-Nosed Snake	3/17/1989; 12/20/1991; 10/30/2009
<i>Kinosternon flavescens</i>	Yellow Mud Turtle		5, 6	12/31/1977									Illinois Mud Turtle; Yellow Mud Turtle	07/25/1984; 10/30/2009
<i>Macroclmlys temmincki</i>	Alligator Snapping Turtle		5				1/18/1994	4/26/1999			<i>Macrochelys temminckii</i>	9/1/2004		
<i>Masticophis flagellum</i>	Whip Snake		5				12/31/1977	4/26/1999					Coachwhip Snake	3/17/1989
<i>Nerodia cyclopion</i>	Green Watersnake		5				3/17/1989						Mississippi Green Watersnake	4/26/1999
<i>Nerodia fasciata</i>	Banded Water Snake		5	12/31/1977									Broad-banded Watersnake	7/25/1984
<i>Pseudemys concinna X P. floridana</i>	Slider		5	12/31/1977							<i>Pseudemys concinna</i>	3/17/1989	River Cooter	12/20/1991
<i>Sistrurus catenatus</i>	Eastern Massasauga		3 [b]	1/18/1994										
<i>Tantilla gracilis</i>	Flathead Snake		5				4/26/1999							
<i>Terrepene ornata</i>	Ornate Box Turtle		3				10/30/2009							
<i>Thamnophis sauritus</i>	Eastern Ribbon Snake		5	12/31/1977	9/1/2004									
<i>Troidoclonion lineatum</i>	Lined Snake		3				9/1/2004							
Birds														
<i>Accipiter cooperii</i>	Cooper's Hawk		3	12/31/1977		3/3/1997				9				
<i>Accipiter striatus</i>	Sharp-shinned Hawk		5	3/17/1989		04/26/1999				2, 3				
<i>Aimophila aestivalis</i>	Bachman's sparrow		5	12/31/1977		04/26/1999				4				
<i>Ammodramus henslowii</i>	Henslow's Sparrow		3		9/1/2004		12/31/1977	1/18/1994	10/30/2009	9				
<i>Asio flammeus</i>	Short-eared Owl		5	12/31/1977										

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<i>Asio otus</i>	Long-eared Owl		5	12/31/1977		04/26/1999				2, 3				
<i>Bartramia longicauda</i>	Upland Sandpiper		3	12/31/1977										
<i>Botaurus lentiginosus</i>	American Bittern		3	12/31/1977										
<i>Buteo lineatus</i>	Red-shouldered Hawk		3	12/31/1977	4/26/1999				9/1/2004	6				
<i>Buteo swainsoni</i>	Swainson's Hawk		5	12/31/1977										
<i>Casmerodius albus</i>	Great Egret		3	12/31/1977	1/18/1994				4/26/1999	6				
<i>Catharus fuscescens</i>	Veery		5				12/31/1977		4/26/1999	6				
<i>Certhia familiaris</i>	Brown Creeper		5	12/31/1977	3/17/1989				9/1/2004	6	<i>Certhia americana</i>	3/17/1989??		
<i>Charadrius melodus**</i>	Piping Plover	12/11/1985 (E)	2, 5	12/31/1977										
<i>Chlidonias niger</i>	Black Tern		5	12/31/1977										
<i>Circus cyaneus</i>	Marsh Hawk		3	12/31/1977									Northern Harrier (Marsh Hawk); Northern Harrier	03/17/1989; 01/18/1994
<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo		3	10/30/2009	8/20/2010									
<i>Coturnicops noveboracensis</i>	Yellow Rail		5	12/31/1977		04/26/1999				4				
<i>Dendroica cerulea</i>	Cerulean Warbler		3				9/1/2004							
<i>Egretta thula</i>	Snowy Egret		5	12/31/1977										
<i>Euphagus cyanocephalus</i>	Brewer's Blackbird		5				12/31/1977		1/18/1994	2				
<i>Falco peregrinus**</i>	Peregrine Falcon	1970 (E)	1, 5 [c]	12/31/1977	9/1/2004									
<i>Florida caerulea</i>	Little Blue Heron		5	12/31/1977							<i>Florida aerulea</i> ; <i>Egretta caerulea</i>	7/25/1984; 3/17/1989		
<i>Gallinula chloropus</i>	Common Moorhen		3				12/31/1977	10/30/2009						
<i>Grus canadensis</i>	Sandhill Crane		3	3/17/1989	4/26/1999				10/30/2009	9				
<i>Haliaeetus leucocephalus*</i>	Bald Eagle	1978 (E)	1, 3 [c]	12/31/1977	4/26/1999				10/30/2009	9				
<i>Ictinia mississippiensis</i>	Mississippi Kite		5	12/31/1977	10/30/2009									
<i>Ixobrychus exilis</i>	Least Bittern		3	3/17/1989										
<i>Lanius ludovicianus</i>	Loggerhead Shrike		3				12/31/1977	10/30/2009						
<i>Laterallus jamaicensis</i>	Black Rail		5	12/31/1977										
<i>Limnothlypis swainsoni</i>	Swainson's Warbler		5				12/31/1977	3/17/1989			<i>Limnothlypis swainsonii</i>	7/25/1984		
<i>Numenius borealis*</i>	Eskimo curlew	03/11/1967 (E)	1, 5	12/31/1977		3/17/1989				4				

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<i>Nyctanassa violacea</i>	Yellow-crowned Night Heron		3				1/18/1994	4/26/1999						
<i>Nycticorax nycticorax</i>	Black-crowned Night Heron		3	12/31/1977										
<i>Pandion haliaetus</i>	Osprey		3 [b]	12/31/1977							<i>Pandion aliaetus</i> ; <i>P. haliaetus</i>	7/25/1984; 3/17/1989		
<i>Phalacrocorax auritus</i>	Double-crested Cormorant		5	12/31/1977	1/18/1994				4/26/1999	6				
<i>Podilymbus podiceps</i>	Pied-billed Grebe		3	3/17/1989	1/18/1994				9/1/2004	6				
<i>Porphyryula martinica</i>	Purple Gallinule		5	12/31/1977		1/18/1994				3				
<i>Rallus elegans</i>	King Rail		3				1/18/1994	4/26/1999						
<i>Spizella pallida</i>	Clay-colored Sparrow		5	3/17/1989		1/18/1994				2				
<i>Steganopus tricolor</i>	Wilson's Phalarope		5	12/31/1977							<i>Phalaropus tricolor</i>	3/17/1989		
<i>Sterna albifrons</i> **	Least Tern	05/28/1985 (E)	2, 5	12/31/1977							<i>Sterna antillarum</i> ; <i>Sternula antillarum</i>	3/17/1989; 10/30/2009		
<i>Sterna forsteri</i>	Forster's Tern		5	12/31/1977										
<i>Sterna hirundo</i>	Common Tern		5	12/31/1977										
<i>Thryomanes bewickii</i>	Bewick's Wren		3 [a]				12/31/1977	3/17/1989			<i>Thryomanes bewickii</i>	7/25/1984		
<i>Tympanuchus cupido</i>	Greater Prairie Chicken		3	12/31/1977										
<i>Tyto alba</i>	Barn Owl		3	12/31/1977										
<i>Vermivora bachmanii</i> *	Bachman's Warbler	3/11/1967 (E)	1, 5	12/31/1977		3/17/1989				4				
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed Blackbird		5	12/31/1977										
Mammals														
<i>Canis lupus</i> **	Gray/Timber Wolf	1974 (E) - should have been IL listed in 1977, was added in 2004 following 4/1/2003 Fed status revision	1				09/01//2004							
<i>Lepus townsendi</i>	White-tailed Jackrabbit		5	12/31/1977		1/18/1994				4	<i>Lepus townsendii</i>	7/25/1984		
<i>Lutra canadensis</i>	River Otter		3		4/26/1999		12/31/1977	3/17/1989	9/1/2004	9	<i>Lontra canadensis</i>	4/26/1999		

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<i>Lynx rufus</i>	Bobcat		3				12/31/1977		4/26/1999	6				
<i>Myotis austroriparius</i>	Southeastern Myotis		5	3/17/1989										
<i>Myotis grisescens</i> **	Gray Bat	04/28/1976 (E)	1, 5	12/31/1977										
<i>Myotis sodalis</i> **	Indiana Bat	03/11/1967 (E)	1, 5	12/31/1977										
<i>Neotoma floridana</i>	Eastern Wood Rat		5 [d]	12/31/1977										
<i>Ochrotomys nuttalli</i>	Golden Mouse		5				12/31/1977							
<i>Oryzomys palustris</i>	Rice Rat		5				12/31/1977							
<i>Plecotus rafinesquii</i>	Rafinesque's Big-eared Bat		5	3/17/1989							<i>Corynorhinus rafinesquii</i>	4/26/1999		
<i>Spermophilus franklinii</i>	Franklin's Ground Squirrel		3				9/1/2004							
Mussels														
<i>Alasmidonta viridis</i>	Slippershell		3	3/17/1989	4/26/1999									
<i>Cumberlandia monodonta</i> **	Spectacle Case	04/12/2012 (E)	5	3/17/1989									Spectaclecase	1/18/1994
<i>Cyclonaias tuberculata</i>	Purple Wartyback		3				4/26/1999							
<i>Cyprogenia stegaria</i> **	Fanshell	06/21/1990 (E)	2, 5	3/17/1989										
<i>Ellipsaria lineolata</i>	Butterfly Mussel		3				1/18/1994							
<i>Elliptio crassidens</i>	Elephant-ear		3				3/17/1989							
<i>Elliptio dilatata</i>	Spike		3				1/18/1994							
<i>Epioblasma flexuosa</i>	Leafshell		3	3/17/1989		1/18/1994				4				
<i>Epioblasma obliquata perobliqua</i> **	White Cat's Paw Pearly Mussel	06/14/1976 (E)	1, 5	7/25/1984		1/18/1994				4				
<i>Epioblasma personata</i>	Round Combshell		5	3/17/1989		1/18/1994				4				
<i>Epioblasma propinqua</i>	Tennessee Riffleshell		5	3/17/1989		4/26/1999				8				
<i>Epioblasma rangiana</i> **	Northern Riffleshell	06/22/1993 (E)	1 [e]	9/16/2010										
<i>Epioblasma sampsonii</i> **	Sampson's Pearly Mussel	6/14/1976 (E)	1, 4, 5	7/25/1984		1/18/1994				8				
<i>Epioblasma torulosa torulosa</i> **	Tubercled-blossom Pearly Mussel	6/14/1976 (E)	1, 5	7/25/1984		1/18/1994				4				
<i>Epioblasma triquetra</i> **	Snuffbox	02/14/2012 (E)	3	3/17/1989										
<i>Fusconaia ebena</i>	Ebonyshell		3				1/18/1994							
<i>Hemistena lata</i> **	Cracking Pearly Mussel	9/28/1989 (E)	1, 5	3/17/1989		1/18/1994				4				
<i>Lampsilis abrupta</i>	Pink Mucket		5	4/26/1999										

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<i>Lampsilis fasciola</i>	Wavy-rayed Lampmussel		5	3/17/1989										
<i>Lampsilis higginsii</i> **	Higgins' Eye Pearly Mussel	06/14/1976 (E)	1, 3	7/25/1984							<i>Lampsilis higginsii</i>	04/26/199	Higginsii Pearly Mussel; Higgins Eye	4/26/1999; 9/1/2004
<i>Lampsilis orbiculata</i> **	Pink Mucket Pearly Mussel	06/14/1976 (E)	1, 5	7/25/1984		1/18/1994				4				
<i>Lasmigona compressa</i>	Creek Heelsplitter		3				3/17/1989		1/18/1994	6				
<i>Leptodea leptodon</i>	Scaleshell		5	3/17/1989		1/18/1994				4				
<i>Ligumia recta</i>	Black Sandshell		3				4/26/1999							
<i>Obovaria retusa</i> **	Ring Pink	09/29/1989 (E)	1, 4, 5	3/17/1989		1/18/1994				4				
<i>Obovaria subrotunda</i>	Round Hickorynut		5	3/17/1989		9/1/2004				4				
<i>Plethobasis cicatricosus</i> **	White Wartyback Pearly Mussel	06/14/1976 (E)	1, 4, 5	7/25/1984		1/18/1994				4	<i>Plethobasus cicatricosus</i>	3/17/1989		
<i>Plethobasis cooperianus</i> **	Orange-footed Pearly Mussel	06/14/1976 (E)	1, 5	07/25/1984							<i>Plethobasus cooperianus</i>	3/17/1989	Orange-foot Pimpleback	4/26/1999
<i>Plethobasus cyphus</i> **	Sheepnose	04/12/2012 (E)	3				3/17/1989	1/18/1994						
<i>Pleurobema clava</i> **	Clubshell	01/22/1993 (E)	2, 5	3/17/1989										
<i>Pleurobema cordatum</i>	Ohio Pigtoe		5	1/18/1994										
<i>Peurobema plenum</i> **	Rough Pigtoe Pearly Mussel	6/14/1976 (E)	1, 5	7/25/1984		1/18/1994				4				
<i>Pleurobema rubrum</i>	Pyramid Pigtoe		5	1/18/1994		9/1/2004				4				
<i>Potamilus capax</i> **	Fat Pocketbook	06/14/1976 (E)	1, 3	7/25/1984										
<i>Ptychobranthus fasciolaris</i>	Kidneyshell		5	3/17/1989										
<i>Quadrula cylindrica</i>	Rabbitsfoot		5	3/17/1989										
<i>Simpsonaias ambigua</i>	Salamander Mussel		3	3/17/1989										
<i>Toxolasma lividus</i>	Purple Lilliput		5	3/17/1989										
<i>Unio merus tetralasmus</i>	Pondhorn		3				3/17/1989		1/18/1994	6				
<i>Villosa fabalis</i>	Rayed Bean		5	3/17/1989		9/1/2004				4				
<i>Villosa iris</i>	Rainbow		5	3/17/1989										
<i>Villosa lienosa</i>	Little Spectacle Case		3	3/17/1989	9/1/2004								Little Spectaclecase	1/18/1994
Snails														
<i>Discus macclintocki</i> **	Iowa Pleistocene Snail	08/02/1978 (E)	1, 4, 5	7/25/1984										
<i>Fontigens antroecetes</i>	Hydrobiid Cave Snail		4, 5	9/1/2004										

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<i>Lithasia obovata</i>	Shawnee Rocksnail		5	10/30/2009										
Crustaceans														
<i>Caecidotea lesliei</i>	Isopod		5	3/17/1989										
<i>Caecidotea spatulata</i>	Isopod		5	1/18/1994										
<i>Crangonyx anomalus</i>	Amphipod		5	3/17/1989									Anomalous Spring Amphipod	1/18/1994
<i>Crangonyx antennatus</i>	Amphipod		5	3/17/1989		9/1/2004				5			Appalachian Valley Cave Amphipod	1/18/1994
<i>Crangonyx packardi</i>	Amphipod		5	3/17/1989									Packard's Cave Amphipod	1/18/1994
<i>Gammarus acherondytes</i> **	Amphipod	09/03/1998 (E)	1, 4, 5	3/17/1989									Illinois Cave Amphipod	1/18/1994
<i>Gammarus bousfieldi</i>	Amphipod		5				3/17/1989		9/1/2004	6			Bousfield's Amphipod	1/18/1994
<i>Orconectes indianensis</i>	Crayfish		4, 5	3/17/1989									Indiana Crayfish	1/18/1994
<i>Orconectes kentuckiensis</i>	Crayfish		5	3/17/1989									Kentucky Crayfish	1/18/1994
<i>Orconectes lancifer</i>	Crayfish		5	3/17/1989									Oxbow Crayfish; Shrimp Crayfish	01/18/1994; 9/1/2004
<i>Orconectes placidus</i>	Crayfish		5	3/17/1989									Bigclaw Crayfish	9/1/2004
<i>Stygobromus iowae</i>	Amphipd		4, 5	3/17/1989									Iowa Amphipod	1/18/1994
Scorpions														
<i>Centruroides vittatus</i>	Common Striped Scorpion		5	10/30/2009										
Insects														
<i>Aflexia rubranura</i>	Redveined Prairie Leafhopper		5 [f]				1/18/1994							
<i>Anthysanella incongrua</i>	a leafhopper		5	10/30/2009										
<i>Arrhopalites madonnensis</i>	Madonna Cave Springtail		4, 5	10/30/2009							<i>Pygmarrhopalites madonnensis</i>	8/20/2010		
<i>Atrytone arogos</i>	Arogos Skipper		5	3/17/1989										
<i>Calephelis muticum</i>	Swamp Metalmark		5	1/18/1994										
<i>Diploperla robusta</i>	Robust Springfly		5	10/30/2009										
<i>Hesperia metea</i>	Cobweb Skipper		5				3/17/1989							

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<i>Hesperia ottoe</i>	Ottoe Skipper		5				3/17/1989	10/30/2009						
<i>Incisalia polios</i>	Hoary Elfin		5 [g]	1/18/1994										
<i>Lycaeides melissa samuelis</i> **	Karner Blue Butterfly	12/14/1992 (E)	1	1/18/1994										
<i>Nannothemis bella</i>	Elfin Skimmer		5				1/18/1994							
<i>Papaipema eryngii</i>	Eryngium Stem Borer		4, 5	12/20/1991										
<i>Paraphlepsius lupalus</i>	Leafhopper		5	1/18/1994										
<i>Prostoia completa</i>	Central Forestfly		5	10/30/2009										
<i>Somatochlora hineana</i> **	Hine's Bog Skimmer	01/26/1995 (E)	1, 4, 5	12/20/1991									Hine's Emerald's Dragonfly	1/18/1994
<i>Speyeria idalia</i>	Regal Fritillary		3				4/26/1999							
Plants														
<i>Acalypha deamii</i>	Large-seeded mercury		5				1/18/1994		12/3/1998	6				
<i>Adoxa moschatellina</i>	Moschatel		5	5/20/1980										
<i>Agalinus skinneriana</i>	Pale False Foxglove		3				1/18/1994							
<i>Agropyron subsecundum</i>	Bearded Wheat Grass		5	5/20/1980	9/1/2004						<i>Elymus trachycaulus</i>	4/26/1999		
<i>Alnus rugosa</i>	Speckled Alder		5	5/20/1980							<i>Alnus incana</i> subsp. <i>rugosa</i>	9/1/2004		
<i>Amelanchier interior</i>	Shadbush		5	5/20/1980	9/1/2004									
<i>Amelanchier sanguinea</i>	Shadbush		5	3/13/1989										
<i>Ammophila breviligulata</i>	Marram Grass		5	5/20/1980										
<i>Amorpha nitens</i>	Smooth False Indigo		5	5/20/1980										
<i>Andropogon ternarius</i>	Silver Broom Sedge		5	1/18/1994		12/3/1998				5				
<i>Apios priceana</i> *	Price's Groundnut	06/05/1990 (T)	2, 4, 5	5/20/1980		12/3/1998				4^^				
<i>Aralia hispida</i>	Bristly Sarsparilla		5	5/20/1980		3/13/1989				4				
<i>Arctostaphylos uva-ursi</i>	Bearberry		5	5/20/1980										
<i>Arenaria patula</i>	Slender Sandwort		5		12/3/1998		5/20/1980	1/18/1994			<i>Minuartia patula</i>	9/1/2004		
<i>Aristida necopina</i>	Three-awn		5	5/20/1980		3/13/1989				4				
<i>Aristolochia serpentaria</i> var. <i>hastata</i>	Virginia Snakeroot		5	5/20/1980	3/13/1989				9/1/2004	5				
<i>Artemisia dracunculus</i>	False Tarragon		3				5/20/1980	1/18/1994						???
<i>Asclepias lanuginosa</i>	Wooly Milkweed		5	5/20/1980										

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<i>Asclepias meadii</i> *	Mead's Milkweed	09/01/1988 (T)	2, 5	5/20/1980										
<i>Asclepias ovalifolia</i>	Oval Milkweed		5	5/20/1980										
<i>Asclepias stenophylla</i>	Narrow-leaved Green Milkweed		5				5/20/1980	12/3/1998						
<i>Asplenium bradleyi</i>	Bradley's Spleenwort		5				5/20/1980	1/18/1994						
<i>Asplenium resiliens</i>	Black Spleenwort		5				5/20/1980	3/13/1989						
<i>Astragalus crassicaarpus</i> var. <i>trichocalyx</i>	Large Ground Plum		5	3/13/1989										
<i>Astragalus distortus</i>	Bent Milk Vetch		3	9/1/2004										
<i>Astragalus tennesseensis</i>	Tennessee Milk Vetch		5	5/20/1980										
<i>Aster furcatus</i>	Forked Aster		3				3/13/1989							
<i>Aster schreberi</i>	Schreber's Aster		5				5/20/1980		12/3/1998	6				
<i>Aster undulatus</i>	Aster		5				5/20/1980		12/3/1998	6				
<i>Bacopa acuminata</i>	Water Hyssop		5	5/20/1980		3/13/1989				2,4				
<i>Baptisia tinctoria</i>	Yellow Wild Indigo		5	5/20/1980; 09/01/2004		3/13/1989				4 [r]				
<i>Bartonia paniculata</i>	Screwstem		5	5/20/1980										
<i>Beckmannia syzigachne</i>	American Slough Grass		5	5/20/1980										
<i>Berberis canadensis</i>	Allegheny Barberry		5	5/20/1980										
<i>Berchemia scandens</i>	Supple-jack		5	5/20/1980	10/30/2009									
<i>Besseyia bullii</i>	Kittentails		3				4/17/1990						Kitten Tails	9/1/2004
<i>Betula lutea</i>	Yellow Birch		5	5/20/1980							<i>Betula alleghaniensis</i>	3/13/1989		
<i>Betula populifolia</i>	Gray Birch		5, 6	5/20/1980		9/1/2004				3				
<i>Bidens beckii</i>	Water Marigold		5	5/20/1980							<i>Megalodonta beckii</i>	9/1/2004		
<i>Boltonia decurrens</i> *	False Aster	12/14/1988 (T)	1, 3, 4				3/13/1989						Decurrent False Aster	1/18/1994
<i>Botrychium biernatum</i>	Southern Grape Fern		5	5/20/1980	12/3/1998									
<i>Botrychium campestre</i>	Prairie Moonwort		5, 6	9/1/2004										
<i>Botrychium matricariaefolium</i>	Daisyleaf Grape Fern		5	5/20/1980							<i>Botrychium matricariifolium</i>	9/1/2004		
<i>Botrychium multifidum</i>	Northern Grape Fern		3				5/20/1980	1/18/1994						
<i>Botrychium simplex</i>	Dwarf Grape Fern		5	5/20/1980										

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<i>Bouteloua gracilis</i>	Blue Grama		5	12/3/1998										
<i>Buchera americana</i>	Blue Hearts		3				10/30/2009							
<i>Bumelia lanuginosa</i>	Wooly Buckthorn		5	5/20/1980										
<i>Cakile edentula</i>	Sea Rocket		5				5/20/1980							
<i>Calamagrostis insperata</i>	Bluejoint Grass		5				1/18/1994	12/3/1998						
<i>Calla palustris</i>	Water Arum		5	5/20/1980										
<i>Calopogon tuberosus</i>	Grass Pink Orchid		3				5/20/1980	1/18/1994						
<i>Calopogon oklahomensis</i>	Oklahoma Grass Pink Orchid		3	9/1/2004										
<i>Camassia angusta</i>	Wild Hyacinth		5	5/20/1980										
<i>Cardamine pratensis</i> var. <i>palustris</i>	Cuckoo Flower		5	5/20/1980										
<i>Carex alata</i>	Winged Sedge		5	5/20/1980										
<i>Carex arkansana</i>	Sedge		5	1/18/1994										
<i>Carex atherodes</i>	Sedge		5	5/20/1980	4/17/1990				1/18/1994	6				
<i>Carex atlantica</i>	Sedge		5				9/1/2004							
<i>Carex aurea</i>	Golden Sedge		5	5/20/1980	9/1/2004									
<i>Carex austrina</i>	Sedge		5	5/20/1980		1/18/1994				5				
<i>Carex baileyi</i>	Sedge		5	1/18/1994		12/3/1998				5				
<i>Carex bromoides</i>	Sedge		3				9/1/2004							
<i>Carex brunnescens</i>	Sedge		5	3/13/1989									Brownish Sedge	1/18/1994
<i>Carex canescens</i> var. <i>disjuncta</i>	Sedge		5	4/17/1990									Silvery Sedge	9/1/2004
<i>Carex chordorrhiza</i>	Sedge		5	4/17/1990									Cordroot Sedge	1/18/1994
<i>Carex communis</i>	Sedge		3	5/20/1980	12/3/1998								Fibrous-rooted Sedge	1/18/1994
<i>Carex crawei</i>	Sedge		5	5/20/1980	3/13/1989				12/3/1998	6				
<i>Carex crawfordii</i>	Sedge		5	1/18/1994									Crawford's Sedge	9/1/2004
<i>Carex cryptolepis</i>	Sedge		5	1/18/1994									Yellow Sedge	9/1/2004
<i>Carex cumulata</i>	Sedge		5	5/20/1980; 09/01/2004		3/13/1989				4 [r]				
<i>Carex decomposita</i>	Sedge		5	5/20/1980									Cypress-knee Sedge	1/18/1994

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<i>Carex diandra</i>	Sedge		5	9/1/2004										
<i>Carex disperma</i>	Sedge		5	5/20/1980									Shortleaf Sedge	1/18/1994
<i>Carex echinata</i>	Sedge		5	4/17/1990										
<i>Carex formosa</i>	Sedge		5	9/1/2004										
<i>Carex garberi</i>	Sedge		5	5/20/1980									Elk Sedge	9/1/2004
<i>Carex gigantea</i>	Sedge		5	5/20/1980									Large Sedge	1/18/1994
<i>Carex heliophila</i>	Sedge		5	1/18/1994							<i>Carex inops</i> subsp. <i>heliophila</i>	9/1/2004	Plains Sedge	9/1/2004
<i>Carex intumescens</i>	Swollen Sedge		3	5/20/1980	12/3/1998									
<i>Carex laxiculmis</i>	Sedge		5	5/20/1980	1/18/1994				12/3/1998	6			Spreading Sedge	1/18/1994
<i>Carex lucorum</i>	Sedge		5	1/18/1994		10/30/2009				5				
<i>Carex nigro-marginata</i>	Sedge		5	5/20/1980									Black-edged Sedge	1/18/1994
<i>Carex oligosperma</i>	Sedge		5	5/20/1980									Few-seeded Sedge	1/18/1994
<i>Carex oxylepis</i>	Sedge		5	5/20/1980	12/3/1998								Sharp-scaled Sedge	1/18/1994
<i>Carex pallescens</i>	Sedge		5	5/20/1980		12/3/1998				4			Pale Sedge	1/18/1994
<i>Carex physorhyncha</i>	Sedge		5	5/20/1980									Bellows Beak Sedge	1/18/1994
<i>Carex plantaginea</i>	Plantain-leaved Sedge		5	5/20/1980; 10/30/2009		3/13/1989				4 [r]				
<i>Carex prasina</i>	Sedge		3	5/20/1980	12/3/1998								Drooping Sedge	1/18/1994
<i>Carex reniformis</i>	Sedge		5	5/20/1980									Reniform Sedge	9/1/2004
<i>Carex rostrata</i>	Sedge		5	5/20/1980	1/18/1994				12/3/1998	6			Beaked Sedge	1/18/1994
<i>Carex striatula</i>	Sedge		5	5/20/1980		10/30/2009				5			Lined Sedge	1/18/1994
<i>Carex styloflexa</i>	Sedge		5	5/20/1980		12/3/1998				5			Bent Sedge	1/18/1994
<i>Carex tonsa</i>	Sedge		5	5/20/1980		12/3/1998				6			Shaved Sedge	1/18/1994
<i>Carex trisperma</i>	Sedge		5	5/20/1980									Three-seeded Sedge	1/18/1994
<i>Carex tuckermani</i>	Sedge		5	3/13/1989							<i>Carex tuckermanii</i>	9/1/2004	Tuckerman's Sedge	1/18/1994
<i>Carex viridula</i>	Sedge		5	5/20/1980	12/3/1998								Little Green Sedge	1/18/1994
<i>Carex willdenowii</i>	Willdenow's Sedge		5	3/13/1989	12/3/1998									
<i>Carex woodii</i>	Sedge		5	5/20/1980									Pretty Sedge	1/18/1994

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<i>Carya aquatica</i>	Water Hickory		5				9/1/2004							
<i>Carya pallida</i>	Pale Hickory		5	5/20/1980										
<i>Castanea dentata</i>	American Chestnut		5	5/20/1980		1/18/1994				4				
<i>Castilleja sessiliflora</i>	Downy Yellow Painted Cup		5	5/20/1980										
<i>Ceanothus ovatus</i>	Redroot		5	5/20/1980							<i>Ceanothus herbaceus</i>	9/1/2004		
<i>Chamaedaphne calyculata</i>	Leatherleaf		5				5/20/1980							
<i>Chamaelirium luteum</i>	Fairy Wand		5	9/1/2004										
<i>Chamaesyce polygonifolia</i>	Seaside Spurge		5	5/20/1980										
<i>Chimaphila maculata</i>	Spotted Wintergreen		5	5/20/1980										
<i>Chimaphila umbellata</i>	Pipsissewa		5	5/20/1980										
<i>Cimicifuga americana</i>	American Bugbane		5	3/13/1989										
<i>Cimicifuga racemosa</i>	False Bugbane		5	5/20/1980										
<i>Cimicifuga rubifolia</i>	Black Cohosh		5				1/18/1994							
<i>Cinna latifolia</i>	Drooping Wood Reed		5	5/20/1980		3/13/1989				4				
<i>Circaea alpina</i>	Small Enchanter's Nightshade		5	5/20/1980										
<i>Cirsium carolinianum</i>	Carolina Thistle		5	5/20/1980	3/13/1989				1/18/1994	6				
<i>Cirsium hillii</i>	Hill's Thistle		3				1/18/1994		9/1/2004	6				
<i>Cirsium pitcheri</i> *	Pitcher's (Dune) Thistle	07/18/1988 (T)	1, 5				3/13/1989							
<i>Cladium mariscoides</i>	Twig Rush		5				5/20/1980		3/13/1989	6				
<i>Cladrastis lutea</i>	Yellowwood		2, 5	5/20/1980							<i>Cladastris kentuckea</i>	9/1/2004		
<i>Clematis crispa</i>	Blue Jasmine		5	5/20/1980										
<i>Clematis occidentalis</i>	Mountain Clematis		5	3/13/1989										
<i>Clematis viorna</i>	Leatherflower		5	5/20/1980										
<i>Collinsia violacea</i>	Violet Collinsia		5	3/13/1989										
<i>Comptonia peregrina</i>	Sweetfern		5	5/20/1980										
<i>Conioselinum chinense</i>	Hemlock Parsley		5	5/20/1980										
<i>Corallorhiza maculata</i>	Spotted Coral-root Orchid		3				5/20/1980							
<i>Cornus canadensis</i>	Bunchberry		5	5/20/1980										
<i>Corydalis aurea</i>	Golden Corydalis		5	5/20/1980										

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<i>Corydalis curvisiliqua</i> var. <i>grandibracteata</i>	Corydalis		5				3/13/1989		12/3/1998	6				
<i>Corydalis halei</i>	Hale's Corydalis		5	5/20/1980										
<i>Corydalis sempervirens</i>	Pink Corydalis		5	5/20/1980										
<i>Corylus cornuta</i>	Beaked Hazelnut		5	3/13/1989										
<i>Cynosciadium digitatum</i>	Cynosciadium		5	5/20/1980										
<i>Cyperus grayioides</i>	Umbrella Sedge		5				3/13/1989							
<i>Cyperus lancastriensis</i>	Galingale		5	5/20/1980	10/30/2009									
<i>Cypripedium acaule</i>	Mocasin Flower		5	5/20/1980									Moccasin Flower	3/13/1989
<i>Cypripedium calceolus</i> var. <i>parviflorum</i>	Small Yellow Lady's Slipper		5	5/20/1980							<i>Cypripedium parviflorum</i> var. <i>makasin</i>	9/1/2004		
<i>Cypripedium candidum</i>	White Lady's Slipper		2, 3	5/20/1980	12/3/1998									
<i>Cypripedium reginae</i>	Showy Lady's Slipper		3	5/20/1980										
<i>Cystopteris laurentiana</i>	Fragile Fern		5	3/13/1989									Laurentian Fragile Fern	9/1/2004
<i>Daucus pusillus</i>	Small Wild Carrot		5	5/20/1980		4/17/1990				2				
<i>Delphinium carolinianum</i>	Wild Blue Larkspur		5				10/30/2009							
<i>Dennstaedtia punctilobula</i>	Hay-scented Fern		5				5/20/1980	12/3/1998						
<i>Deschampsia flexuosa</i>	Hairgrass		5	9/1/2004										
<i>Dioclea multiflora</i>	Boykin's Dioclea		5	5/20/1980							<i>Galactiia mohlenbrockii</i>	4/26/1999		
<i>Dodecatheon amethystinum</i>	Jeweled Shooting Star		5	5/20/1980		3/13/1989				6				
<i>Dodecatheon frenchii</i>	French's Shooting Star		4, 5				9/1/2004							
<i>Draba cuneifolia</i>	Whitlow Grass		5	5/20/1980										
<i>Drosera intermedia</i>	Narrow-leaved Sundew		5				5/20/1980							
<i>Drosera rotundifolia</i>	Round-leaved Sundew		5	5/20/1980										
<i>Dryopteris celsa</i>	Log Fern		5	5/20/1980										
<i>Echinodorus tenellus</i>	Small Burhead		5	5/20/1980										
<i>Eleocharis equisetoides</i>	Knotted Spikerush		5	5/20/1980		3/13/1989				5				

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<i>Eleocharis olivacea</i>	Spikerush		5	5/20/1980							add synonym <i>Eleocharis flavescens</i> var. <i>olivacea</i>	9/1/2004	Capitate Spikerush	9/1/2004
<i>Eleocharis parvula</i>	Spikerush		5	5/20/1980		4/17/1990				2				
<i>Eleocharis pauciflora</i>	Spikerush		5	5/20/1980							add synonym <i>Eleocharis quinqueflora</i>	9/1/2004	Few-flowered Spikerush	1/18/1994
<i>Eleocharis rostellata</i>	Spike Rush		5				5/20/1980						Beaked Spike Rush	9/1/2004
<i>Epilobium strictum</i>	Downy Willow Herb		5				5/20/1980							
<i>Equisetum pratense</i>	Meadow Horsetail		5	5/20/1980	12/3/1998									
<i>Equisetum palustre</i>	Marsh Horestail		5	5/20/1980		3/13/1989				5				
<i>Equisetum scirpoides</i>	Dwarf Scouring Rush		5	3/13/1989										
<i>Equisetum sylvaticum</i>	Horsetail		5	4/17/1990									Woodland Horsetail	9/1/2004
<i>Eriophorum virginicum</i>	Rusty Cotton Grass		5	5/20/1980										
<i>Eriophorum viridi- carinatum</i>	Tall Cotton Grass		5	5/20/1980		12/3/1998				4				
<i>Eryngium prostratum</i>	Eryngo		5	5/20/1980										
<i>Erythronium mesochoreum</i>	White Dog-tooth Violet		5	0/13/1989	12/3/1998				9/1/2004	6			Prairie Trout-Lily	1/18/1994
<i>Euonymus americanus</i>	Strawberry Bush		5				5/20/1980	1/18/1994					American Strawberry Bush	1/18/1994
<i>Eupatorium hyssopifolium</i> var. <i>hyssopifolium</i>	Hyssop-leaved Thoroughwort		5	12/3/1998							<i>Eupatorium hyssopifolium</i>	9/1/4004		
<i>Eupatorium incarnatum</i>	Thoroughwort		5	5/20/1980	12/3/1998				9/1/2004	6				
<i>Euphorbia spathulata</i>	Spurge		5	5/20/1980										
<i>Filipendula rubra</i>	Queen-of-the-Prairie		3				5/20/1980	12/3/1998						
<i>Fimbristylis baldwiniana</i>	Baldwin's Fimbristylis		5	5/20/1980		12/3/1998				4	<i>Fimbristylis annua</i>	3/13/1989		
<i>Fimbristylis vahlII</i>	Vahl's Fimbristylis		5	5/20/1980										
<i>Fuirena scirpoides</i>	Umbrella Sedge		5	5/20/1980		4/17/1990				4				
<i>Galium labradoricum</i>	Bog Bedstraw		5				5/20/1980		9/1/2004	6				
<i>Galium lanceolatum</i>	Wild Licorice		5	12/3/1998										
<i>Galium virgatum</i>	Dwarf Bedstraw		5	5/20/1980										

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<i>Gaultheria procumbens</i>	Wintergreen		5	5/20/1980		9/1/2004				4				
<i>Geranium bicknellii</i>	Northern Cranesbill		5	5/20/1980										
<i>Geum rivale</i>	Purple Avens		5	5/20/1980		3/13/1989				4				
<i>Glyceria arkansana</i>	Manna Grass		5	5/20/1980										
<i>Glyceria borealis</i>	Northern Manna Grass		5	5/20/1980		12/3/1998				4				
<i>Glyceria canadensis</i>	Rattlesnake Grass		5	5/20/1980		4/17/1990				4				
<i>Gnaphalium macounii</i>	Clammy Cudweed		5	5/20/1980		3/13/1989				4				
<i>Gratiola quartermaniae</i>	Hedge Hyssop		5	10/30/2009										
<i>Gymnocarpium dryopteris</i>	Oak Fern		5	5/20/1980										
<i>Gymnocarpium robertianum</i>	Scented Oak Fern		5	3/13/1989										
<i>Gymnopogon ambiguus</i>	Beard Grass		5	5/20/1980		12/3/1998				4				
<i>Habenaria ciliaris</i>	Orange Fringed Orchid		5	5/20/1980							<i>Platanthera ciliaris</i>	1/18/1994		
<i>Habenaria clavellata</i>	Wood Orchid		5	5/20/1980							<i>Platanthera clavellata</i>	1/18/1994		
<i>Habenaria flava</i> var. <i>flava</i>	Tubercled Orchid		5	5/20/1980							<i>Platanthera flava</i> var. <i>flava</i>	1/18/1994		
<i>Habenaria flava</i> var. <i>herbiola</i>	Tubercled Orchid		3		9/1/2004		5/20/1980	1/18/1994			<i>Platanthera flava</i> var. <i>herbiola</i>	1/18/1994		
<i>Habenaria hookeri</i>	Hooker's Orchid		5	5/20/1980		3/13/1989				4				
<i>Habenaria leucophaea</i> *	Prairie White Fringed Orchid	09/28/1989 (T)	2, 3	5/20/1980							<i>Platanthera leucophaea</i> *	1/18/1994	Eastern Prairie Fringed Orchid	12/3/1998
<i>Habenaria psycodes</i>	Purple Fringed Orchid		5	5/20/1980							<i>Platanthera psycodes</i>	1/18/1994		
<i>Hackelia americana</i>	Stickseed		5	5/20/1980							<i>Hackelia deflexa</i> var. <i>americana</i>	9/1/2004		
<i>Halesia carolina</i>	Silverbell Tree		5	5/20/1980										
<i>Helianthus angustifolius</i>	Narrow-leaved Sunflower		5				5/20/1980							
<i>Helianthus giganteus</i>	Tall Sunflower		5	5/20/1980										
<i>Heliotropium tenellum</i>	Slender Heliotrope		5	5/20/1980										
<i>Heteranthera reniformis</i>	Mud Plantain		5	5/20/1980										
<i>Hexalectris spicata</i>	Crested Coralroot Orchid		5	5/20/1980										
<i>Hudsonia tomentosa</i>	False Heather		5	5/20/1980										
<i>Huperzia porophila</i>	Cliff Clubmoss		5				9/1/2004							

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<i>Hydrastis canadensis</i>	Golden Seal		2, 3				5/20/1980		3/13/1989	6				
<i>Hydrocotyle ranunculoides</i>	Water-pennywort		5	5/20/1980		10/30/2009				6				
<i>Hydrolea uniflora</i>	One-flowered Hydrolea		5	5/20/1980										
<i>Hymenopappus scabiosaeus</i>	Old Plainsman		5				9/1/2004							
<i>Hymenoxys acaulis</i> var. <i>glabra</i> *	Lakeside Daisy	06/23/1988 (T)	2, 5	5/20/1980							<i>Hymenoxys herbacea</i> ; <i>Tetraneuris herbacea</i>	04/26/1999; 9/1/2004		
<i>Hypericum adpressum</i>	Shore St. John's Wort		5	5/20/1980										
<i>Hypericum boreale</i>	Northern St. John's Wort		5	5/20/1980		4/17/1990				5				
<i>Hypericum densiflorum</i>	St. John's Wort		5	5/20/1980		1/18/1994				5				
<i>Hypericum kalmianum</i>	Kalm's St. John's Wort		5	5/20/1980										
<i>Iliamna remota</i>	Kankakee Mallow		2, 4, 5, 6	5/20/1980										
<i>Iresine rhizomatosa</i>	Bloodleaf		5	5/20/1980										
<i>Iris fulva</i>	Swamp Red Iris		5				5/20/1980		1/18/1994	6				
<i>Isoetes butleri</i>	Quillwort		5	1/18/1994									Butler's Quillwort	9/1/2004
<i>Isotria medeoloides</i> *	Small Whorled Pogonia	09/09/1982 (T)	2, 5	5/20/1980		10/30/2009				4^^				
<i>Isotria verticillata</i>	Whorled Pogonia		5	5/20/1980										
<i>Juncus alpinus</i>	Richardson's Rush		5	5/20/1980	10/30/2009						<i>Juncus alpinoarticulatus</i>	9/1/2004		
<i>Juncus vaseyi</i>	Vasey's Rush		5	5/20/1980										
<i>Juniperus communis</i>	Ground Juniper		5				5/20/1980							
<i>Juniperus horizontalis</i>	Trailing Juniper		5	5/20/1980										
<i>Justicia ovata</i>	Water Willow		5	5/20/1980										
<i>Lactuca hirsuta</i>	Wild Lettuce		5	5/20/1980	12/3/1998				9/1/2004	6				
<i>Lactuca ludoviciana</i>	Western Wild Lettuce		3	5/20/1980		12/3/1998				4				
<i>Larix laricina</i>	Tamarack		5				5/20/1980							
<i>Lathyrus maritimus</i>	Beach Pea		5	5/20/1980		10/30/2009				8				
<i>Lathyrus ochroleucus</i>	Pale Vetchling		5				5/20/1980							
<i>Lechea intermedia</i>	Pinweed		5	5/20/1980	12/3/1998									
<i>Leptochloa panicoides</i>	Salt Meadow Grass		5, 6	5/20/1980		12/3/1998				6				
<i>Lespedeza leptostachya</i> *	Prairie Bush Clover	06/09/1987 (T)	2, 5	5/20/1980										

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<i>Lesquerella ludoviciana</i>	Silvery Bladderpod		5, 6	5/20/1980										
<i>Liatris scariosa</i> var. <i>nieuwlandii</i>	Blazing Star		3				3/13/1989							
<i>Lilium superbum</i>	Turk's Cap Lily		5	5/20/1980		12/3/1998				6				
<i>Lipocarpa maculata</i>	Mottled Lipocarpa		5	5/20/1980		12/3/1998				4				
<i>Lonicera dioica</i> var. <i>glaucescens</i>	Red Honeysuckle		5	3/13/1989										
<i>Lonicera flava</i>	Yellow Honeysuckle		5				5/20/1980	1/18/1994						
<i>Luzula acuminata</i>	Hairy Woodrush		5	5/20/1980										
<i>Lycopodium clavatum</i>	Running Pine		5	5/20/1980										
<i>Lycopodium dendroideum</i>	Ground Pine		5	5/20/1980										
<i>Lycopodium inundatum</i>	Bog Clubmoss		5	5/20/1980							<i>Lycopodiella inundata</i>	9/1/2004		
<i>Lycopus amplexens</i>	Sessile Water Horehound		5	5/20/1980		3/13/1989				4				
<i>Lysimachia fraseri</i>	Loosestrife		5	5/20/1980		9/1/2004				4				
<i>Lysimachia radicans</i>	Creeping Loosestrife		5	5/20/1980										
<i>Malus angustifolia</i>	Narrow-leaved Crabapple		5	5/20/1980										
<i>Malvastrum hispidum</i>	False Mallow		5	12/3/1998										
<i>Matelea decipiens</i>	Climbing Milkweed		5	5/20/1980										
<i>Matelea obliqua</i>	Climbing Milkweed		5				5/20/1980							
<i>Medeola virginiana</i>	Indian Cucumber Root		5	5/20/1980										
<i>Melampyrum lineare</i>	Cow Wheat		5	5/20/1980		12/3/1998				4				
<i>Melanthera nivea</i>	White Melanthera		5	5/20/1980										
<i>Melanthium virginicum</i>	Bunchflower		3				1/18/1994							
<i>Melica mutica</i>	Two-Flowered Melic Grass		5	1/18/1994										
<i>Melothria pendula</i>	Squirting Cucumber		5	5/20/1980	12/3/1998									
<i>Menyanthes trifoliata</i>	Buckbean		5				9/1/2004							
<i>Microseris cuspidata</i>	Prairie Dandelion		3	5/20/1980							<i>Nothocalais cuspidata</i>	9/1/2004		
<i>Milium effusum</i>	Millet Grass		3	3/13/1989		10/30/2009				8				
<i>Mimulus glabratus</i>	Yellow Monkey Flower		5	5/20/1980										
<i>Mirabilis hirsuta</i>	Hairy Umbrella-wort		5	3/13/1989										

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<i>Nemophila triloba</i>	Baby Blue-eyes		5	9/1/2004										
<i>Oenothera perennis</i>	Small Sundrops		5	5/20/1980	12/3/1998									
<i>Onosmodium molle</i>	Marbleseed		5	5/20/1980		3/13/1989				4				
<i>Opuntia fragilis</i>	Prickly Pear		5	3/13/1989									Fragile Prickly Pear	1/18/1994
<i>Orobanche fasciculata</i>	Clustered Broomrape		3	5/20/1980										
<i>Orobanche ludoviciana</i>	Broomrape		3	5/20/1980	12/3/1998									
<i>Oryzopsis racemosa</i>	Rice Grass		3				5/20/1980		12/3/1998	6				
<i>Oxalis grandis</i>	Large Wood Sorrel		5	5/20/1980		3/13/1989				5				
<i>Oxalis illinoensis</i>	Illinois Wood Sorrel		5	3/13/1989										
<i>Panax quinquefolius</i>	Ginseng		3				5/20/1980		3/13/1989	6				
<i>Panicum boreale</i>	Northern Panic Grass		5	5/20/1980							<i>Dicanthelium boreale</i>	9/1/2004		
<i>Panicum columbianum</i>	Hemlock Panic Grass		5	5/20/1980							<i>Dicanthelium portoricense</i>	9/1/2004		
<i>Panicum hians</i>	Panic Grass		5	5/20/1980		3/13/1989				5				
<i>Panicum joorii</i>	Panic Grass		5	5/20/1980							<i>Dicanthelium joorii</i>	9/1/2004		
<i>Panicum longifolium</i>	Long-leaved Panic Grass		5	5/20/1980		12/3/1998				4				
<i>Panicum mattamuskeetense</i>	Panic Grass		5	5/20/1980		3/13/1989				5				
<i>Panicum nitidum</i>	Panic Grass		5	5/20/1980		4/17/1990				5				
<i>Panicum ravenelii</i>	Panic Grass		5	5/20/1980							<i>Dicanthelium ravenelii</i>	9/1/2004	Ravenel's Panic Grass	9/1/2004
<i>Panicum stipitatum</i>	Panic Grass		5	5/20/1980		12/3/1998				4				
<i>Panicum yadkinense</i>	Panic Grass		5	5/20/1980							<i>Dicanthelium yadkinense</i>	9/1/2004		
<i>Paspalum bushii</i>	Hairy Bead Grass		3	5/20/1980		1/18/1994				6				
<i>Paspalum dissectum</i>	Bead Grass		5	5/20/1980										
<i>Paspalum lentiferum</i>	Bead Grass		5	5/20/1980		3/13/1989				4,5				
<i>Penstemon brevisepalus</i>	Short-sepaled Beard Tongue		5	3/13/1989										
<i>Penstemon grandiflorus</i>	Large-flowered Beard Tongue		5	5/20/1980										
<i>Penstemon tubaeflorus</i>	Tube Beard Tongue		3	9/1/2004										
<i>Petalostemum foliosum</i> **	Leafy Prairie Clover	05/01/1991 (E)	2, 5	5/20/1980							<i>Dalea foliosa</i>	1/18/1994		

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<i>Phacelia gilioides</i>	Phacelia		5	5/20/1980										
<i>Phaeophyscia leana</i>	Lea's Bog Lichen		5	1/18/1994	9/1/2004									
<i>Philadelphus pubescens</i>	Mock Orange		5	5/20/1980		3/13/1989				4				
<i>Phlox carolina</i> subsp. <i>angusta</i>	Phlox		5	5/20/1980		3/13/1989				5				
<i>Phlox pilosa</i> subsp. <i>sangamonensis</i>	Sangamon Phlox		4, 5	5/20/1980										
<i>Physostegia intermedia</i>	False Dragonhead		5	5/20/1980		3/13/1989				5				
<i>Pinus banksiana</i>	Jack Pine		5	5/20/1980										
<i>Pinus echinata</i>	Shortleaf Pine		5	5/20/1980										
<i>Pinus resinosa</i>	Red Pine		5	5/20/1980										
<i>Planera aquatic</i>	Water Elm		5		12/3/1998		5/20/1980	3/13/1989						
<i>Plantago cordata</i>	Heart-leaved Plantain		2, 3	5/20/1980										
<i>Plantago heterophylla</i>	Small Plantain		5	5/20/1980		3/13/1989				4				
<i>Poa alsodes</i>	Grove Bluegrass		3	5/20/1980										
<i>Poa autumnalis</i>	Bluegrass		5	5/20/1980		12/3/1998				4				
<i>Poa languida</i>	Weak Bluegrass		5	5/20/1980										
<i>Poa wolfii</i>	Wolf's Bluegrass		5	5/20/1980										
<i>Pogonia ophioglossoides</i>	Snake-mouth		5	5/20/1980										
<i>Polanisia jamesii</i>	James' Clammyweed		5				5/20/1980	3/13/1989						
<i>Polygala incarnata</i>	Pink Milkwort		3	5/20/1980										
<i>Polygonatum pubescens</i>	Downy Solomon's Seal		5	5/20/1980	3/13/1989			12/3/1998						
<i>Polygonum arifolium</i>	Halbred-leaved Tearthumb		5	5/20/1980									Halberd-leaved Tearthumb	10/30/2009
<i>Polygonum careyi</i>	Carey's Heartsease		5	5/20/1980									Carey's Smartweed used in Bowles et al 1981	
<i>Polygonum longistylum</i>	Smartweed		5	5/20/1980		4/17/1990				6	<i>Polygonum bicornе</i>	3/13/1989		
<i>Populus balsamifera</i>	Balsam Poplar		5	5/20/1980										
<i>Potamogeton gramineus</i>	Grass-leaved Pondweed		5	5/20/1980	12/3/1998									
<i>Potamogeton praelongus</i>	White-stemmed Pondweed		5	5/20/1980										
<i>Potamogeton pulcher</i>	Spotted Pondweed		5	5/20/1980										

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<i>Potamogeton robbinsii</i>	Fern Pondweed		5	5/20/1980										
<i>Potamogeton strictifolius</i>	Stiff Pondweed		5	5/20/1980										
<i>Potamogeton vaseyi</i>	Vasey's Pondweed		5	5/20/1980		12/3/1998				4				
<i>Potentilla millegrana</i>	Cinquefoil		5	5/20/1980		10/30/2009				2, 8				
<i>Primula mistassinica</i>	Bird's-eye Primrose		2, 5	5/20/1980										
<i>Ptilimnium costatum</i>	Mock Bishop's Weed		5	5/20/1980		1/18/1994				6				
<i>Ptilimnium nuttallii</i>	Mock Bishop's Weed		5	5/20/1980										
<i>Puccinellia pallida</i>	Grass		5	5/20/1980							<i>Torreyochloa pallida</i>	9/1/2004	Pole Manna-Grass	9/1/2004
<i>Pycnanthemum albescens</i>	White Mountain Mint		5	5/20/1980		10/30/2009				8				
<i>Pycnanthemum torrei</i>	Mountain Mint		5	5/20/1980		9/1/2004				4				
<i>Pyrola americana</i>	Round-leaved Shinleaf		5	5/20/1980		1/18/1994				4				
<i>Pyrola secunda</i>	One-sided Pyrola		5	5/20/1980		3/13/1989				4				
<i>Quercus nuttallii</i>	Nuttall's Oak		5	5/20/1980							<i>Quercus texana</i>	9/1/2004	Nuttall's Oak	9/1/2004
<i>Quercus phellos</i>	Willow Oak		5				5/20/1980							
<i>Quercus prinus</i>	Rock Chestnut Oak		5				5/20/1980				<i>Quercus montana</i>	4/26/1999		
<i>Ranunculus ambigens</i>	Spearwort		5	5/20/1980		3/13/1989				4,5				
<i>Ranunculus cymbalaria</i>	Seaside Crowfoot		5	5/20/1980		10/30/2009				2				
<i>Ranunculus rhomboideus</i>	Prairie Buttercup		5				5/20/1980							
<i>Rhamnus alnifolia</i>	Alder Buckthorn		5	5/20/1980										
<i>Rhexia mariana</i>	Dull Meadow Beauty		5	9/1/2004										
<i>Rhynchospora alba</i>	Beaked Rush		5				5/20/1980							
<i>Rhynchospora globularis</i>	Grass Beak Rush		5	5/20/1980		12/3/1998				4				
<i>Rhynchospora glomerata</i>	Beak Rush		5	5/20/1980									Clustered Beak Rush	1/18/1994
<i>Rhynchospora macrostachya</i>	Beak Rush		5	5/20/1980		3/13/1989				5				
<i>Ribes hirtellum</i>	Northern Gooseberry		5	5/20/1980										
<i>Rorippa islandica</i> var. <i>hispida</i>	Hairy Marsh Yellow Cress		5	5/20/1980		12/3/1998				6				
<i>Rorippa truncata</i>	Yellow Cress		5	5/20/1980		4/17/1990				2				
<i>Rosa acicularis</i>	Rose		5	3/13/1989									Bristly Rose	9/1/2004
<i>Rubus enslenii</i>	Arching Dewberry		5	5/20/1980		1/18/1994				6				

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<i>Rubus odoratus</i>	Purple-flowering Raspberry		5	9/30/1981										
<i>Rubus pubescens</i>	Purple-flowering Raspberry		5	5/20/1980	3/13/1989								Dwarf Raspberry	9/30/1981
<i>Rubus setosus</i>	Bristly Blackberry		5	5/20/1980	9/1/2004						<i>Rubus schneideri</i>	9/1/2004		
<i>Rudbeckia missouriensis</i>	Missouri Orange Coneflower		5	5/20/1980	9/1/2004									
<i>Rumex hastatulus</i>	Sour Dock		5	5/20/1980		12/3/1998				4				
<i>Sabatia campestris</i>	Prairie Rose Gentian		3	5/20/1980										
<i>Sagittaria longirostris</i>	Arrowhead		5	5/20/1980							<i>Sagittaria longirostra</i> ; <i>S. australis</i>	12/03/1998; 9/1/2004		
<i>Salix serissima</i>	Autumn Willow		5	5/20/1980										
<i>Salix syrticola</i>	Dune Willow		5	5/20/1980									Sand Dune Willow	
<i>Salvia azurea</i> subsp. <i>pitcheri</i>	Blue Sage		5				5/20/1980							
<i>Sambucus pubens</i>	Red-berried Elder		5				5/20/1980	12/3/1998			<i>Sambucus racemosa</i> subsp. <i>pubens</i>	9/1/2004		
<i>Sanguisorba canadensis</i>	American Burnet		5	5/20/1980										
<i>Sanicula smallii</i>	Southern Sanicula		5	9/1/2004										
<i>Sarracenia purpurea</i>	Pitcher Plant		5	5/20/1980										
<i>Saxifraga virginensis</i>	Early Saxifrage		5	5/20/1980										
<i>Scheuchzeria palustris</i>	Arrow-grass		5	5/20/1980		12/3/1998				4				
<i>Schizachne purpurascens</i>	False Melic Grass		5	5/20/1980										
<i>Scirpus cespitosus</i>	Tufted Bulrush		4, 5	5/20/1980							<i>Trichophorum cespitosum</i>	9/1/2004		
<i>Scirpus hallii</i>	Bullrush		5	5/20/1980	12/3/1998						<i>Schoenoplectus hallii</i>	9/1/2004	Hall's Bulrush	12/3/1998
<i>Scirpus hattorianus</i>	Bulrush		5	5/20/1980										
<i>Scirpus microcarpus</i>	Bulrush		5	5/20/1980, 09/01/2004		3/13/1989				4 [r]				
<i>Scirpus paludosus</i>	Alkali Bulrush		5	5/20/1980		10/30/2009				2	<i>Bolboschoenus maritimus</i>	9/1/2004		
<i>Scirpus pedicellatus</i>	Bulrush		5	5/20/1980		3/13/1989				4				

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<i>Scirpus polyphyllus</i>	Bulrush		5				5/20/1980							
<i>Scirpus purshianus</i>	Weak Bulrush		5	5/20/1980							<i>Schoenoplectus purshianus</i>	9/1/2004		
<i>Scirpus smithii</i>	Bulrush		5	5/20/1980							<i>Schoenoplectus smithii</i>	9/1/2004	Smith's Bulrush	9/1/2004
<i>Scirpus torreyi</i>	Bulrush		5	5/20/1980		12/3/1998				4				
<i>Scirpus verecundus</i>	Bulrush		5	5/20/1980		9/1/2004				4				
<i>Scleria pauciflora</i>	Carolina Whipgrass		5	9/1/2004										
<i>Scleria reticularis</i>	Netted Nut Rush		5, 6	5/20/1980; 09/01/2004		12/3/1998				4 [r]	<i>Scleria reticularis</i> ; <i>S. muhlenbergii</i> ; <i>S. reticularis</i> var. <i>muhlenbergii</i>	03/13/1989; 4/17/1990; 01/18/1994	Muhlenberg's Nut Rush	9/1/2004
<i>Sedum telephioides</i>	American orpine		5, 6				9/1/2004							
<i>Sheperdia canadensis</i>	Buffaloberry		5	5/20/1980										
<i>Silene ovata</i>	Ovate Catchfly		5	12/3/1998										
<i>Silene regia</i>	Royal Catchfly		3	5/20/1980										
<i>Silphium pinnatifidum</i>	Rosinweed		5	1/18/1994		12/3/1998				5				
<i>Silphium trifoliatum</i>	Rosinweed		5	3/13/1989		9/1/2004				4				
<i>Sisyrinchium atlanticum</i>	Eastern Blue-eyed Grass		5	5/20/1980	9/1/2004									
<i>Sisyrinchium montanum</i>	Mountain Blue-eyed Grass		5	5/20/1980										
<i>Solidago arguta</i>	Goldenrod		5	5/20/1980		12/3/1998				4	sensu lato: incl. <i>S. strigosa</i> & <i>S. bootii</i>	4/17/1990		
<i>Solidago remota</i>	Goldenrod		5	5/20/1980		3/13/1989				5				
<i>Solidago sciaphila</i>	Cliff Goldenrod		5				5/20/1980							
<i>Sorbus americana</i>	American Mountain Ash		5	9/30/1981										
<i>Sparganium americanum</i>	American Burreed		5	5/20/1980										
<i>Sparganium chlorocarpum</i>	Green-fruited Burreed		5	5/20/1980							<i>Sparaganium emersum</i>	9/1/2004		
<i>Sphaeralcea angusta</i>	Globe Mallow		5	5/20/1980										
<i>Spiranthes lucida</i>	Yellow-lipped Ladies' Tresses		5	5/20/1980										
<i>Spiranthes romanzoffiana</i>	Hooded Ladies' Tresses		5	5/20/1980		9/1/2004				4				
<i>Spiranthes vernalis</i>	Spring Ladies' Tresses		5	5/20/1980										

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<i>Stachys clingmannii</i>	Hedge Nettle		5	5/20/1980		3/13/1989				5				
<i>Stellaria pubera</i>	Great Chickweed		5	5/20/1980										
<i>Stenanthium gramineum</i>	Grass-leaved Lily		3				5/20/1980	1/18/1994						
<i>Stylisma pickeringii</i>	Patterson’s Bindweed		5				5/20/1980	1/18/1994						
<i>Styrax americana</i>	Storax		5				5/20/1980							
<i>Styrax grandifolia</i>	Bigleaf Snowbell Bush		5	5/20/1980							<i>Styrax grandifolius</i>	9/1/2004		
<i>Sullivantia renifolia</i>	Sullivantia		5				5/20/1980				<i>Sullivantia sullivantii</i>	9/1/2004		
<i>Symphoricarpos albus</i> var. <i>albus</i>	Snowberry		5	1/18/1994										
<i>Synandra hispidula</i>	Hairy Synandra		2, 5	5/20/1980										
<i>Talinum calycinum</i>	Fameflower		5	5/20/1980										
<i>Talinum parviflorum</i>	Small Flower-of-an-hour		5				9/1/2004							
<i>Thalia dealbata</i>	Powdery Thalia		5	5/20/1980		9/1/2004				4				
<i>Thelypteris noveboracensis</i>	New York Fern		5	5/20/1980										
<i>Thelypteris phegopteris</i>	Long Beech Fern		5	5/20/1980							<i>Phegopteis connectilis</i>	9/1/2004		
<i>Thismia americana</i>	Thismia		5	5/20/1980		12/3/1998				4				
<i>Thuja occidentalis</i>	Arbor Vitae		5				5/20/1980		9/1/2004	6				
<i>Tilia heterophylla</i>	White Basswood		5	5/20/1980										
<i>Tofieldia glutinosa</i>	False Asphodel		5				5/20/1980							
<i>Tomanthera auriculata</i>	Ear-leaved Foxglove		3				4/17/1990							
<i>Tradescantia bracteata</i>	Prairie Spiderwort		3	5/20/1980	12/3/1998									
<i>Triadenum virginicum</i>	Marsh St. John's Wort		5	5/20/1980		10/30/2009				8				
<i>Trichomanes boschianum</i>	Filmy fern		5				1/18/1994	12/3/1998						
<i>Trientalis borealis</i>	Star-flower		5				5/20/1980	9/1/2004						
<i>Trifolium reflexum</i>	Buffalo Clover		3	5/20/1980	9/1/2004									
<i>Triglochin maritima</i>	Common Bog Arrow Grass		5	5/20/1980	12/3/1998								Common Bog Arrowgrass	9/1/2004
<i>Triglochin palustris</i>	Slender Bog Arrow Grass		5	5/20/1980	12/3/1998								Slender Bog Arrowgrass	9/1/2004
<i>Trillium cernuum</i>	Nodding Trillium		5	5/20/1980										
<i>Trillium cuneatum</i>	Trillium		5	5/20/1980		1/18/1994				5				

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Reasons For IL delisting: 1) LEAVE BLANK; 2) peripheral sp. that occurs in disturbed/non-native habitats; 3) vagrant; 4) extirpated in IL.; 5) misidentified/no longer valid taxon; 6) more common than thought; 7) commercial fishing regulations by IDNR provide adequate protection; 8) extinct; 9) recovered
* = Federally threatened (currently)
** = Federally endangered (currently)
^^ = ESPB cannot delist federally listed species, so must relist until USFWS determines species extirpated
[r] = rediscovered and re-listed after having been previously deemed extirpated

Appendix K. Listing and delisting history from 1977-2011 for Illinois endangered and threatened species. (May require legal size paper to print)

Original IL Listing Scientific Name	Original IL Listing Common Name	Date of Federal listing (status)	Reason for IL listing	Date added as IL E	Date IL E to IL T	Date IL E to delisted	Date added as IL T	Date IL T to IL E	Date IL T to delisted	Reason for IL delisting	Scientific name change	Date scientific name change	Common name change	Date common name change
<i>Trillium erectum</i>	Ill-scented Trillium		5	5/20/1980										
<i>Trillium viride</i>	Green Trillium		5				5/20/1980	12/3/1998						
<i>Ulmus thomasii</i>	Rock Elm		5	5/20/1980										
<i>Urtica chamaedryoides</i>	Nettle		5	5/20/1980	1/18/1994									
<i>Utricularia cornuta</i>	Horned Bladderwort		5	5/20/1980										
<i>Utricularia intermedia</i>	Flat-leaved Bladderwort		5	5/20/1980	9/1/2004									
<i>Utricularia minor</i>	Small Bladderwort		5	5/20/1980										
<i>Vaccinium corymbosum</i>	Highbush Blueberry		5	5/20/1980										
<i>Vaccinium macrocarpon</i>	Large Cranberry		5	5/20/1980										
<i>Vaccinium oxycoccos</i>	Small Cranberry		5	3/13/1989										
<i>Vaccinium stamineum</i>	Deerberry		5	5/20/1980; 09/01/2004		1/18/1994				4 [r]				
<i>Valeriana uliginosa</i>	Marsh Valerian		5	5/20/1980										
<i>Valerianella chenopodifolia</i>	Corn Salad		5	3/13/1989										
<i>Vallerianella intermedia</i>	Corn Salad		5	5/20/1980		4/17/1990				4				
<i>Valerianella umbilicata</i>	Corn Salad		5	5/20/1980										
<i>Veratrum woodii</i>	False Hellebore		2, 5				5/20/1980		9/1/2004	6				
<i>Veronica americana</i>	American Brooklime		5	5/20/1980										
<i>Veronica scutellata</i>	Marsh Speedwell		3				5/20/1980							
<i>Viburnum molle</i>	Arrowwood		5	5/20/1980	12/3/1998									
<i>Viola canadensis</i>	Canada Violet		5	5/20/1980										
<i>Viola conspersa</i>	Dog Violet		5				5/20/1980							
<i>Viola incognita</i>	Hairy White Violet		5	5/20/1980							<i>Viola blanda</i>	9/1/2004		
<i>Viola primulifolia</i>	Primrose Violet		5	5/20/1980										
<i>Viola viarum</i>	Plains Violet		5	5/20/1980		9/1/2004				3				
<i>Waldsteinia fragarioides</i>	Barren Strawberry		5	5/20/1980		9/1/2004				4				
<i>Woodsia ilvensis</i>	Rusty Woodsia		5	5/20/1980										
<i>Woodwardia virginica</i>	Virginia Chain Fern		5	5/20/1980		3/13/1989				4				
<i>Zigadenus glaucus</i>	White Camass		5	5/20/1980							<i>Zigadenus elegans</i> ; add synonym <i>Zigadenus</i> <i>venenosus</i> var. <i>gramineus</i>	9/1/2004; 09/01/2004		

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