ILLINOIS ENDANGERED SPECIES PROTECTION BOARD

MINUTES OF THE 157th MEETING

MIDEWIN NATIONAL TALLGRASS PRAIRIE, WILMINGTON, IL

8 FEBRUARY, 2013
(Approved at the 158th meeting, May 17, 2013)

BOARD MEMBERS PRESENT: Chair Dan Gooch, Vice-chair Glen Kruse, Dr. Joyce Hofmann, Ms. Susanne Masi, Mr. John Rogner, Ms. Laurel Ross, Dr. John Taft, Dr. Jeff Walk.

BOARD MEMBERS ABSENT: Secretary John Clemetsen.

BOARD MEMBER VACANCIES: One.

OTHERS PRESENT: Ms. Renee Thakali (US Forest Service), Ms. Jeannie Barnes, Mr. Kevin Cummings, and Mr. Jeremy Tiemann (Illinois Natural History Survey), Mr. Philip Willink (Shedd Aquarium), Mr. Randy Heidorn (Illinois Nature Preserves Commission), Ms. Kathi Davis, Dr. Jim Herkert, Mr. Don McFall, Ms. Heather Ryan, and Mr. Trent Thomas (Illinois Department of Natural Resources), Mr. Louis Luksander and Mr. Rob Sulski (Great Lakes Falconers Association), and Ms. Anne Mankowski (Endangered Species Protection Board).

157-1 Call to Order Welcome and Introduction of Guests

Chair Gooch called the meeting to order at 9:30 AM, asked Board members to introduce themselves and noted that there was a quorum. He then asked audience members to introduce themselves.

157-2 Adoption of Agenda

Chair Gooch asked if there were any changes to the agenda and none were noted. He explained that while not constituting changes to the agenda, he wanted to note the addition of a resolution and Ms. Mankowski indicated that she numbered the draft resolution to be part of Board Appointments (agenda item 157-7) discussion, but it could be included elsewhere during the meeting, as appropriate. Chair Gooch also indicated that he wanted to discuss the Board's involvement with Chicago Wilderness and that he would address that during agenda item 157-9, Board Self Evaluation. Ms. Ross **moved** to adopt the agenda, Dr. Hofmann seconded the motion, and it was **approved** unanimously.

157-3 Approval of Minutes of the 156th (11/09/12) Meeting

Chair Gooch asked for a motion to approve the 156th meeting minutes. Vice-chair Kruse so **moved** and Dr. Hofmann seconded the motion. Chair Gooch asked if there were any corrections to the minutes and Dr. Walk noted that under item 156-13, during the discussion about species not observed for some time, the minutes incorrectly identified that the mudpuppy was discussed and the discussion actually involved the hellbender. Ms. Mankowski indicated she would make the correction to the final minutes. Mr. Kruse and Dr. Hoffman agreed to the amendment and the minutes, as amended, were **approved** unanimously.

157-4 ESPB Staff Report

Ms. Mankowski, Director of the Illinois Endangered Species Protection Board, gave her report (Attachment A).

She reviewed that she had provided comment and recommendations for IDNR proposed amendments to the consultation Ad Rule related to new fees and for an IDNR proposed new Ad Rule for database fees. She also

noted that IDNR Office of Realty and Environmental Planning (OREP) was working on additional proposed amendments to the consultation Ad Rule and possible related amendments to the Endangered Species Protection Act (ESPA). She explained that she had been advised of the upcoming proposed amendments, but had not yet been provided copies of anything for review. She explained that under a separate exercise, she and IDNR Legal Counsel had done some fairly comprehensive reviews of cross-walk between the ESPA and supporting Ad Rules and to identify inconsistencies within and between the ESPA and the regulations. For that reason, in advance of any invited review by IDNR OREP, she had sent to IDNR OREP recommendations for changes that would correct inconsistencies between the consultation Ad Rule, the ESPA, and the incidental take Ad Rule, and to clarify the coordination and transition between consultation and incidental take processes. Chair Gooch noted that such amendments, especially to the ESPA, seemed like things the Board should be kept up on and asked if she knew the schedule for these draft proposed amendments to become available to the Board. Ms. Mankowski replied that she had not been advised of an IDNR schedule and noted that she was unclear on how the Board, and/or individual members would or could engage in review and comment on draft amendments because the IDNR schedule may not accommodate the Board meeting schedule. Chair Gooch indicated that he would like her to distribute to Board members copies of final draft proposed amendments when they become available to her. She asked Chair Gooch how he wanted the Board or individual members to engage - would the Board want to hold a special meeting, would individual members just send comments to Ms. Mankowski to compile and send to the IDNR, or would members just engage as individual citizens during respective public comment periods. He responded that it may depend on the document. Mr. Rogner indicated that he would check with IDNR Legislative staff about the status of any proposed amendments to the Act and would get back to Ms. Mankowski in the next week.

Ms. Mankowski explained that the individual species reviews that she had developed for fish and mussels included information about, and recommendations to correct or minimize, potential negative impacts from vouchering and relocations. She explained that in order to prepare the Board better for those later discussions, she had provided Board members two tables (included in Attachment A) summarizing the numbers of vouchers and of relocations that did not demonstrate subsequent observation for endangered and threatened fish species and numbers of relocations that did not demonstrate subsequent observation for endangered and threatened mussel species including those performed and/or prescribed as part of IDNR incidental take authorizations (ITAs). She reviewed that all vouchering and those relocations that were apparently intended to help conserve or recover the species, but were not part of ITA should require an IDNR E&T Possession Permit and the relocations under ITA should require an ITA. She explained that she would start by reviewing the fish information and noted she had prior to the Board meeting met with John Rogner to discuss the issues and concern for potential negative impacts to listed species. They had reviewed that based on the database information, it appears some vouchering may be a result of sampling technique. She asked if Mr. Rogner had anything to add at this time.

Mr. Rogner stated that he appreciated Ms. Mankowski bringing the issues, especially the fish vouchering issue, to his attention and that he had directed ORC to investigate. He cautioned the Board that the information Ms. Mankowski had presented was the sum total of information compiled about the issues to date and that at this time we don't know the circumstances surrounding the actions; for example, what, if any, analysis went into authorizing the takings?; maybe some vouchering was accidental; some species may be locally very abundant, so that vouchering a few individuals from a sample of several hundred may not have negative impact; etc. He assured the Board that neither the IDNR, nor any other institution or individual, would knowingly do anything to undermine the conservation or recovery of these species, but again noted that the issues needed to be looked into. He said that he been told that ORC has an unwritten policy for vouchering and suggested that they would be reviewing that and maybe it needed to be memorialized into a written policy and incorporated into the permit program. Mr. Kruse added that in his past experience with IDNR's and other agencies' fish sampling techniques, over the years there had been increased awareness and concern for endangered and threatened species and the unwritten policy referenced by Mr. Rogner included staff checking the database to see if

endangered and threatened species were present in the area they would be sampling and then instituting appropriate precautions. Mr. Rogner suggested that IDNR would be better prepared to discuss the issues in more detail following its investigation and would plan to discuss the issues with the Board at a future meeting.

Chair Gooch said that he believes we are all concerned and interested in the reasons for the fish vouchering and relocations and the potential impacts to the species and thanked Mr. Rogner for his attention to the matter and his expressed intention for the IDNR to follow-up with the Board at a later date.

Ms. Mankowski then reviewed the information she had compiled for mussel relocations. Chair Gooch and Dr. Hofmann noted that as for the previous fish discussion, for some of the mussel species, it appears that the potential impacts may be quite significant. Ms. Mankowski agreed and reiterated that this is based on the best information available. She explained that there had been an interagency meeting in 2011 about mussel ITAs where it was identified that follow-up monitoring and reporting needed to be better enforced by IDNR. She explained that in the summary she had prepared for the Board, there may be as many as 59 ITA-related, and 13 other, relocations for which there is no documentation about the outcome of those efforts. Chair Gooch stated that it appears there needs to be better follow-up on translocations and relocations for these species, but probably for all translocation and relocation activities. Ms. Mankowski agreed and noted that she has not seen evidence, especially species-specific evidence, demonstrating that relocation of mussels is an effective conservation measure. Mr. Tiemann added that he and other mussel researchers can't answer that question either because most often finding the relocated specimens is extremely difficult. Mr. Cummings agreed and stated that there is really no data indicating that translocation and relocation is an effective mitigation technique. Ms. Mankowski explained that each IDNR ITA is a legally binding contract and, by law, is supposed to require whatever follow-up monitoring and reporting is necessary to demonstrate the outcome or effects on listed species from actions authorized by the IDNR. So, whether it takes two post-relocation monitoring events or radio-tagging animals and conducting multiple annual surveys for several years, then that is what should be required in the ITA and that the program could have established quite a bit of evidence about the successes and failures of mussel relocations over its 11 year history. She added that the "reasons for listing" of nearly all listed mussels included degradation or destruction of suitable habitat, including water-quality, and she questioned whether we know that respective habitat niches are suitable and sufficient when relocating animals.

Mr. Rogner stated that he agreed that monitoring needs to be a part of relocations and translocations and at least in the case of mussels, maybe we need to revisit the whole idea of translocations if in fact it is true that there is no evidence that it is an effective conservation strategy. He added that it argues for a lot of good conservation planning at the front end before you actually authorize or conduct translocations and agreed that the ITA is a good mechanism to fold monitoring and follow-up into that process for mussels, but that is only as good as the follow-up and enforcement of those requirements by the agency. Ms. Mankowski agreed and noted that during the current List review, there has been repeated illustration that the required annual reports submitted by researchers under the terms of any IDNR E&T possession permits they hold, are also not making it to the database and that is another place where we are at least missing important absence/presence data and may be missing some translocation follow-up monitoring data, also. Mr. Rogner indicated that as for the vouchering issue, the IDNR would be better prepared to discuss the issue of relocations in more detail following its investigation and would plan to discuss the issues with the Board at a future meeting.

Chair Gooch again thanked Mr. Rogner for his input and commitment for IDNR to follow-up with the Board about the issues. He stated that the Board may wish to discuss in greater detail individual species during agenda item 157- 11 and suggested that the Board conclude the current discussion and asked Ms. Mankowski to finish the remainder of her staff report.

157-5 IDNR Staff Report

Dr. Herkert, Director of IDNR Office of Resource Conservation, and Mr. McFall, Chief of IDNR Division of

Natural Heritage, gave their report (Attachment B).

Mr. John Rogner, the Assistant Director of the IDNR and the IDNR Director's ex-officio Board member designee, stated that this would be his last meeting as a Board member, noting that he would soon be concluding his appointment at IDNR and returning to the US Fish and Wildlife Service. He explained that he would be assuming the position of Great Lakes Landscape Conservation Cooperative Coordinator and the LCC area captures part of Illinois, so he looked forward to continuing some extent of work with the Board and the IDNR. Mr. Rogner stated that he had enjoyed his tenure with the Board and was glad that he was able to provide support for restoring some funding and staff for the Board. He said that he has enjoyed working with the Board and remains passionate about endangered and threatened species work. He concluded by indicating Dr. Herkert would replace him as the IDNR Director's ex-officio Board member designee.

Chair Gooch thanked Mr. Rogner and expressed his and the Board's appreciation for Mr. Rogner's leadership in providing significant IDNR support for the Board and also for his contributions as a member. He then read a proposed resolution recognizing Mr. Rogner's support of and service on the Board since 2009. Chair Gooch **moved** to approve Resolution 157-7 (see Attachment D), Ms. Ross seconded the motion and it was **approved** unanimously.

157-6 INPC Staff Report

Mr. Heidorn, Director of the Illinois Nature Preserves Commission, gave his report (Attachment C).

157-7 Board Appointments

Ms. Mankowski reported that since the November 2012 meeting, the Governor's Office had confirmed the reappointment of Susanne Masi. The Board had not received information regarding any action on Board recommended reappointment for Dr. Taft or appointment of Dr. Brooks Burr.

She reviewed that terms for members Clemetsen, Ross, and Walk were due to expire in May of 2013. Chair Gooch asked Ms. Ross and Dr. Walk if they wished to continue serving and both replied affirmatively. Vice-chair Kruse **moved** to approve Board recommendations to the Governor's Office for the reappointment of Ms. Ross and Dr. Walk. Dr. Hofmann seconded the motion and it was **approved** unanimously. Chair Gooch directed Ms. Mankowski to send respective letters of recommendation to the Governor's Office and noted that the Board would review Mr. Clemetsen's interest in continuing service at the next meeting when Mr. Clemetsen was in attendance.

157-8 Semi-Annual Review of Whether to Keep Closed Minutes from Previous Closed

Ms. Mankowski reviewed that the Open Meetings Act requires that the Board semi-annually review and approve keeping closed the minutes from previous closed-sessions. The Board is required to make a determination that (1) the need for confidentiality still exists as to all or part of those minutes, or (2) that the minutes or portions thereof no longer require confidential treatment and are available for public inspection.

Ms. Mankowski reviewed a list of closed sessions and noted that all closed sessions have been held to review personnel matters. The discussion of personnel matters is allowed under closed session and minutes from that closed session are allowed to remain closed because the need for confidentiality still exists.

Ms. Ross **moved** to keep closed minutes from previous closed meetings, Dr. Walk seconded the motion, and it was **approved** unanimously.

157-9 Annual Self Evaluation

Chair Gooch reviewed that according to the Board's Policy Manual, each year, preferably at the February meeting, the Board must do a self evaluation for business conducted during the previous 12 months, analyze the

results and then set goals for the following year. He noted that the current meeting's agenda was quite full and asked if the Board wanted to defer its Self Evaluation for a subsequent meeting or possibly until after the Board had completed the current 5-year Illinois List review and revision process. Ms. Ross **moved** to table the agenda item until a future meeting, Dr. Hofmann seconded the motion, and it was **approved** unanimously.

Chair Gooch then noted that the Board is a member of the Chicago Wilderness Executive Council and that he had been serving as the Board's representative for a number of years, but was not able to make many meetings and suggested that Ms. Mankowski act as the Board's representative. Ms. Ross reviewed some information about the form and function of the Chicago Wilderness Executive Council and the responsibilities of the Board's representative. She and Chair Gooch asked if Ms. Mankowski would be willing to serve as the Board's representative, she indicated she would, and Ms. Ross indicated that she would communicate with Chicago Wilderness staff to arrange for Ms. Mankowski to assume the role and be brought up to speed.

157-10 2014 Illinois List Review: A Review of the Process, Board Preliminary Approvals to Date, and Outstanding Species Issues

Ms. Mankowski reviewed the Illinois List 5-year review process and schedule including information about legal requirements, individual species' status and distribution data and information that is being considered, and the process by which she and the Board are engaging advice of the ESPB technical expert consultants (ESPB TECs) (see Attachment E).

157-11 2014 Illinois List Review: Recommendation for Changes to the Lists of Illinois Endangered and Threatened Fish and Mussels

Ms. Mankowski presented her recommendations for listing status changes for fish (see Attachment F) and for mussels (see Attachment G) and engaged Board members in reviewing the species data and information compiled and answered Board member questions.

Ms. Mankowski reviewed her recommended changes to the status of currently listed species and for adding species to the list of fish: she recommended a change from endangered to threatened for Weed Shiner (*Notropis texanus*), no change in status for all other currently listed species, and the addition as threatened for American Eel (*Anguilla rostrata*), Brassy Minnow (*Hybognathus hankinsoni*), and American Brook Lamprey (*Lethenteron appendix*).

Dr. Walk **moved** to approve Ms. Mankowski's recommendations and Ms. Ross seconded the motion. Chair Gooch asked for discussion. Dr. Hofmann asked for some discussion about why the Longnose Sucker (*Catostomus catostomus*), Cisco (*Coregonus artedi*), and Bantam Sunfish (*Lepomis symmetricus*) were all listed as threatened instead of endangered when the number of element occurrences (EOs) for each is so low. She noted that the Longnose Sucker and Cisco are Lake Michigan species and didn't know if the listing status was partly because they are so hard to sample for. Ms. Mankowski explained that as they had previously reviewed for other species groups, those species that are at the edge of their range in Illinois and have a very limited range in the state, have often been listed by the Board as threatened because they met the criteria for species with low populations and/or restricted habitats, but there may not have been evidence of specific threats to or duress by the species. For species meeting the same criteria, but for which there was evidence of specific threats to or duress by the species, the Board may have chosen to list them as endangered. Dr. Willink noted that for some of the deep water fish, such as the Longnose Sucker and Cisco, the population information is really poorly known because they are so difficult to sample for and are often missed when sampling for other species. Mr. Thomas stated that the Bantam Sunfish is locally abundant where found.

Dr. Taft asked why the Brassy Minnow was proposed for addition as threatened instead of endangered because it looks like it has undergone significant decline. Ms. Mankowski explained that Dr. Leon Hinz had prepared the recommendation and he was not able to attend the meeting. She added that she had evaluated his

nomination for completeness of information necessary for the Board to consider adding the species to the list and had not scrutinized his recommendation for possible recommendation as endangered instead of his recommendation as threatened. She reminded Board members that they may ask her, or the preparer of a recommendation, such questions prior to the meeting. Mr. Willink added that he believes the species is declining, but it is also easily overlooked during sampling for other species. There was suggestion that if the species were listed, it might generate additional surveys to gain better information about its status and distribution. Ms. Mankowski noted to the Board that she had discussed with Ann Holtrop of the IDNR Watershed Management Section the amount of resources available to and by the IDNR for fish sampling and that she was trying to be mindful of that when the Board considers funding fish survey work, so that there is not a duplication of effort, but also that since the Board has such limited funding, it would be good to maximize on opportunities for surveys to be covered under other funding sources. She and Mr. Thomas additionally noted that some species will never be picked-up in routine basin surveys by IDNR and targeted surveys may be necessary. Mr. Willink felt that there may be a small amount of additional data that could be gathered for the species by going through the not yet finalized 2012 basin survey information, but probably not enough to significantly better inform the Board. Dr. Taft stated that he felt there was sufficient evidence for listing, but it sounded like there was not enough evidence to make a better determination about threatened versus endangered, especially since the species didn't appear to be at the edge of its range in only one or two border counties. Dr. Walk agreed, noting that unlike some other species with only a few populations it didn't sound like this species was locally abundant where found.

Mr. Thomas asked to discuss the Weed Shiner (*Notropis texanus*) that Ms. Mankowski had recommended for a change from endangered to threatened and Mr. Thomas recommended against a change in status. He reviewed some of the information that he had included in his TEC comments. He added that the species is found in headwaters and so is often not captured in IDNR basin sampling, that he had received recent information about additional 2012 drought impacts in several areas where it is known to occur, and that another location was impacted by a fish kill during the same year. Ms. Mankowski stated that neither the dry streambed nor the fish kill information was reflected in the database and these are things that can and should be reported because it is important absence of presence data. Ms. Barnes agreed with Ms. Mankowski and noted that the database is aware that they do not receive many presence or absence reports and regularly remind and advise IDNR staff to do so. There was additional discussion about the importance of the absence of presence, or "surveyed with no observation", data for all species and for all aspects of endangered species conservation from listing decisions by the Board to the regulatory programs by IDNR. Chair Gooch asked Ms. Mankowski to review her recommendation information that was included in the review document. Mr. Cummings added that it is a short-lived species and so populations can be severely affected by drought events. Dr. Walk noted that without actual data to inform the Board about the outcome of locations affected by the recent drought, it seems prudent to err on the side of caution and not change the status of the species at this time. Dr. Walk **moved** to amend the original motion by keeping the Weed Shiner listed as endangered and Vice-chair Kruse seconded the motion.

Dr. Walk asked for discussion on the Redspotted Sunfish (*Lepomis symmetricus*). Mr. Thomas reviewed that the 2004 change in status from threatened to endangered was based on very low population numbers at most locations surveyed. He reviewed the recent captive propagation efforts and that each of those two propagation locations have multiple thousands of fish. There was discussion relative to the need for wild populations with regard to listing criteria and Mr. Thomas indicated that the two propagation locations are experiencing reproduction. He mentioned that they are seeing success at the stocking locations. Ms. Mankowski noted that subsequent observations at stocked locations are lacking in the database and Dr. Walk agreed that he felt it was necessary to see documentation for persistence and recruitment at the stocked locations. He added that while it is helpful to have a reintroduction project proposal and tracking, absent a recovery planning document that identifies measures of success and proposed listing status review triggers, it becomes very difficult to know when it is appropriate to consider changes in listing status. Ms. Mankowski asked Mr. Thomas to clarify which stocked locations are experiencing success because as she had responded to his TEC comments, his recent

report indicated single-year subsequent observations at two stocked locations, but only one of those was reflected in the database. She noted that he had not responded to her that her interpretations of his report were incorrect, so asked if there was some other information that had not been submitted. He indicated that he believed there may be two additional sites that had subsequent observations, but he would need to check the report. Mr. Kruse agreed with Ms. Mankowski's recommendation comment that the efforts appear to be good and the population numbers are heading in the right direction, but there is a need to see additional years of persistence before considering the species to have sufficiently improved in status. Chair Gooch asked if there is sufficient suitable habitat at stocking locations to support the stockings and Ms. Ross asked if there are endpoints identified for what constitutes success at a stocked location or what constitutes sufficient persistence at stocked locations for recommending a change in listing status. Mr. Thomas responded that thresholds had not been identified, but they were looking for multiple years of observations and evidence of reproduction. Chair Gooch asked about known threats at stocked locations. Mr. Thomas said that he believes there are uncertainties, such as whether the species will be able to successfully compete at a given location. Chair Gooch asked Board members if there were any amendments to the original motion based on the discussion for this species and there were none.

Chair Gooch asked for a vote on the motion on the floor as amended and it was **approved** unanimously.

All Board preliminarily approved revisions to the Illinois lists of endangered and threatened fish during the meeting, included:

Board preliminarily approved revisions to the Illinois List - fish

Endangered to threatened:	None	
Threatened to endangered:	None	
Remove from endangered:	None	
Remove from threatened:	None	
Add as endangered:	None	
Add as threatened:	Anguilla rostrata	American Eel
	Hybognathus hankinsoni	Brassy Minnow
	Lethenteron appendix	American Brook Lamprey

No listing status change recommended: (data do not warrant change)

Acipenser fulvescens	Lake Sturgeon
Ammocrypta clarum	Western Sand Darter
Ammocrypta pellucidum	Eastern Sand Darter
Catostomus catostomus	Longnose Sucker
Coregonus artedi	Cisco
Erimystax x-punctatus	Gravel Chub
Etheostoma camurum	Bluebreast Darter
Etheostoma exile	Iowa Darter
Etheostoma histrio	Harlequin Darter
Fundulus diaphanus	Banded Killifish
Fundulus dispar	Starhead Topminnow
Hybognathus hayi	Cypress Minnow
Hybopsis amblops	Bigeye Chub
Hybopsis amnis	Pallid Shiner

Ichthyomyzon fossor	Northern Brook Lamprey
Lampetra aepyptera	Least Brook Lamprey
Lepomis miniatus	Redspotted Sunfish
Lepomis symmetricus	Bantam Sunfish
Macrhybopsis gelida	Sturgeon Chub
Moxostoma carinatum	River Redhorse
Moxostoma valenciennesi	Greater Redhorse
Nocomis micropogon	River Chub
Notropis anogenus	Pugnose Shiner
Notropis boops	Bigeye Shiner
Notropis chalybaeus	Ironcolor Shiner
Notropis heterodon	Blackchin Shiner
Notropis heterolepis	Blacknose Shiner
Notropis maculatus	Taillight Shiner
Notropis texanus	Weed Shiner
Noturus stigmosus	Northern Madtom
Scaphirhynchus albus	Pallid Sturgeon

Ms. Mankowski reviewed her recommended changes to the status of currently listed species and for adding species to the list of mussels: she recommended a change from threatened to endangered for Elephant-ear (*Elliptio crassidens*) and Ebonyshell (*Fusconaia ebena*), no change in status for the remainder of currently listed species, and no additions.

Dr. Walk **moved** to approve Ms. Mankowski's recommendations and Dr. Hofmann seconded the motion. Chair Gooch asked for discussion and asked Ms. Mankowski to explain the problems she had encountered with the use of different terms for "living", "dead or recent dead", and "relict". She explained that there are multiple terms used in the database and a lack of consistency for what is considered a live or recently live observation. The issue was a problem especially with regard to her initial recommendation for the Salamander Mussel (*Simpsonaias ambigua*) and is explained in that species review. She explained that some mussel experts from a few institutions had fairly recently agreed upon terminology, but that was not necessarily being used by all individuals reporting information to the database, and still left older records unclear. These are some of the issues that she is trying to address in revising the EO reporting forms, so will hopefully improve in the future.

Dr. Hofmann asked about the Black Sandshell (*Ligumia recta*), which has seen a clear increase in number of EOs. Mr. Tiemann and Mr. Cummings explained that a recent State Wildlife Grant project for statewide mussel surveys had greatly increased search effort, with over 2,000 sites sampled since 2009, and that is reflected in the increased number of EOs for many species. Mr. Cummings expressed frustration for the lack of better listing status evaluation criteria and the Board agreed that better established guidelines would be helpful to everyone. Ms. Mankowski reviewed that 15 of the EOs are those with relocations and no subsequent observation and 40% of EOs are based on single observations. She added that recent records are still lacking for several basins and watersheds with historic occurrences, but noted that that does not necessarily mean the species is not secure and exceeds the definition of threatened, and reiterated her comment in the species review that she felt data demonstrating subsequent observations and persistence at sites affected by relocations and persistence at single observation locations would be good before making a recommendation for delisting.

Dr. Taft asked the same question about the Slippershell (*Alasmidonta viridis*) and TECs and Ms. Mankowski provided the same explanation about search effort. Ms. Mankowski also noted that the number of recent EOs is not very different from the level that prompted a change from endangered to threatened for the species in 1999 and there was again, a desire to see sustained improvement before considering a recommendation for delisting. Mr. Cummings added that most occurrences for the species are in northeastern Illinois, which increases its exposure to potential threats, but noted that it also may increase the potential for conservation efforts. It also

had a much more widespread historic distribution species than current.

There was some discussion about what information, data, and evidence is necessary to support a nomination for adding a species to the List.

Mr. Cummings asked for discussion about the Ebonyshell (*Fusconaia ebena*). Ms. Mankowski reviewed her species review and recommendation and acknowledged that this is a species where her recommendation may be confounded by some of the "live" and "dead" terminology problems. Mr. Cummings stated that while the species is really only currently known from the Ohio River, it is locally abundant where found, pointing out that it has been restricted from those systems with locks and dams for many years. He added that there is also a threat from zebra mussels in the Ohio River, but populations there seem robust.

Chair Gooch asked for any other discussion and then asked for a vote on the motion on the floor and it was **approved** unanimously.

All Board preliminarily approved revisions to the Illinois lists of endangered and threatened mussels during the meeting, included:

Board preliminarily approved revisions to the Illinois List - mussels

Endangered to threatened:	None	
Threatened to endangered:	Elliptio crassidens	Elephant-ear
	Fusconaia ebena	Ebonyshell
Remove from endangered:	None	
Remove from threatened:	None	
Add as endangered:	None	
Add as threatened:	None	

No listing status change recommended: (data do not warrant change)

Alasmidonta viridis	Slippershell
Cumberlandia monodonta	Spectaclecase
Cyclonaias tuberculata	Purple Wartyback
Cyprogenia stegaria	Fanshell
Ellipsaria lineolata	Butterfly
Elliptio dilatata	Spike
Epioblasma rangiana	Northern Riffleshell
Epioblasma triquetra	Snuffbox
Lampsilis abrupta	Pink Mucket
Lampsilis fasciola	Wavy-rayed Lampmussel
Lampsilis higginsii	Higgens Eye
Ligumia recta	Black Sandshell
Plethobasus cooperianus	Orangefoot Pimpleback
Plethobasus cyphyus	Sheepnose
Pleurobema clava	Clubshell
Pleurobema cordatum	Ohio Pigtoe
Potamilus capax	Fat Pocketbook
Ptychobranchus fasciolaris	Kidneyshell
Quadrula cylindrica	Rabbitsfoot

Simpsonaias ambigua	Salamander Mussel
Toxosalma lividus	Purple Lilliput
Villosa iris	Rainbow
Villosa lienosa	Little Spectaclecase

157-12 Next Meeting Information

The Board's next regularly scheduled meeting will be May 17, 2013 at 9:30 AM at Midewin National Tallgrass Prairie.

May 17, 2013
August 16, 2013
November 15, 2013

157-13 Public Comment Period (3 minutes per person)

There were no public comments.

157-14 Other Business (Board members complete travel forms and time reporting sheets)

Board members completed travel forms and time reporting sheets.

157-15 Adjournment

Dr. Walk **moved** to adjourn, Vice-chair Kruse seconded the motion, and it was **approved** unanimously. The meeting was adjourned at 1:07 PM.

Illinois Endangered Species Protection Board staff report
for the 157th Meeting, February 8, 2013
Submitted by Anne Mankowski, Director

The Board currently only has one staff, its Director; all activities were conducted by the ESPB Director unless otherwise noted. Ms. Mankowski has not been able to complete all required work in the course of a 37.5-hour work week. Since the last staff report, Ms Mankowski has worked the following overtime hours toward ESPB and IDNR duties: November: claimed = 26.75, donated = 12.5; December: claimed = 48.5, donated = 53.5; January: claimed = 57.5, donated = 20.5.

1. Illinois List of Endangered and Threatened Species Review and Revision ending in 2014
The Board continues work on the next five-review of the List; the process usually takes about two years. The Board is required by law to base its listing decisions on scientific evidence. Ms. Mankowski spent a great deal of time compiling species information, with some assistance from the IDNR Natural Heritage Database staff. She also spent a great deal of time communicating with the EPSB technical expert consultants for species status and distribution information/evidence and review of ESPB staff listing status recommendations in preparation for the Board's consideration.

2. ESPB-led project to contract surveys to update endangered and threatened animal occurrence records that are greater than 10 years old
Ms. Mankowski continued working on USFWS State Wildlife Grant FFY2012 materials for the subject project. As of May 2012, there were 2,958 endangered and threatened species animal occurrences in the Database and more than 25% had not been re-visited/re-surveyed within the last 10 years. The project will address IDNR administrative regions 1- 4 (Region 5 is being addressed under a separate project) and may update as many as 500 records. The project will not initiate survey work until the 2013 field season or later.

3. ESPB review and comment on IDNR and INPC proposed new and amended Illinois Administrative Rules related to endangered and threatened species
Ms. Mankowski provided review and comment to IDNR and INPC on a proposed new rule under the Illinois Natural Areas Preservation Act related to the IDNR sustainability and fees package. The proposed amendments address addition of a fee for Natural Heritage (Biotics 4) Database data requests. Over 70% of records in the Database are for endangered and threatened species occurrences and over 90% of data requests to the Database are for endangered and threatened species information.

Ms. Mankowski provided review and comment to IDNR on proposed amendments to Title 17, Part 1075 (*Consultation procedures for assessing impacts of agency actions on endangered and threatened species and natural areas*) related to the IDNR sustainability and fees package. The proposed amendments address addition of a fee and changes to definitions.

Ms. Mankowski provided comments to IDNR in advance of ESPB receipt of IDNR draft proposed amendments to Title 17, Part 1075 (*Consultation procedures for assessing impacts of agency actions on endangered and threatened species and natural areas*). Ms. Mankowski made recommendations to IDNR for improvements to several elements of process and procedure related to evaluation of possible take, maintenance of a record of decision for such, clarifying agency authorities for allowing take, and the progression or transition of project review from the IDNR Consultation Program to the IDNR Incidental Take Authorization program. Ms. Mankowski advised the IDNR that the Board recommends against a piecemeal development and review of amendments to the ESPA and supporting Ad Rules and that she would engage in further consultation and review at a time when the IDNR is able to provide the Board a comprehensive package of related proposed amendments for review.

4. ESPB initial review and comment on IDNR draft proposed amendments to the Illinois Endangered Species Protection Act and Illinois Administrative Rules
Ms. Mankowski provided initial review and comment to IDNR regarding proposed amendments that mostly focus on 520 ILCS 10/11 (b) (the section related to the IDNR consultation process), of the Illinois Endangered Species Protection Act. The IDNR is also working on proposed amendments to Title 17, Part 1075 (*Consultation procedures for assessing*

impacts of agency actions on endangered and threatened species and natural areas), but has not yet provided the Board opportunity for review of its draft changes to that rule. Ms. Mankowski advised the IDNR that the Board recommends against a piecemeal development and review of amendments to the ESPA and supporting Ad Rules and that she would engage in further consultation and review at a time when the IDNR is able to provide the Board a comprehensive package of related proposed amendments for review.

5. ESPB Website

Ms. Mankowski spent time working with IDNR web support staff on updates to the ESPB website. The ESPB website serves as the web portal for ESPB and IDNR administered endangered and threatened species program information.

6. ESPB Budget

Ms. Mankowski continues working with IDNR on multiple budget assignments related to the FY2013 and FY2014 budgets.

7. ESPB Research/Strategic Projects Program

Ms. Mankowski continues administration of IDNR research projects.

8. Meetings, Presentations, and Publications

- Ms. Mankowski participates in IDNR ORC twice-monthly administrative meetings.
- Ms. Mankowski participated in the 63rd and 64th Natural Areas Evaluation Committee (NAEC) meetings held at IDNR headquarters November 20 and December 18, 2012, respectively. The ESPB is a voting member of the NAEC. Actions from the 63rd meeting included addition of 4 new Category I (high-quality community) sites, a Category I designation was added to an existing Category II (specific suitable habitat for Illinois endangered and threatened species) site, a Category II designation was added to an existing Category IV (unusual concentration of flora and fauna) site, a Category IV designation was added to an existing Category II site, a boundary change to an existing Category II site, and 2 Category II sites were deleted because the subject species are no longer listed as Illinois endangered or threatened. At the 64th meeting, the committee approved changes to the INAI standards and guidelines to allow for the addition of Category III INAI sites (designated Illinois Nature Preserve and registered Land and Water Reserves) by IDNR Natural Areas program staff instead of requiring committee action and discussed criteria for removing Category II sites. The 65th NAEC meeting that was planned for January 22, 2013, was cancelled by IDNR.
- Ms. Mankowski participated in the November 28, 2012 meeting of the Illinois Wildlife Action Team held at IDNR Headquarters in Springfield, Illinois. The Board is a voting member of the team.
- Ms. Mankowski met January 23, 2013 with ESPB Members, Laurel Ross and Jeff Walk, to discuss various Board business including elements of the ESPA at 40 review and several issues related to ESPB/IDNR coordination and communication.
- Ms. Mankowski attended the 213th meeting of the Illinois Nature Preserves Commission held on January 28, 2013 in Rochester, Illinois. She presented a report of ESPB activities.
- Ms. Mankowski, along with Terry Esker (District Natural Heritage Biologist), held an annual planning meeting for the Illinois Barn Owl recovery project on January 8, 2013 at IDNR headquarters.
- Ms. Mankowski continued project management for the development of a Blanding's Turtle (*Emydoidea blandingii*) recovery plan. The status and distribution of the species and large amount of species-specific data and literature, combined with many years of ongoing activities by multiple partners in Illinois, makes development of a recovery plan for this species very complicated. After several meetings of the recovery planning team and consultation with IDNR ORC Director, Jim Herkert, Ms. Mankowski revised the schedule for developing a recovery plan. The revised schedule changes the current effort to producing a conservation assessment for the species and then after the ESPB and IDNR reconcile some procedural and regulatory elements, work on a recovery plan will be reinitiated and the conservation plan will be used in developing the recovery plan.
- Ms. Mankowski participated in an IDNR-led meeting to discuss continued implementation of the Illinois Prairie Chicken Recovery Plan held on February 4, 2013 at Illinois Audubon headquarters in Springfield, Illinois.
- Ms. Mankowski prepared and distributed the annual "ESPB Season's Greetings" email to the Board's email notification distribution list. The email reviews major Board accomplishments and activities from the current year, makes note of some planned for the upcoming year, and announces the posting of the Board's next year meeting schedule.

9. Coordination with IDNR and INPC:

Ms. Mankowski coordinated with the Endangered Species Program ORC, Division of Wildlife ORC, Impact Assessment Section OREP, Office of Land Management, Office of Law Enforcement, Office of Legal Counsel, Office of Strategic Services, Media Relations, and Illinois Nature Preserves Commission, on multiple matters, including:

- Met with IDNR Assistant Director, John Rogner, to discuss ESPB 2014 Illinois E&T List reviews for fish and mussels and recommendations for diminishing potential negative impacts to species from vouchering and relocation/translocation activities. Ms. Mankowski also met with IDNR ORC Fisheries Assistant Chief, Dan Stephenson, to discuss the same.
- Provided recommendation to IDNR Assistant Director, John Rogner, for establishment of endangered and threatened species consultation process/comprehensive environmental review process training for IDNR staff.
- Provided IDNR OCR Director, Jim Herkert, a summary of the status of IDNR/ESPB coordination for review and approval of the IDNR Alligator Snapping Turtle recovery plan and plan element recommendations for IDNR consideration prior to presenting it to the Board for consideration as a final, jointly-approved, Illinois recovery plan.
- Provided comment as reminder to INPC and IDNR that, while the Board is open to further evaluating the topic of endangered and threatened species translocations, in general, the Board does not 1) support/endorse/approve translocations of E&T that are not specifically described and prescribe for within a Board-approved, species-specific, state-level recovery plan or outline, or project-level translocation proposal (and as per agreed upon ESPB/ORC coordination process), or 2) recognize as part of "recovery", "conservation", or "research/scientific purpose" translocations that take place absent of respective planning documents.
- Provided to IDNR Fisheries information about IDNR/ESPB recovery planning and the endangered and threatened species translocation approval coordination process between IDNR and ESPB that is supposed to precede issuance of an IDNR Endangered and Threatened Species Possession Permit for projects involving translocation.
- Provided comments and recommendations to IDNR Watershed Protection for additions/language for the 2015 Illinois Wildlife Action Plan (IWAP) revision regarding endangered and threatened species protection, regulations, and translocation/relocation activities.
- Met with IDNR ORC Director, Jim Herkert, to review ESPB/IDNR coordination of endangered and threatened species work.
- Developed draft revised endangered and threatened species element occurrence reporting forms for use by the IDNR Natural Heritage (Biotics 4) Database. The revisions address some information gaps and terminology discrepancies and are intended to improve the robustness of data reported to the Database. Ms. Mankowski will work with Database staff to finalize the forms, which will replace those currently available via the Board's website. Provided IDNR Fiscal with three-year ESPB budget and other statutory responsibility information in response to annual requests from the Illinois Senate and House of Representatives for the information from all state boards and commissions.
- Provided information requested by IDNR ORC relative to its strategic planning and budgeting for results processes.
- Met with and provided assistance to IDNR OLC in reviewing the Illinois Endangered Species Protection Act and the administrative rules that support it as they relate to various endangered and threatened species issues.
- Provided recommendations to IDNR regarding issues related to authorizations for incidental taking of endangered and threatened species and permits for possession of specimens or products of endangered or threatened species.
- In conjunction with Natural Heritage Biologist, Terry Esker, continued project management of the Illinois Barn Owl (*Tyto alba*) recovery project.
- Continued project management for the development of a Blanding's Turtle (*Emydoidea blandingii*) recovery plan (see note above under *9. Meeting, Presentations, and Publications*).
- Provided review, comments, and questions to IDNR on two draft incidental take authorizations: City of Edwardsville water main project in Monroe County, involving Illinois Chorus Frog (*Pseudacris illinoensis*); and, I-90 over the Kishwaukee River in Winnebago County, involving Black Sandshell (*Ligumia recta*).
- Handled over 100 phone and email requests for ESPB and E&T information from the public and other state and federal agencies including referring those related to IDNR E&T consultation, incidental take, data, and permit programs, etc.

10. Coordination with other Agencies

- Ms. Mankowski conducted an interview with *Illinois Issues* magazine involving the Blanding's Turtle (*Emydoidea blandingii*) and a recent acquisition of habitat for the Blanding's Turtle and several other listed species in Lee County by Illinois Audubon Society.

11. Field Work
- None.

12. Other General Administration and Clerical Work
- Attended training for IDNR online inventory certification process.
- Prepared and routed Board member and staff travel vouchers and timesheets.
- Conducted administration related to Board research projects.
- Conducted updates to ESPB budget tracking on ORC sharepoint.
- Regularly distributed information to Board members via email and hardcopy mailings.
- All aspects of preparation for the February 8, 2013, 157th ESPB meeting.

Mankowski summary from IDNR Biotics 4 Database information, updated in 10/2012

SCIENTIFIC_NAME	COMMON_NAME	Current Status	# of EOs	Total EOs seen since Jan 2002	# of EOs where individuals were relocated to another location - with sub ob	# of EOs where individuals were relocated to another location - no sub ob	% of total EOs potentially impacted by relocation	% of recent (<10 yrs old) EOs potentially impacted by relocation	total # fish vouchered	Total fish vouchered as % of total "wild" fish reported
Etheostoma camurum	Bluebreast Darter	E	16	14	0	0	0	0	27	39%
Ammocrypta clarum	Western Sand Darter	E	35	8	0	0	0	0	111	30%
Ichthyomyzon fossor	Northern Brook Lamprey	E	4	0	0	0	0	0	2	20%
Notropis chalybaeus	Ironcolor Shiner	T	31	18	0	0	0	0	309+	18%
Etheostoma exile	Iowa Darter	T	63	33	3	7	11%	21%	128	17%
Fundulus dispar	Starhead Topminnow	T	53	33	0	0	0	0	266	17%
Hybopsis amblops	Bigeye Chub	E	22	14	0	0	0	0	35	11%
Moxostoma valenciennesi	Greater Redhorse	E	23	14	0	0	0	0	14	10%
Lepomis symmetricus	Bantam Sunfish	T	12	2	0	0	0	0	19	9%
Notropis heterolepis	Blacknose Shiner	E	31	13	1	3	10%	23%	277	8%
Hybopsis amnis	Pallid Shiner	E	16	7	0	0	0	0	10	8%
Moxostoma carinatum	River Redhorse	T	44	25	0	0	0	0	64	7%
Lampetra aepyptera	Least Brook Lamprey	T	13	12	0	0	0	0	96+	6%
Fundulus diaphanus	Banded Killifish	T	22	15	1	2	9%	13%	44	4%
Notropis texanus	Weed Shiner	E	35	24	0	1	3%	4%	68	4%
Notropis heterodon	Blackchin Shiner	T	23	15	0	2	9%	13%	84	3%
Catostomus catostomus	Longnose Sucker	T	10	4	0	0	0	0	1	2%
Notropis anogenus	Pugnose Shiner	E	33	5	0	2	6%	40%	8	2%
Hybognathus hayi	Cypress Minnow	E	6	1	0	0	0	0	4	2%
Erimystax x-punctatus	Gravel Chub	T	17	13	0	0	0	0	7	2%
Ammocrypta pellucidum	Eastern Sand Darter	T	35	26	0	0	0	0	17	2%
Acipenser fulvescens	Lake Sturgeon	E	17	8	0	0	0	0	3	1%
Lepomis miniatus	Redspotted Sunfish	E	27	11	1	0	0	0	12	1%
Notropis boops	Bigeye Shiner	E	48	12	0	0	0	0	18	1%
Coregonus artedi	Cisco	T	3	0	0	0	0	0	0	0
Etheostoma histrio	Harlequin Darter	E	19	10	0	0	0	0	0	0
Macrhybopsis gelida	Sturgeon Chub	E	1	1	0	0	0	0	0	0
Nocomis micropogon	River Chub	E	8	2	0	0	0	0	0	0
Notropis maculatus	Taillight Shiner	E	1	0	0	0	0	0	0	0
Noturus stigmosus	Northern Madtom	E	4	2	0	0	0	0	0	0
Scaphirhynchus albus	Pallid Sturgeon	IL E, Fed E	2	0	0	0	0	0	0	0
					6	17				

Mankowski summary from IDNR Biotics 4 Database information and ESPB records, updated in 10/2012

SCIENTIFIC_NAME	COMMON_NAME	Current Status	Total # Eos	Total seen since Jan 2002	# of EOs where individuals were relocated to another location - not part of IDNR ITA, with sub ob	# of EOs where individuals were relocated to another location - not part of IDNR ITA, no sub ob	# of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no sub ob	% of total EOs potentially impacted by relocation	% of recent (<10 yrs old) EOs potentially impacted by relocation
Plethobasus cyphyus	Sheepnose	IL E, Fed E	21	7	0	1	3	19%	43%
Alasmidonta viridis	Slippershell	IL T	74	53	0	3	16	26%	36%
Cumberlandia monodonta	Spectaclecase	IL E, Fed E	16	4	0	0	1	6%	25%
Quadrula cylindrica	Rabbitsfoot	IL E, Fed E	7	4	0	0	1	14%	25%
Lampsilis higginsii	Higgins Eye	IL E, Fed E	18	9	0	0	2	11%	22%
Cyclonaias tuberculata	Purple Wartyback	IL T	38	29	1	0	6	16%	21%
Ellipsaria lineolata	Butterfly	IL T	47	33	2	2	4	13%	18%
Lampsilis fasciola	Wavy-rayed Lampmussel	IL E	20	17	0	0	3	15%	18%
Villosa iris	Rainbow	IL E	9	6	0	0	1	11%	17%
Ligumia recta	Black Sandshell	IL T	101	86	0	6	9	15%	17%
Fusconaia ebena	Ebonyshell	IL T	33	13	0	1	1	6%	15%
Elliptio dilatata	Spike	IL T	53	37	0	0	4	8%	11%
Villosa lienosa	Little Spectaclecase	IL T	50	44	0	0	5	10%	11%
Toxolasma lividus	Purple Lilliput	IL E	12	11	0	0	1	8%	9%
Potamilus capax	Fat Pocketbook	IL E, Fed E	30	24	1	0	2	7%	8%
Cyprogenia stegaria	Fanshell	IL E, Fed E	1	0	0	0	0	0	0
Elliptio crassidens	Elephant-ear	IL T	12	5	0	0	0	0	0
Epioblasma rangiana	Northern Riffleshell	IL E, Fed E	2 (reintro)	2	2	0	0	0	0
Epioblasma triquetra	Snuffbox	IL E, Fed E	4	2	0	0	0	0	0
Lampsilis abrupta	Pink Mucket	IL E, Fed E	0	0	0	0	0	0	0
Plethobasus cooperianus	Orangefoot Pimpleback	IL E, Fed E	2	0	0	0	0	0	0
Pleurobema clava	Clubshell	IL E, Fed E	2	1	0	0	0	0	0
Pleurobema cordatum	Ohio Pigtoe	IL E	3	1	0	0	0	0	0
Ptychobranchus fasciolaris	Kidneyshell	IL E	9	6	0	0	0	0	0
Simpsonaias ambigua	Salamander Mussel	IL E	9	2	0	0	0	0	0
					6	13	59		

Illinois Department of Natural Resources
report to the Illinois Endangered Species Protection Board
at the 157th meeting, February 8, 2013

Personnel
Joe Kath was promoted to DNRs Endangered Species Program Manager, effective February 1. This is the position formerly held by Glen Kruse. It's been vacant since Glen became the Natural Heritage Division Chief in 2005. Joe's been serving in an acting capacity for 8 years. Joe has a bachelor's and a master's degree in biology from the University of Illinois and has been with DNR since 1995. Hiring an Endangered Species Project Manager to backfill Joe's position and return the Endangered Species Program to a two person program is the Divisions' top priority for hiring.

Incidental Take Authorizations
There are currently six (6) active incidental take projects being managed by DNRs Division of Natural Heritage. These projects are in various phases of completion and focus on the following species: ornate box turtle, Illinois chorus frog, black sandshell, Blanding's turtle, western hognose snake, yellow mud turtle, regal fritillary butterfly, yellow-headed blackbird and king rail.

State Wildlife Grant (SWG)
In December, USFWS awarded DNR a 3 year SWG grant to support a multi-year prairie chicken translocation and other site management work at Prairie Ridge State Natural Area in southeastern Illinois. The amount of the grant is $337,500.

Natural Heritage Database
In December, database staff mapped and/or did data entry of 99 E&T occurrences, both new and updates and received 49 records of E&T species.

Wildlife Preservation Fund
DNR is now accepting applications for the next round of Wildlife Preservation Fund grants. Small grants up to $2,000 are available for species or site surveys, management or educational projects. The Large Project Program (more than $2,000) requires sponsorship from staff of the Office of Resource Conservation. Some ESPB expenses are also paid from this fund. Deadline for applications is April 1, 2013. The fund generated $145,000 last year. Almost 10,000 taxpayers contributed to the fund.

Species Report
Monitoring for White Nose Syndrome (WNS) is being conducted at select cave and abandoned mine sites throughout Illinois by DNR and Illinois Natural History Survey (INHS) staff throughout February, 2013. To date, there have been no positive detections of WNS in Illinois. In mid-January, 2013 a new county in Missouri was confirmed positive for the presence of WNS. Illinois, Wisconsin, Michigan, and Minnesota remain clean, but this will likely change as formal surveys begin and new laboratory samples are analyzed.

The Unimin Minerals Corporation in southern Illinois (Union Co. and Alexander Co.) has closed all of their abandoned silica sand mines to everyone, including DNR biologists. Most notable are Magazine Mine and Mine #30. No waivers of liability are available. Essentially, our surveys there are done until another option surfaces - i.e. possible deed over to Forest Service This is an unfortunate turn of events given this is the largest Indiana bat hibernacula in Illinois. DNR is working with the USFS and USFWS and has a meeting planned this winter/spring to discuss potential opportunities for alternative interim monitoring methods (passive), and discuss potential options for pursuing acquisition of the mines.

IDNR and other States are working on proposed actions designed to investigate, and respond to, the observed

increase in fungal dermatitis-related mortalities of Timber Rattlesnakes and Massasauga Rattlesnakes in several populations. This SWG grant would help determine if this is a newly emerging health issue that will spread and jeopardize populations of these two Species of Greatest Conservation Need, as well as any other species. The national competitive state wildlife grant program provides up to $500,000 for selected projects, which is far short of the resources required to fund all of the actions listed with funding provided for each state. However, a few states have expressed an interest in assisting in various ways that may not require funding. DNR is working closely with VetMed & INHS staff at the University of Illinois on this grant.

Revisit to Blackball Mine for band retention study planned for March, 2013: During late March of 2012, Myotis lucifugus were banded in 7 Midwestern hibernacula to determine band retention rates and morbidity and mortality rates resulting from the bands and the associated handling. A total of 1,467 bats, were banded, half with a single band on either of two wings and the remaining half with bands applied to both wings. During early December 2012, staff returned to these sites to recover these banded animals. Each banded bat was photographed on roost. Field notes indicate that 618 banded animals were recovered, although these data have not yet been adjusted for duplicate records, band loss, or difference in detectability between single and double banded animals. Recapture rates varied considerably between sites (29% and 57%) probably due to a combination of the size of the hibernacula, the size of the winter colony, ceiling height, and the intensity and consistency of the search effort. Analysis now underway will identify the banded bats that were captured and some portion of the banded bats that were photographed but not captured. This revisit would be conducted late enough in the spring so that disturbed bats could leave the hibernacula and survive, but early enough so that the banded bats will still be present. The survey should be conducted on nearly the same date as they were initially banded. Goals: Estimate the probability of detection; Test the use of a metal detector as an alternative way of searching for banded bats; Increase the sample of recovered banded bat; and Determine the frequency at which bands shift position on the forearms of bats.

Illinois Wolf Update: Wolves are currently listed as a State threatened species throughout the entire State of Illinois. In addition, they are classified as Federally endangered by the US Fish and Wildlife Service south of Interstate 80. To date, there have been nine (9) confirmed gray wolves in Illinois since 2000. These were from the Western Great Lakes Distinct Population Segment – most likely from Wisconsin: a male shot during a coyote hunt in Marshall County in 2002; a male killed by a vehicle immediately north of Chain O'Lakes State Park in Lake County in 2005; a male shot in Pike County in 2005; a male killed by a coyote hunter in Jo Daviess County in 2008; a male killed by a coyote hunter in Kane County in 2009; a male and a female killed in Jo Daviess County in 2011 about 4 miles apart; a female wolf trapped and released in Whiteside County during December 2012; a female radio-collared wolf from Wisconsin and tracked into Stephenson County in December, 2012. Radio-signal was not detected the following week. Therefore 6 of the 9 wolves were young males.

The Final Report for the Hine's Emerald Dragonfly Habitat Conservation Plan was submitted to the USFWS Region 3 Office in late December, 2012 and the project is now complete. In late 2012, the Director of the U.S. Fish and Wildlife Service approved an amendment to the Section 6 HCP grant. This amendment allowed the partnership to produce a final report and meet the conservation objectives and goals of the grant by its closing date of December 31, 2012. This amendment changed the scope of the agreement by amending the grant deliverables identified in the original proposal. Specifically, the grant deliverable changed from "a complete HCP accepted by the U.S. Fish and Wildlife Service and judged to be adequate to assure the continued existence of the Hine's emerald dragonfly in the Lower DesPlaines River Valley (in Northeast Illinois) while allowing incidental take of the species as described in the HCP" to "a final report documenting: 1) recovery actions identified for implementation; 2) the results of monitoring and survey activities; 3) habitat management actions identified as necessary for the HCP; 4) analysis of impacts of partner activities: and 5) the results of research into mitigation opportunities."

Report for the ENDANGERED SPECIES PROTECTION BOARD
Excerpts of a report originally prepared
for the 213TH Meeting of the
ILLINOIS NATURE PRESERVES COMMISSION
Reporting Period: August 7, 2012 - December 21, 2012

KEY
NP = Nature Preserve
SP = State Park
LWR = Land and Water Reserve
COA = Conservation Opportunity Area
NHL = Natural Heritage Landmark
FPD = Forest Preserve District
INAI = Illinois Natural Areas Inventory
IDOT = Illinois Department of Transportation
INPC = Illinois Nature Preserves Commission
IDNR= Illinois Department of Natural Resources
NAA = Natural Areas Association

AREAS
Area 1 - John Nelson
Area 2 - Steven Byers
Area 3 - Kim Roman
Area 4 - Angella Moorehouse
Area 5 - Thomas Lerczak
Area 6 - Mary Kay Solecki
Area 7 - Debbie Newman
Area 8 - Bob Edgin

INPC OPERATIONS

- Randy Heidorn was appointed Director of the INPC.
- Randy Heidorn, Jenny Skufca and Kelly Neal have been coordinating with Office of Realty and Environmental Planning on review of changes to the Illinois Natural Areas Preservation Act (as it relates to consultation) and the Administrative Rule for Consultation.

OUTREACH/PARTNERSHIP/VOLUNTEER COORDINATION/MEETINGS ATTENDED

INPC staff prepared for and participated in**:**

- Mr. Heidorn is working with NAA and member organizations of the Chicago Wilderness to host the 40th Natural Areas Conference at the Holiday Inn Chicago Mart Plaza in Chicago, October 1-4, 2013.
- Mr. Heidorn, Ms. Neal, and Jenny Skufca attended a meeting with the consultant working on a Midwest Wind Habitat Conservation Plan.

STEWARDSHIP – Planning

Stewardship Program, Springfield

- INPC staff was informed by the landowner of Edgewood Farm LWR that biologists from the Illinois Natural History Survey translocated federally and state-endangered northern riffleshell (*Epioblasma rangiana*) and clubshell (*Pleurobema clavaI*) mussels in the Salt Fork River within the boundaries of the LWR. Animal translocations require review and approval from the INPC, a retro-active request for approval will be given at the May 2013 Commission Meeting.
- Participated in the Volunteer Stewardship Network annual meetings in northeastern, northwestern, central, and southern Illinois.
- Participated in a meeting to discuss hydrologic and management issues at McMahon Woods and Fen NP.
- Kelly Neal and Tom Lerczak met with IDNR District Heritage Biologist Roger Jansen met at Spitler Woods NP to discuss routes of access for bridge replacements at the site.
- Review of management schedules and unscheduled management activities prepared by, or in coordination with, appropriate INPC staff at:

White Rock LWR
Loda Cemetery Prairie NP
Rocky Branch NP
Upper Sangamon River LWR
Martha and Michelle Prairie LWR
Freeman Kame NP
Spring Bluff NP
Merwin Savanna NP
Tallmadge Sand Forest LWR
Short Fork Seep NP
Upper Embarras Woods NP
Munson Township Cemetery Prairie NP
Greenlee Cemetery Prairie NP
Storment Hauss NP
Section 8 Woods NP
Truitt-Hoff NP
Mackinaw River LWR
Lockport Prairie NP
Palatine Prairie NP
Braidwood Dunes and Savanna NP
Churchill Prairie NP
Dixie Fromm Briggs Prairie NP
Middlefork Savanna NP
McAdams Peak LWR
Denby Prairie NP
Dirksen-McNaughton Woods LWR
Independnece Park Woods LWR
Grassy Slough LWR
Paintbrush Prairie NP
Sundrop Prairie NP
Dropseed Prairie NP

DEFENSE

- On November 19, 2012, the INPC provided comments to the Illinois Pollution Control Board related to the Proposed Amendments to Clean Construction or Demolition Debris Fill Operations due to the concern that some of the sites implementing the use of this material as quarry fill are in close proximity to INPC-protected natural areas that depend on maintaining groundwater quality. The INPC supports a groundwater monitoring requirement.
- The INPC provided comments to the IDNR's legislative staff for consideration of inclusion in the development of the statute and administrative rules pertaining to hydraulic fracturing. The INPC comments supported a permitting program with the following stipulations: projects would be reviewed; there would be adjacent landowner contact; and there would be full disclosure of water withdrawal amounts and chemical constituents utilized. Comments included that there should be no hydraulic fracturing within INPC sites or Class III groundwater areas, and there should be a drill site setback of one-half mile (2,640 feet) from an INPC site boundary due to the potential for surface water and groundwater impacts, as well as erosion, sedimentation, and other land disturbance impacts that can occur over acres in the vicinity of the drill pad.

213TH MEETING - ILLINOIS NATURE PRESERVES COMMISSION (INPC)
REVIEW OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES (IDNR) ECOLOGICAL COMPLIANCE AND ASSESSMENT TOOL (ECOCAT) CONSULTATIONS
AND COMPREHENSIVE ENVIRONMENTAL REVIEW PROGRAM (CERP) SUBMITTALS
Reporting period: August 7, 2012 - January 17, 2013

EcoCAT Consultations:

Site	County	Proposed project under review	INPC recommendation or resolution
Jarrett Prairie Nature Preserve (NP)	Ogle	Proposed replacement of two golf course equipment maintenance buildings adjacent to the NP boundary.	Proposed structures will not encroach on the NP boundary. No impact to NP is expected.
Middlefork Savanna NP	Lake	Proposed building and parking lot additions at Chicago Bears training facility.	Recommendations provided regarding stormwater detention and filtration prior to release to adjacent NP. No adverse impacts to the NP are expected.
Barber Fen NP	McHenry	Proposed streambank stabilization and wetland restoration on Nippersink Creek.	Recommendations of best management practices were provided. The project is expected to benefit the NP.
Somme Prairie NP	Cook	Village of Northbrook proposed conversion of recreational park to a dog park adjacent to the NP.	Recommendations submitted to ensure no impact to the NP or to threatened or endangered species. No changes to hydrology, no erosion, no introduction of invasive species, and no staging of equipment on the NP. Interpretive sign to be placed at fence between the NP and the park identifying the NP and the prohibition of dogs.
Romeoville Prairie NP Class III Groundwater Area	Will	Proposed construction of an industrial building, truck docks, detention ponds and all associated paving and utilities.	Determination was made that the proposal is unlikely to adversely modify the Class III Area in quantity or quality of groundwater.

Site	County	Proposed project under review	INPC recommendation or resolution
Theodore Marsh Land and Water Reserve (LWR)	Will	Proposed bridge and culvert replacement downstream and adjacent to LWR.	All work will remain within the Illinois Department of Transportation's right-of-way. Stipulations included no impact to LWR, specifically no changes to hydrology, no sedimentation, no impact to protected species, and no staging of equipment on LWR.
Stony Hills NP / Jamar Haven LWR	Hancock	Proposed upgrade including the raising of IL Route 96 to reduce flooding.	All work will remain within IDOT's right-of-way. Recommendations were provided in case threatened or endangered species are encountered.
Cache River LWR	Pulaski	Proposed creation of parking lot for memorial and kiosk adjacent to LWR boundary.	Proposed project will not adversely impact the LWR. Recommended best management practices were included.

CERP submittals:

Site	County	Proposed project under review	INPC recommendation or resolution
Thomson-Fulton Sand Prairie NP	Whiteside	Proposed trail crossing location within the NP for railroad employees to change shifts.	Site was mapped by legal description and area proposed for the exchange of railroad employees is outside of NP boundary.
Spring Bluff and North Dunes NPs	Lake	Great Lakes Restoration Initiative Grant to modify and enhance stormwater drainage, modify culverts, and reduce impervious surface.	Proposed project would benefit the NPs.

Site	County	Proposed project under review	INPC recommendation or resolution

Red Wing Slough/Deer Lake LWR	Lake	Proposed pipeline maintenance through wetland and within easement.	Field meeting was held to determine limits of construction and areas of concern. Pipeline company has provided assurances in writing to avoid all identified concerns.
Goose Lake Prairie NP	Grundy	Proposed abandonment of railroad corridor directly adjacent to NP boundary.	INPC/IDNR staff provided recommendations for abandonment conditions, including removal of rails and ties, grading of ballast, and appropriate surfacing for vehicular travel for management.
Singing Woods NP	Peoria	Open Space Lands Acquisition and Development (OSLAD) project - proposed nature center development adjacent to the NP.	No adverse impact to NP is expected. Landowner agreed to work closely with local INPC staff during development stage.
Spitler Woods NP	Macon	Proposed replacement of trail bridges and accompanying trail work due to aging infrastructure.	Strict recommendations for access and best management practices have been provided. The proposal is necessary for public safety.
Sparks Pond LWR	Mason	Proposed wetland construction.	Recommendations were provided to ensure sensitivity to the protected site. The proposed project will benefit state-listed species.
Padgett Pin Oak Woods LWR	Wayne	Proposed IDNR timber harvest near LWR utilizing access road south of and adjacent to LWR boundary.	INPC staff field-checked boundary sign placement. No adverse impact to LWR is expected.

THREATS TO SITES REPORT FOR THE 213th MEETING OF THE ILLINOIS NATURE PRESERVES COMMISSION
(Reporting period: August 7, 2012 – January 17, 2013)

Foley Sand Prairie NP, Lee County – John Nelson, Jenny Skufca
Issue: Proposed wind farm construction and operation. Mainstream Power USA proposes to construct a major wind energy generation facility in Lee, Whiteside, and Bureau counties.
Threat: Wind turbines (up to 520 feet high) are proposed for locations which will result in shadow flicker, noise, ground vibration, and obtrusive visibility within the NP. Flicker, noise, and vibration have the potential to alter animal behaviors which could shift the existing balance of flora and fauna within the NP.
Status: Ongoing. Mainstream Power USA has verbally agreed in a public hearing to relocate or remove the three wind turbines of concern to the INPC.

Bluff Spring Fen NP, Cook County – Steven Byers, John Nelson, Jenny Skufca
Issue: The Bluff Spring Fen Protection Plan (approved June 30, 2003) between the INPC and Bluff City Materials, Inc. calls for conveyance of surface water from Gifford Lake to Poplar Creek through proposed stormwater piping.
Threat: Surface water represents a threat to this groundwater-dependent wetland.
Status: Ongoing. A meeting with INPC staff, Illinois State Geological Survey, Forest Preserve District of Cook County (landowner of the NP), Bluff City Materials, and Vulcan Materials was held on September 25, 2012, to discuss the status of: construction permitting and associated expirations; current groundwater monitoring efforts; any outstanding monitoring and modeling issues; the stormwater piping project timeline, cost estimates, and potential constraints. The stormwater piping project is expected to begin in February 2013.

Eastern Prairie Fringed Orchid NP, Lake County – Steven Byers
Issue: The Illinois Department of Transportation (IDOT) intends to widen Route 22. The proposal for dedication of this site provided for this construction.
Threat: Indirect threat posed by sedimentation and subsequent increase in reed canary grass (*Phalaris arundinacea*) threatens the long-term viability of the federally-threatened eastern prairie fringed orchid (*Platanthera leucophaea*). The IDOT biological opinion states that the project is likely to impact the orchid population.
Status: Ongoing. The U.S. Fish and Wildlife Service approved a U.S. Army Corps of Engineers permit for the IDOT to begin construction with the provision that the IDOT acquire the privately-owned NP and adjacent property.

Middlefork Savanna NP, Lake County – Steven Byers, Jenny Skufca
Issue: An adjacent landowner, Knollwood Golf Club, dredged a golf course pond and piped sediment into the NP owned by the Lake County Forest Preserve District (LCFPD).
Threat: Direct and indirect impact to aquatic resources/ephemeral ponds in the NP and at the Knollwood Club.
Status: Ongoing. The Office of the Attorney General is engaged in settlement negotiation with the alleged responsible party based on the Complaint for Injunction and Civil Penalties filed on October 31, 2012, and citing six counts based on violations to the Illinois Natural Areas Preservation Act (INAPA) and one count based on a violation of the Illinois Environmental Protection Act. The INPC continues to coordinate with the LCFPD.

Trout Park Nature Preserve, Kane County – Steven Byers, Jenny Skufca
Issue #1: The Tollway Authority will be widening I-90 (one additional lane each direction) and will be constructing a new bridge over the Fox River.
Threat #1: Direct impacts to woody cover adjacent to the NP. The right-of-way will be much wider than suggested by current boundary fences and will be impacted during bridge construction. Indirect impacts from additional salt and contaminants from widened road.
Status #1: Ongoing. The INPC staff has met with the Tollway Authority regarding the bridge design features and the need to monitor groundwater. Groundwater monitoring wells have been installed by the Illinois State Geological Survey.

Issue #2: Proposed construction of an auto auction facility within the Class III groundwater for Trout Park NP.

Threat #2: Potential for pollutants from facility to adversely impact groundwater quality.
Status #2: New. The INPC submitted a letter on November 30, 2012, to the Village of East Dundee outlining our concerns. The INPC staff is coordinating with the Illinois Environmental Protection Agency (IEPA) regarding design features (liners, etc.) and a groundwater monitoring program to eliminate or reduce the threat to groundwater.

Bliss Woods NP, Kane County – Steven Byers, Jenny Skufca
Issue: An unknown amount of lead shot has been deposited in the NP by years of trap/skeet shooting at nearby former Aurora Sportsman's Club.
Threat: Lead shot poses a threat to humans and the environment.
Status: Ongoing. The INPC staff hosted a phone conference on December 14, 2012, regarding recommendations for remediation with the NP landowner (Forest Preserve District of Kane County), the IEPA, and the Office of the Attorney General. The IEPA submitted Violation Notices to the alleged responsible parties on January 10, 2013, citing a threat to groundwater and open dumping.

North Dunes NP, Lake County – Steven Byers, Randy Heidorn
Issue: The Lake County Public Water District proposes using a portion of the NP for water distribution infrastructure. The NP is owned by the Illinois Department of Natural Resources (IDNR).
Threat: Actions as proposed would constitute a taking of the NP.
Status: Ongoing. The INPC and IDNR staff will participate in a meeting to be held on January 31, 2013, with representatives of the Lake County Public Water District. The INPC staff believes that viable options exist that would not require the taking of dedicated areas.

Tallmadge Sand Forest LWR, Kankakee County – Kim Roman, Jenny Skufca
Issue: Eighty-eight white oak trees were removed from within the LWR.
Threat: Direct impact to the LWR. Unauthorized removal of trees, over 4,000 feet of up to 18-inch ruts were created throughout the interior of the LWR; unauthorized removal of signs.
Status: Ongoing. The Office of the Attorney General is representing INPC as a plaintiff and intervenor (with the LWR landowner, The Nature Conservancy) in a Complaint for Injunction and Civil Penalties filed October 29, 2012, citing four counts based on violations to the INAPA.

Short Fork Seep NP, McDonough County – Angella Moorehouse, Jenny Skufca
Issue: The private landowner discovered that herbicide associated with power line vegetative maintenance had been used within the NP.
Threat: Direct impact to flora in the NP causing damage to the vegetation and soils within the high quality portion of seep/sedge meadow of the NP.
Status: Ongoing. The Office of the Attorney General continues to conduct settlement negotiations with the alleged responsible party based on a Complaint for Injunctive and Other Relief filed December 7, 2011.

Stony Hills NP / Jamar Haven LWR, Hancock County – Angella Moorehouse
Issue: A neighbor has bulldozed approximately 1.5 acres of a corner that was understood to belong to the NP/LWR landowner and was considered dedicated/registered.
Threat: Direct impact to flora potentially within dedicated NP, which was formerly LWR.
Status: New. Due to inaccuracies in the legal description, the INPC staff has been unable to determine legal ownership of the corner. The investigation is ongoing.

Carpenter Park NP, Sangamon County – Thomas Lerczak
Issue: Spray-painted grafitti on the sandstone bluffs along the Sangamon River within the NP.
Threat: Unauthorized intrusion to the NP.
Status: New. The INPC staff photo-documented the intrusion on January 16, 2013, and reported the incident to the landowner, Springfield Park District. Park District law enforcement will investigate.

Crevecoeur NP, Tazewell County – Thomas Lerczak
Issue: At least three adjacent landowners are potentially encroaching on the NP boundary.

Threat: Unauthorized use of the NP.
Status: Ongoing. The INPC staff has submitted an IDNR Contract Request for a land surveying company to conduct a boundary survey of the NP's southern boundaries this winter and place special markers at areas with encroachments.

Gillespie Prairie LWR, Macoupin and Montgomery counties – Thomas Lerczak, Jenny Skufca
Issue: Ditch clearing has occurred on 0.9 acres of the IDNR-owned LWR, a portion of which lies on property leased to Aladdin Steel.
Threat: Unauthorized vegetation removal within the LWR.
Status: New. The IDNR staff has been in contact with Aladdin Steel. The INPC staff is coordinating a written response to Aladdin Steel with the IDNR District Heritage Biologist and IDNR Leases and Concessions staff.

Funks Grove LWR, McLean County and Sandra Miller Bellrose NP, Logan County – Thomas Lerczak, Jenny Skufca
Issue: The City of Bloomington is proposing to install wells into the shallow, alluvial groundwater connected to Sugar Creek.
Threat: A potential withdrawal of five million gallons per day threatens the ecological health of Sugar Creek through possible effects to base flow and groundwater recharge, which could impact the LWR and the NP downstream.
Status: New. The INPC submitted correspondence to the City of Bloomington on November 20, 2012, requesting further study and modeling of the potential impacts to Sugar Creek base flow and groundwater recharge. The INPC has also requested that the City engage in formal consultation with the IDNR related to the proposed project.

Kinney's Ford Seep LWR, Vermilion County – Mary Kay Solecki, Kelly Neal, Jenny Skufca
Issue: Under a 2008 agreement with the IDNR (landowner of the LWR), a local township road commissioner was permitted to stockpile soil in a designated location within Middle Fork State Fish and Wildlife Area for retrieval at a later date.
Threat: The designated location was inadvertently within the LWR. Placement of the soil within the site was an unauthorized use. The lack of erosion control has the potential to impact the habitat of a state-threatened species.
Status: Ongoing. The IDNR has agreed to move the soil pile outside of the LWR. The plan for removal will be resubmitted through the IDNR Comprehensive Environmental Review Program (CERP) and the INPC will have another opportunity to review the proposal at that time.

Jasmine Hollow LWR, Piatt County – Mary Kay Solecki, Jenny Skufca
Issue: A grassy air strip on property in close proximity to the LWR is positioned such that crop dusting planes take off and land at a low altitude over the LWR.
Threat: Potential unknown indirect impact to populations due to noise. Potential to affect breeding and nesting activity of avian species.
Status: New. The INPC submitted correspondence to the Piatt County Zoning Officer on January 15, 2013. A public hearing was held on January 17, 2013, with the County Board voting unanimously in favor of the special use permit for the air strip.

John M. Olin NP, Madison County – Debbie Newman, Jenny Skufca
Issue: Neighboring landowner has cleared approximately three acres of timber along Hop Hollow Creek, which forms a portion of the NP boundary.
Threat: Changes to the surface hydrology of the NP may occur when precipitation returns due to large piles of timber placed along the Creek and across the Creek. Within a short distance of the clearing, the Creek outfalls to the Mississippi River.
Status: Ongoing. The INPC is in receipt of correspondence from the attorney of the neighboring landowner claiming that their survey reveals a different boundary; and as a result, they believe there has not been an encroachment on the NP. The INPC is investigating further. The IDNR's Office of Legal Council has been alerted of the potential encroachment.

Stemler Cave Woods NP, St. Clair County – Debbie Newman
Issue: Graffiti was spray-painted on the specialized INPC entrance sign. A deer stand may be located within the NP boundary.

Threat: Damage to property. Potential unauthorized hunting within the NP.
Status: New. The INPC staff is working with the IDNR Superintendent to replace the entrance sign. Investigation is ongoing related to deer stand.

Prairie Ridge LWR, Marion County – Bob Edgin
Issue: An herbicide encroachment on 15-20 acres of the Bainbridge Tract of the LWR.
Threat: Direct impact to vegetation.
Status: Ongoing. The matter remains under investigation.

Resolution 157 - 7

Illinois Endangered Species Protection Board

February 8, 2013

Whereas **Mr. John Rogner** began serving on the Illinois Endangered Species Protection Board in 2009 as the designee of the Director of the Illinois Department of Natural Resources and served as a dedicated, loyal, and highly valued Board member until 2013 - some 3 and one half years; and,

Whereas he was highly instrumental in the FY2011 restoration of the Board's budget line after 10 years of absence from the Department's annual operating budget and for reestablishing the Board's staff positions; and,

Whereas he served as the Department liaison to the Board, providing leadership in addressing endangered and threatened species conservation, protection, and regulatory issues across multiple programs and offices in the Department; and,

Whereas he has demonstrated himself over several decades to be a champion of endangered and threatened species conservation in previous service with the US Fish and Wildlife Service and as Assistant Director of the Department, and is expected to continue his dedication to our rarest resources;

Now therefore, The Illinois Endangered Species Protection Board resolves to commend John Rogner and thank him for exemplary service on and assistance to the Board on behalf of the people of Illinois. The Board further directs that a copy of this resolution be transmitted to Mr. Rogner upon its passage.

Passed and approved by the Illinois Endangered Species Protection Board this Eighth day of February, Two Thousand and Thirteen.

Chairman
Illinois Endangered Species Protection Board

Attachment E

2014 Illinois List Review: A Review of the Process, Outstanding Species Issues, and Board Preliminary Approvals to Date

Illinois Endangered Species Protection Board

Required 5-year review and revision of the Illinois List of Endangered and Threatened Species, ending in 2014

ILLINOIS ENDANGERED SPECIES PROTECTION BOARD
One Natural Resources Way, Springfield, Illinois 62702 - 1271, (217) 785-8687; FAX (217) 785-2438

ESPB 2014 Illinois List review and revision

E&T fish and mussel lists review

ESPB 157th meeting 02/08/13
Midewin National Tallgrass Prairie
Wilmington, IL

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ESPB 2014 Illinois List review and revision

- Illinois Endangered Species Protection Act – 1972

- First Illinois List of Endangered and Threatened Species – 1981

- There have 6 revisions of the Illinois List (1984, 1989, 1994, 1999, 2004, 2009), the 2014 revision is the 7th

- 132 technical experts have assisted the ESPB with revisions to date – 2014 revision will bring that total to 146

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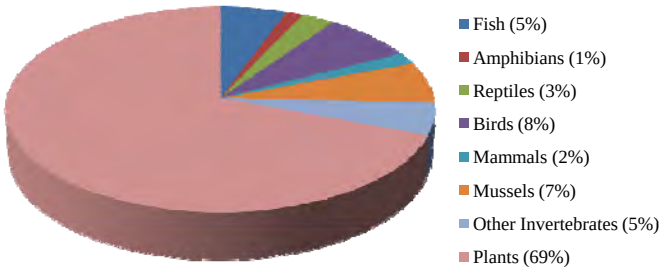
ESPB 2014 Illinois List review and revision

The ESPB has listed a total 644 species since the first Illinois List.



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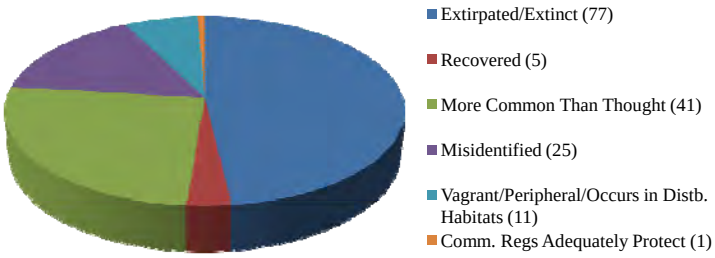
ESPB 2014 Illinois List review and revision

The ESPB has delisted a total of 160 species since the first revision of the Illinois List.



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ESPB 2014 Illinois List review and revision

The current (2011) Illinois List includes 484 species.

	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**

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The ESPA (520 ILCS 10/2) definitions “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.

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The ESPA (520 ILCS 10/7) also stipulates :

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.

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ESPB 2014 Illinois List review and revision

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

- Species included in the Federal list of Endangered or Threatened species.
- Species proposed for Federal Endangered or Threatened status, which occur in Illinois.
- 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.
- Species which exhibit very restricted geographic ranges of which Illinois is a part.
- Species which exhibit restricted habitats or low populations in Illinois.
- Species which are significant disjuncts in Illinois, i.e., the Illinois population is far removed from the rest of the species' range.

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ESPB 2014 Illinois List review and revision

ESPB criteria for delisting species from the Illinois List

- A peripheral species that presently occurs only in disturbed/non-native habitats in Illinois.
- A species now considered to be only a vagrant breeding species in Illinois.
- All native populations are now considered to be extirpated in Illinois.
- Illinois records for this species are now believed to be based on mis-identified specimens.
- Now known to be more common in Illinois than previously thought.
- Commercial fishing regulations determined by the Illinois Department of Natural Resources provide adequate protection for this species in Illinois.
- The species is now considered extinct.
- A species now considered to be recovered from endangerment or the threat of endangerment in Illinois.

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ESPB 2014 Illinois List review and revision

The Illinois List review and revision process:
(in compliance with the ESPA (520 ILCS 10/1) and the Illinois Administrative Procedures Act (5 ILCS 100/1))

1. The Board and its staff review and evaluate available data collected since the original and current List were generated. The Board is required to base listing decision on scientific evidence. When conducting the 5-year review and revision, the Board consults with its technical expert consultants (ESPB TECs).
2. Board staff compile and present recommendations for changes to the List (additions, deletions, or change in status from one category to another) at one or more Board 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.
4. After considering public comments received, the Board makes final approval of changes at a subsequent meeting and submits the List to the IDNR.

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ESPB 2014 Illinois List review and revision

The Illinois List review and revision process (continued):
(in compliance with the ESPA (520 ILCS 10/1) and the Illinois Administrative Procedures Act (5 ILCS 100/1))

5. IDNR conducts an internal review of the List and submits Administrative Rule changes 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 submits the final Administrative Rule changes to the List to the Secretary of State for publication in the Illinois Register and the List becomes official.

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ESPB 2014 Illinois List review and revision

What are we considering in our review:

- The IDNR Natural Heritage (Biotics 4) Database is used as a primary source of information. In this review, we are using mostly "last observed" data that only illustrates the most recent observation of each element occurrence for a species.
- 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).
- For currently listed species, we aren't starting from scratch, but are reviewing whether there has been a change in status and distribution that warrants a change in listing status.

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ESPB 2014 Illinois List review and revision

Our process to date and planned:

January 2012

ESPB staff made request to IDNR ORC to submit to the Database any outstanding Element Occurrence (EO) status and distribution information and to submit to ESPB staff recommendations supported by evidence for status changes for currently listed species and for addition of new species.

ESPB staff made request to over 50 research and resource management institutions to submit to the Database any EO status and distribution information.

February/March 2012

The Board and staff vetted 42 ESPB TECs to advise the Board in the List review and ESPB staff made request to the ESPB TECs to submit to the Database any EO status and distribution information and to submit to ESPB staff recommendations supported by evidence for status changes for currently listed species and addition of new species.

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ESPB 2014 Illinois List review and revision

Our process to date and planned, continued:

April 2012

ESPB staff began reviewing by taxonomic group, currently listed species against Database information, ESPB TEC and IDNR recommendations and evidence, and preparing 1st cut lists of recommended changes to the list of endangered and threatened species.

May 16, 2012 Board meeting

The Board reviewed the bird list and made preliminary approval of proposed changes.

August 10, 2012 Board meeting

The Board reviewed the mammal list and made preliminary approval of proposed changes.

November 9, 2012 Board meeting

The Board reviewed the amphibian and reptile lists.

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ESPB 2014 Illinois List review and revision

Our process to date and planned, continued:

February 8, 2013 Board meeting

Planned - Fish and mussel lists review.

May 17, 2013 Board meeting

Planned - Other invertebrates and part of the plant lists review.

August 16, 2013 Board meeting

Planned – Remainder of plant list review.

November 15, 2013 Board meeting

Planned - The Board will review outstanding taxonomic group list issues and confirm preliminary approval of proposed changes to the IL List of Endangered and Threatened Species (List).

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ESPB 2014 Illinois List review and revision

Our process to date and planned, continued:

December 2013/January 2014

Planned - the Board holds a public hearing for proposed changes to the List.

January/February 2014

Planned – the Board and staff review and consider comments and evidence received during the two-week public hearing record period.

Beginning February 2014

Planned – at a Board meeting open to the public, the Board reviews its determinations regarding public hearing evidence and either makes final approval to proposed List changes or revises proposed changes and schedules another public hearing for the new changes.

– if another public hearing is held, the Board repeats the cycle for considering evidence and reviewing determinations until it approves as final its proposed changes to the List.

– once proposed changes to the List have been approved as final by the Board, staff will work with IDNR to propose amendments to respective Administrative Rules. The Administrative Rule amendment process may take 6-9 months.

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ESPB 2014 Illinois List review and revision

Outstanding List review items that will be revisited before the Board confirms preliminary approval of respective proposed changes, to date:

Birds:

Peregrine falcon – proposed for delisting - review 2011, 2012, and (if available) 2013 data.

Chuck-will's-widow – proposed for addition as T- confirm EOs are in the Database.

Mammals:

Woodrat – no Board action, IDNR recommends E to T – data from reports was not in/confirmed by Database; proposal for status change needs to be submitted to ESPB.

Golden Mouse – no Board action, IDNR recommends delisting - data from reports was not in/confirmed by Database; proposal for status change needs to be submitted to ESPB.

Rice Rat – no Board action, IDNR recommends delisting with data available by 2014 - data from reports was not in/confirmed by Database; proposal for status change needs to be submitted to ESPB.

Eastern Small-footed Bat – proposed for addition as T – contract another year of surveys; confirm EOs are in the Database.

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ESPB 2014 Illinois List review and revision

- Now we'll look at one currently listed species account as review of the information that has been considered.
- Then review currently listed species proposed for status change and any questions about those not proposed for status change.
- Then review species proposed for addition.

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ESPB 2014 Illinois List review and revision

Reminders:

- Because of the Board's designated process for selecting and utilizing expert consultants and requirements of the Open Meetings Act, any "meeting" of such experts needs to be conducted in a meeting open to the public.
- The current meeting satisfies that requirement, but please note that this is a business meeting of the Board that is open to the public and not a "public hearing".
- Only those individuals identified as presenters on the agenda will be recognized to participate in discussion. In the interest of time and to facilitate development of meeting minutes and the administrative record for the List review process, please keep discussion brief and focused.
- If members of the audience wish to address the Board on this agenda item, they may do so during the public comment period at the end of the meeting, by requesting to present their own agenda item at a subsequent Board meeting, or during the required public hearing that is part of the List review process and will be held at a time after the Board has confirmed preliminary approval for any changes to the List (currently anticipated for early 2014).

ILLINOIS ENDANGERED SPECIES PROTECTION BOARD
One Natural Resources Way, Springfield, Illinois 62702 - 1271, (217) 785-8687; FAX (217) 785-2438

ESPB 2014 Illinois List review and revision

So, before we move along…..

Any questions?

ILLINOIS ENDANGERED SPECIES PROTECTION BOARD
One Natural Resources Way, Springfield, Illinois 62702 - 1271, (217) 785-8687; FAX (217) 785-2438

Attachment F

Re: Agenda Items 157-11: Copy of the 2014 Illinois List Review: Staff recommendation for changes to the list of Illinois endangered and threatened fish

ILLINOIS ENDANGERED SPECIES PROTECTION BOARD

One Natural Resources Way, Springfield, Illinois 62702 - 1271, (217) 785-8687; FAX (217) 785-2438

Illinois Endangered Species Protection Board (ESPB) required 5-year review of the Illinois List of Endangered and Threatened Species (Illinois List) ending in 2014:

ESPB staff 1st cut final recommendations for Fish

Prepared by Anne Mankowski

1st cut draft dated 12/12/2012, updated as 1st cut final 01/25/2013

This is the 1st cut final recommendations that will be presented to the Board at the 02/08/2013 meeting.

Contents:

(This is a compilation of otherwise stand-alone documents; I didn't spend a lot of time crafting, so it isn't pretty)

(1) = List of pre-1st cut draft recommendations and evidence received from ESPB TECs and IDNR by 11/30/12 deadline for species listing status change or additions to the Illinois List and Mankowski response/notes; and, (2 through 6) = List of post-1st cut draft recommendations and evidence received from ESPB TECs and IDNR by 12/31/12 deadline for species listing status change or additions to the Illinois List and Mankowski response/notes.

1**.** ESPB TEC Dr. Leon Hinz submitted listing recommendation forms and supporting evidence/documentation for the three species listed below. Copies of the recommendation forms are included in the individual species reviews (see listing on page 10).

a. Recommendation for listing as Illinois threatened, Anguilla rostrata, American Eel.

Mankowski note on recommendation – agree with recommendation.

b. Recommendation for listing as Illinois threatened, Hybognathus hankinsoni, Brassy Minnow.

Mankowski note on recommendation – agree with recommendation.

c. Recommendation for listing as Illinois threatened, Lethenteron appendix, American Brook Lamprey.

Mankowski note on recommendation – agree with recommendation.

2. ESPB TEC Dr. Leon Hinz submitted on 12/21/12 comments and notes regarding possible additional historic and/or recent element occurrences for several species. Dr. Hinz did not recommend any status changes contrary to Mankowski recommendations.

Mankowski thanked Dr. Hinz for his comments and provided response to each comment – example follows: Mankowski response 01/13/13 – Comment lacks adequate evidence/information to establish an element occurrence (EO) in the IDNR Natural Heritage Database. Record information is noted and referred to the IDNR Natural Heritage Database for their consideration/investigation. Database staff, using NatureServe guidelines, are only able to enter species records as element occurrences (EOs) when the geographic information is adequately specific. Most older, museum and other collection record lack that resolution and cannot be entered as an EO. The county-level dot maps produced by ESPB in the Status and Distribution publications note museum and other collection records that were known at the time of publication. Based on your email accompanying this document, ESPB staff understands that this information does not cause you to make a listing status recommendation contrary to the ESPB staff recommendation provided in the 1st cut draft fish list review.

3. ESPB TEC Philip Willink submitted on 12/21/12 comment and data for additional element occurrences of American Eel (Anguilla rostrata). Mr. Willink did not recommend any status changes contrary to Mankowski recommendations.

Mankowski 12/21/12 response: Ms. Mankowski thanked Mr. Willink for the input and data and forwarded the data to the IDNR Natural Heritage Database for their consideration/investigation.

4. ESPB TEC Trent Thomas submitted comments and notes on 12/28/12 for each species. His comments included reference to possible additional recent element occurrences for several species. Mr. Thomas recommended status changes contrary to Mankowski recommendations for two species, Redspotted Sunfish (Lepomis miniatus) and Weed Shiner (Notropis texanus).

a. Mr. Thomas provided comment and notes regarding possible additional element occurrences, but did not recommend status change contrary to Mankowski recommendations for 29 of 31 species.

Ms. Mankowski thanked Mr. Thomas for his comments and provided response to each comment – example of response for all species where Mr. Thomas made reference to possible additional element occurrences, but did not recommend status change contrary to Mankowski recommendations follows:
Mankowski response 01/13/13 – Comment lacks adequate evidence/information to cross-check information in the ESPB staff 1st cut draft fish list review or establish an element occurrence (EO) in the IDNR Natural Heritage Database. Record information is noted and referred to the IDNR Natural Heritage Database for their consideration/investigation. As I believe you understand, the data needs to be in the Database for consideration by the ESPB in the List review. Please submit to the IDNR Natural Heritage Database any occurrence evidence that you have for the species.

b. Mr. Thomas provided comment and evidence for possible additional element occurrences for Redspotted Sunfish (Lepomis miniatus) with recommendation for a change in status from endangered to threatened (see also species review, beginning page 59).

ESPB TEC Trent Thomas comments received 12/28/12:
A great amount of effort has been put into the redspotted sunfish in recent years. Initial efforts included a statewide survey of historic occurrence records for this species. Although some newly discovered locations were discovered in this effort, it was determined that only two relatively stable remnant populations existed in the state.

In southeast Illinois, a population was found in a tributary of the Saline River basin. This population has not been revisited for several years now to confirm its status. As that area has had bouts with both extreme flood events and extended drought conditions, a visit is warranted and recommended.

In the region of the Middle Illinois River basin, a sizeable population was also discovered. This natural remnant population has met with a significant decline in the number of individuals since 2009, when persistent high water conditions brought schools of grass carp and possibly an influx of agricultural herbicides into the reach known to support redspotted sunfish. As a result, a precipitously. Furthermore, the drought of 2012 caused the supporting stream to drop to nearly dry conditions. It is yet to be seen if this was an extirpation event for the redspotted sunfish at that location.

Prior to 2009, this population supported successful efforts of captive propagation and translocation. Two refuge populations were established that have proven highly productive to date. The 72-acre refuge population at Emiquon Nature Preserve was established with more than 8,000 pond-reared redspotted sunfish. This refuge population has already supported the translocation of over 15,000 redspotted sunfish to water bodies at Emiquon Nature Preserve, Dixon Waterfowl Refuge, Banner Marsh State Fish and Wildlife Area, Spring Lake State Fish and Wildlife Area, and Snakeden Hollow State Fish and Wildlife Area. There is likely more redspotted sunfish in Illinois now than at any recorded point in history. Furthermore, genetic analyses have confirmed that the propagation efforts have succeeded in capturing the genetic diversity (albeit, relatively low when compared to larger populations in Missouri) of the source population.

Although the known natural remnant populations of redspotted sunfish continue to be highly vulnerable to perturbations, I feel the species is no longer in immediate danger of becoming extirpated. The establishment of two "genetically correct" refuge populations has insured this. Reintroduced populations into suitable water bodies in the region are also showing promising signs of continued success with this species.

I recommend upgrading redspotted sunfish from endangered to threatened at this time.

Mankowski response 01/13/13:
Comment was submitted with accompanying report that will be forwarded to the IDNR Natural Heritage Database for their consideration/investigation. As I believe you understand, the data needs to be in the Database for consideration by the ESPB in the List review. I will include your comment and my response in the final draft ESPB staff fish list review document submitted to the Board for consideration at the February Board meeting.

While the comments and submitted report speak to multiple (5) newly stocked occurrences, evidence documenting those occurrences was not in the Database as of November 2012 for consideration in this draft of the ESPB fish list review. Any stocked locations will need to have subsequent observations documented to the Database over a few years to demonstrate survivorship and success. As of November 2012, the Database only had one EO (in Fulton County) identified as a stocked location and it is noted as having subsequent observation after one year. The report submitted speaks to subsequent observations at two locations after one year. Consistent with ESPB procedure in the List review, the evidence submitted needs to verified by the Database. However, it appears that the evidence submitted only proposes one possible additional EO with subsequent observation after only one year. While the ongoing stocking work may result in data that warrants a recommendation for a change in status during the next 5-year review, at this time, I maintain my recommendation for no change in status.

c. Mr. Thomas provided comment and request for additional geographic reference for Database records in Ms. Mankowski's 1st cut draft review for Weed Shiner (Notropis texanus), questioning Mankowski recommendation for a change in status from endangered to threatened (see also species review, beginning page 96).

ESPB TEC Trent Thomas comments received 12/28/12:
I consider this species similar in occurrence to the ironcolor shiner in the Iroquois River basin, but they are absent from the Sand Prairie streams of Mason County. I am not familiar with their distribution and abundance in the Green River basin. If the Green River basin population is weak, I would recommend maintaining the designation of endangered for this species. If the Green River population is more secure than their status in the Iroquois River basin, I am comfortable with the change in status from endangered to threatened.

Mankowski response 01/13/13:
Comment lacks adequate evidence/information to cross-check information in the ESPB staff 1st cut draft fish list review or establish an element occurrence (EO) in the IDNR Natural Heritage Database. Record information is noted and referred to the IDNR Natural Heritage Database for their consideration/investigation. As I believe you understand, the data needs to be in the Database for consideration by the ESPB in the List review. Despite the lack of evidence, I will include your comment and my response in the final draft ESPB staff fish list review document submitted to the Board for consideration at the February Board meeting. Occurrences from 2002-2011 include the Green River basin. I maintain my recommendation for a change in status from endangered to threatened and as additional reference material will add to the species review Database element occurrence (EO) dot maps for 5-year intervals from 1992-2011, for the 10-year window of 2002-2011 and for all EOs.

5. ESPB TEC Frank Veraldi submitted on 01/03/13 a 2012 report (and offered the raw data) that may result in possible additional element occurrences in northern Illinois for several species. Mr. Veraldi did not indicate whether his evidence caused him to make status recommendations alternate to Ms. Mankowski's.

Mankowski response 01/03/13: Ms. Mankowski thanked Mr. Veraldi for the report and forwarded it to the IDNR Natural Heritage Database for their consideration/investigation and for them to follow-up with Mr. Veraldi about which format he should use in submitting the raw data. She asked Mr. Veraldi whether he had status recommendations alternate to those that she made in the 1st cut draft fish list review document.

Mr. Veraldi provided follow-up on 01/16/13: Mr. Veraldi suggested that all Illinois species of lampreys seem imperiled and asked why all were not listed - whether data from other parts of the state indicate say differently. He also indicated that he and colleagues have been finding Banded Killifish (Fundulus diaphanus) "everywhere up here lately" and wondered if threatened listing status was still warranted?

Mankowski response 01/03/13: Ms. Mankowski reviewed that the Board is required by law to base its listing decision on scientific evidence and then explained that such evidence has not been brought forth for other species of lampreys. The Northern Brook Lamprey and Least Brook Lamprey are already on the List. Dr. Leon Hinz nominated three species for addition to the IL List (included in ESPB staff 1st cut fish list review draft document) and one was the American brook lamprey. Dr. Hinz's E&T listing nominations came from work he and colleagues did on an IDNR State Wildlife Grant project that reviewed about 220 fish species, exclusive of species already on the IL List of E&T, for consideration to be listed as species in greatest need of conservation in the IL Wildlife Action Plan. She indicated that it was her understanding that they reviewed all native lampreys and did not feel nominating any additional species for listing as IL endangered or threatened was warranted.

For the Banded Killifish, Ms. Mankowski explained that our data does show some increases in the number of occurrences for the species over recent years, and we recognize that all occurrences likely haven't been reported to the Database, but again we can't consider occurrence information that isn't in the Database. She noted that the report and data that Mr. Veraldi submitted may add some occurrences. The species does not have a large distribution and is currently only known from 22 total occurrences, so Ms. Mankowski believes if we see an increase in the number of occurrences that have repeated observations over several years, she could feel comfortable making a recommendation for delisting, but does not think we are there yet. She asked Mr. Veraldi to please reply accordingly if he felt he had data to demonstrate otherwise and would like to make such recommendation.

Mr. Veraldi provided follow-up on 01/17/13: He indicated that Ms. Mankowski's explanation clarified things well for him and that he had no recommendations contrary to her 1st cut fish list review recommendations.

6. ESPB TEC Jeremy Tiemann submitted on 01/11/13 a 2005 publication with survey information for the Crystal Darter (Crystallaria asprella – under review by USFWS) that may result in possible additional element occurrences in northern Illinois for several species. Mr. Tiemann indicated he did not have any comments or recommendations relative to the publication and was sending it as an fyi.

Mankowski response 01/16/13: Ms. Mankowski thanked Mr. Tiemann for the report and forwarded it to the IDNR Natural Heritage Database for their consideration/investigation as may be appropriate.

ESPB staff listing status recommendations

Endangered to threatened:	Notropis texanus	Weed Shiner
Threatened to endangered:	None	
Remove from endangered:	None	
Remove from threatened:	None	
Add as endangered:	None	
Add as threatened:	Anguilla rostrata	American Eel
	Hybognathus hankinsoni	Brassy Minnow
	Lethenteron appendix	American Brook Lamprey

No listing status change recommended: (data do not warrant change)

Acipenser fulvescens	Lake Sturgeon
Ammocrypta clarum	Western Sand Darter
Ammocrypta pellucidum	Eastern Sand Darter
Catostomus catostomus	Longnose Sucker
Coregonus artedi	Cisco
Erimystax x-punctatus	Gravel Chub
Etheostoma camurum	Bluebreast Darter
Etheostoma exile	Iowa Darter
Etheostoma histrio	Harlequin Darter
Fundulus diaphanus	Banded Killifish
Fundulus dispar	Starhead Topminnow
Hybognathus hayi	Cypress Minnow
Hybopsis amblops	Bigeye Chub
Hybopsis amnis	Pallid Shiner
Ichthyomyzon fossor	Northern Brook Lamprey
Lampetra aepyptera	Least Brook Lamprey
Lepomis miniatus	Redspotted Sunfish
Lepomis symmetricus	Bantam Sunfish
Macrhybopsis gelida	Sturgeon Chub
Moxostoma carinatum	River Redhorse
Moxostoma valenciennesi	Greater Redhorse
Nocomis micropogon	River Chub
Notropis anogenus	Pugnose Shiner
Notropis boops	Bigeye Shiner
Notropis chalybaeus	Ironcolor Shiner
Notropis heterodon	Blackchin Shiner
Notropis heterolepis	Blacknose Shiner
Notropis maculatus	Taillight Shiner
Noturus stigmosus	Northern Madtom
Scaphirhynchus albus	Pallid Sturgeon

Species under Federal review – implications to the Illinois List:

Anguilla rostrata. American Eel. USFWS action – 90-day finding on a petition to list was published 09/29/2011 and with that publication, the USFWS began a 12-month finding status review, with a comment closing date of 11/28/2011. The 12-month finding (warranted or not warranted for listing) was expected by end of FFY2012 (Sep 2012). There has been no 12-month finding notice published to date. If USFWS lists the species and includes Illinois in its range, it will automatically be added to the IL List. Not listed in Illinois. Records from INHS indicate IL River occurrences in 1899, 1931, 1960, 1970; Jordan Creek in 1976; Kaskaskia River 1960; Mississippi River 1966, 1971; Rock River 1960, 1998; Sangamon River 1961; Wabash River 1967,

1970. Under consideration for Illinois listing during this current IL List review (Dr. Leon Hinz submitted a nomination, which is included in this packet).

Pteronotropis hubbsi. Bluehead Shiner. USFWS action - 12-month finding (warranted or not warranted for listing); part of 404 SE aquatic species - 12-month finding work after MDL work plan (probably after FFY2016). If USFWS lists the species and includes Illinois in its range, it will automatically be added to the IL List. Formerly Illinois endangered; delisted in 2004 as extirpated.

Crystallaria asprella. Crystal Darter. USFWS action - 12-month finding (warranted or not warranted for listing); part of 404 SE aquatic species - 12-month finding work after MDL work plan (probably after FFY2016). If USFWS lists the species and includes Illinois in its range, it will automatically be added to the IL List. Not listed in Illinois. INHS database shows an 1877 Mississippi River record in Hancock Co, a 1901 MR record in Whiteside Co, and a 2009 MR record in Rock Island Co.

Alosa alabamae. Alabama Shad. USFWS action - 12-month finding (warranted or not warranted for listing); part of 404 SE aquatic species - 12-month finding work after MDL work plan (probably after FFY2016). If USFWS lists the species and includes Illinois in its range, it will automatically be added to the IL List. Not listed in Illinois. INHS database shows a 1962 Mississippi River record in Monroe Co.

Table1. Currently listed species – last observed, total occurrences, total seen since Jan 2002, # of protected occurrences, # of topographic quads with occurrences (Illinois Natural Heritage Biotics 4 Database, October 2012).

SCIENTIFIC_NAME	S_PRIMARY_COMMON_NAME	Current Status	Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
Acipenser fulvescens	Lake Sturgeon	E	2010-04-22	17	8	1	25	17	11
Ammocrypta clarum	Western Sand Darter	E	2010-08-10	35	8	1	30	14	6
Ammocrypta pellucidum	Eastern Sand Darter	T	2012-08-27	35	26	0	23	12	8
Catostomus catostomus	Longnose Sucker	T	2005-07-07	10	4	0	9	7	4
Coregonus artedi	Cisco	T	1988-10-20	3	0	0	3	2	0
Erimystax x-punctatus	Gravel Chub	T	2012-06-06	33	13	0	30	13	9
Etheostoma camurum	Bluebreast Darter	E	2012-08-13	16	14	1	7	2	2
Etheostoma exile	Iowa Darter	T	2012-06-07	63	33	7	31	13	7
Etheostoma histrio	Harlequin Darter	E	2011-06-22	19	10	0	11	7	3
Fundulus diaphanus	Banded Killifish	T	2012-09-10	22	15	6	15	6	5
Fundulus dispar	Starhead Topminnow	T	2012-09-10	53	33	4	39	22	13
Hybognathus hayi	Cypress Minnow	E	2004-09-16	6	1	1	5	6	1
Hybopsis amblops	Bigeye Chub	E	2012-08-13	22	14	1	18	8	5
Hybopsis amnis	Pallid Shiner	E	2010-06-28	16	7	2	12	8	4
Ichthyomyzon fossor	Northern Brook Lamprey	E	1998-04-12	4	0	0	4	2	1
Lampetra aepyptera	Least Brook Lamprey	T	2010-10-08	13	12	0	9	4	4
Lepomis miniatus	Redspotted Sunfish	E	2010-10-20	27	11	1	23	13	7
Lepomis symmetricus	Bantam Sunfish	T	2009-07-08	12	2	0	8	5	3
Macrhybopsis gelida	Sturgeon Chub	E	2003-03-22	1	1	0	2	1	1
Moxostoma carinatum	River Redhorse	T	2011-09-26	44	25	1	36	16	14
Moxostoma valenciennesi	Greater Redhorse	E	2011-06-06	23	14	0	16	6	6
Nocomis micropogon	River Chub	E	2007-10-16	8	2	0	8	8	4
Notropis anogenus	Pugnose Shiner	E	2011-08-10	17	5	1	14	11	4
Notropis boops	Bigeye Shiner	E	2009-07-30	48	12	2	35	20	6
Notropis chalybaeus	Ironcolor Shiner	T	2012-08-15	31	18	0	19	6	3
Notropis heterodon	Blackchin Shiner	T	2012-09-10	23	15	4	11	4	3
Notropis heterolepis	Blacknose Shiner	E	2012-09-10	31	13	2	25	12	7
Notropis maculatus	Taillight Shiner	E	1988-07-19	1	0	0	1	1	0
Notropis texanus	Weed Shiner	E	2010-08-03	35	24	1	30	12	9
Noturus stigmosus	Northern Madtom	E	2009-07	4	2	1	7	4	2
Scaphirhynchus albus	Pallid Sturgeon	IL E, Fed E	2000-01-27	2	0	0	2	2	1

Table 2. Currently listed species -element occurrences and counties with occurrences for respective 5-year intervals ending in 2011 (some 2012 also) (Illinois Natural Heritage Biotics 4 Database, October 2012).

SCIENTIFIC_NAME	COMMON_NAME	obs 1982-1986	obs 1987-1991	obs 1992-1996	obs 1997-2001	obs 2002-2006	obs 2007-2011	obs 2012	# Cos with records from 1982-1986	# Cos with records from 1987-1991	# Cos with records from 1992-1996	# Cos with records from 1997-2001	# Cos with records from 2002-2006	# Cos with records from 2007-2011	# Cos with records from 2012
Acipenser fulvescens	Lake Sturgeon	0	5	6	5	3	5	0	0	4	7	6	3	6	0
Ammocrypta clarum	Western Sand Darter	1	10	9	12	7	6	0	1	7	6	7	5	3	0
Ammocrypta pellucidum	Eastern Sand Darter	0	2	3	10	7	19	2	0	1	2	5	5	7	2
Catostomus catostomus	Longnose Sucker	0	3	2	1	4	1	0	0	2	2	1	4	1	0
Coregonus artedi	Cisco	0	2	0	0	0	0	0	0	1	0	0	0	0	0
Erimystax x-punctatus	Gravel Chub	5	3	4	11	8	5	1	3	2	3	8	5	3	1
Etheostoma camurum	Bluebreast Darter	2	3	2	5	5	13	1	1	1	1	1	1	1	1
Etheostoma exile	Iowa Darter	6	11	17	23 (1)	27	10	3	3	6	4	5	5	3	2
Etheostoma histrio	Harlequin Darter	1	0	3	3	1	10	0	1	1	2	3	1	2	0
Fundulus diaphanus	Banded Killifish	4	5	3	8	8	11 (2)	3	1	2	2	2	2	5 (1)	2
Fundulus dispar	Starhead Topminnow	3	3	2	8	19	16 (7)	2	1	4	2	5	6	9 (4)	1
Hybognathus hayi	Cypress Minnow	1	1	2	0	1	0	0	1	2	3	0	1	0	0
Hybopsis amblops	Bigeye Chub	0	0	1	6	12	2	1	0	0	1	2	4	1	1
Hybopsis amnis	Pallid Shiner	2	4	1	1	7	1	0	2	2	1	1	5	1	0
Ichthyomyzon fossor	Northern Brook Lamprey	0	1	0	1	2	0	0	0	1	0	1	1	0	0
Lampetra aepyptera	Least Brook Lamprey	2	2	2	7	11	4	0	1	3	2	4	3	2	0
Lepomis miniatus	Redspotted Sunfish	2	9	4	1	10	3	0	1	4	4	1	6	2	0
Lepomis symmetricus	Bantam Sunfish	4	1	7	3	1	2	0	2	1	3	3	1	2	0
Macrhybopsis gelida	Sturgeon Chub	1	0	1	1	1	0	0	1	0	1	1	1	0	0
Moxostoma carinatum	River Redhorse	10	13	9	16	20 (1)	12	0	4	8	5	10	12	5	0
Moxostoma valenciennesi	Greater Redhorse	1	8	3	7	9	7	0	1	4	3	3	4	4	0
Nocomis micropogon	River Chub	0	1	1	1	1	1	0	0	1	1	1	2	2	0
Notropis anogenus	Pugnose Shiner	3	3	1	4	3	3 (2)	0	1	2	1	3	1	3 (1)	0
Notropis boops	Bigeye Shiner	8	11	12	9	6	7	0	7	4	4	3	3	5	0
Notropis chalybaeus	Ironcolor Shiner	3	6	5	9	17	4	1	4	3	2	3	3	3	1
Notropis heterodon	Blackchin Shiner	3	7	5	9	14	6 (2)	1	1	1	2	2	2	3 (1)	1
Notropis heterolepis	Blacknose Shiner	4	6	4	10	10 (1)	6 (2)	1	2	3	2	4	2	4 (1)	1
Notropis maculatus	Taillight Shiner	0	1	0	0	0	0	0	0	1	0	0	0	0	0
Notropis texanus	Weed Shiner	1	5	0	6	14	15 (1)	0	1	4	0	3	8	9 (1)	0
Noturus stigmosus	Northern Madtom	0	0	0	1	0	2	0	0	0	0	1	0	2	0
Scaphirhynchus albus	Pallid Sturgeon	0	0	0	1	0	0	0	0	0	0	1	0	0	0

(#) = # of EOs that were either relocated, established by stocking, or subject to a fish kill, where there were no subsequent obs - see individual species reviews

Currently listed species individual reviews – each review includes:
(Note – In the reviews, I provide "notes and recommendations" for those species for which I am recommending listing status change and for those where I felt it necessary to explain my recommendation for no change in listing status. If a species review does not include "notes and recommendations", it means that I am not recommending any change in listing status.)

a. Date of listing, reason for listing;
b. ESPB status and distribution publication species acct;
c. species data from Tables 1 and 2;
d. 1982-2011 5-year element occurrence trend graph;
e. summary data for reported vouchering;
f. status review triggers (if any) and listing status change recommendation (if any); and
g. NatureServe conservation status, lower 48.

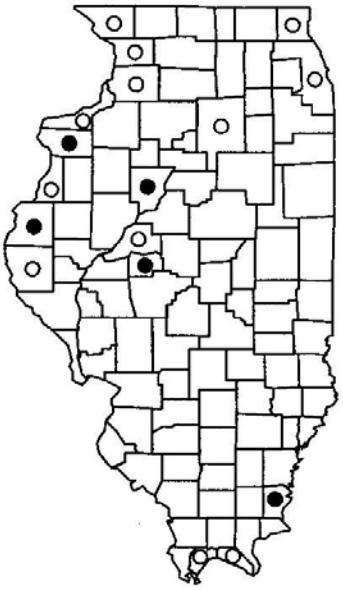
Recommendations for species to be added as endangered or threatened:

Lake Sturgeon, Acipenser fulvescens (Illinois endangered)

Listed as IL T, 12/31/1977; Listed as IL E 01/18/1994
Reason for listing: formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures

Acipenser fulvescens Rafinesque

LAKE STURGEON **ACIPENSERIDAE** **Status:** Endangered in Illinois



Present Distribution: The lake sturgeon ranges from the St. Lawrence-Great Lakes, Hudson Bay, and Mississippi River basins from Quebec to Alberta and south to Alabama and Louisiana (Page and Burr 1991). The species remains relatively common in the north but is rare and nearing extinction in the Mississippi, Ohio, and Missouri river drainages (Page and Burr 1991). In Illinois the Lake Sturgeon has recently been observed in the Mississippi, Rock, and Ohio rivers.
Former Illinois Distribution: The lake sturgeon was once abundant in Lake Michigan (Nelson 1876a, Jordan 1878) and also formerly occurred in the Wabash and Illinois rivers (O'Donnell 1935). The decline of the species was rapid following European settlement of the state, and by the early 1900s the lake sturgeon had become rare (Forbes and Richardson 1908, O'Donnell 1935).
Habitat: The lake sturgeon lives on the bottoms of lakes and large rivers usually in water 5-9 m deep over mud, sand, and gravel bottoms (Page and Burr 1991). It was recently found in low densities in the main channel of pool 26 of the Mississippi River (Dettmers *et al.* 2001). During the same study, this species was not found in the lower Illinois River channel.
Reason for Status: The demise of this species has been caused by many factors, including an inability to reach upstream spawning grounds because of dams and the destruction of spawning and feeding grounds by channelization, siltation, impoundment, pollution, and overfishing (Trautman 1957, Harkness and Dymond 1961, Pflieger 1971, Smith 1979). Overfishing may be especially harmful to the lake sturgeon because it does not spawn until it is about 20 years old (Harkness and Dymond 1961), and many individuals are likely to be captured before reaching maturity.
Management Recommendations: As is true for many other decimated fishes in Illinois, restoration of clean water is necessary for the recovery of the lake sturgeon. Further modifications of the large rivers of the state, particularly by impoundment, channelization, and siltation, will exacerbate the decline of the species.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

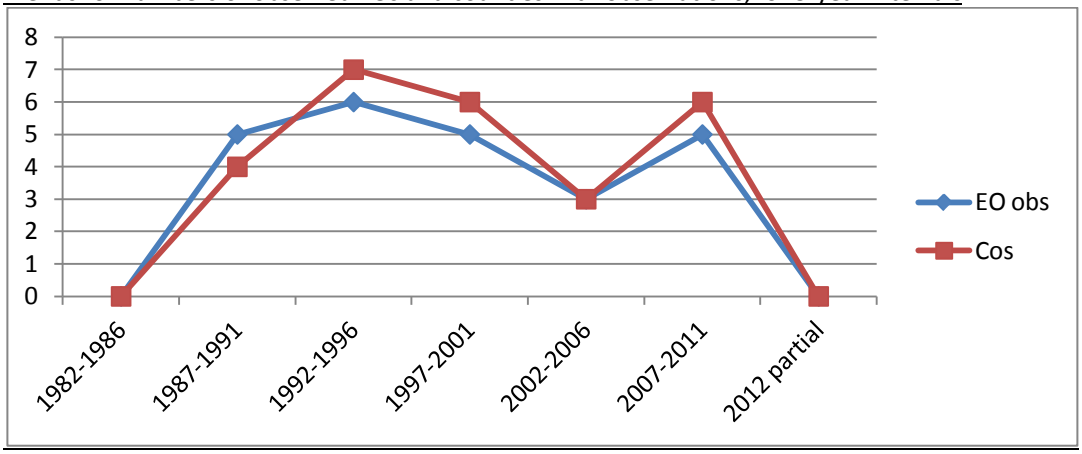
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2010-04-22	17	8	1	25	17	11

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	0	5	6	5	3	5	0
Cos	0	4	7	6	3	6	0

Trends for numbers of observed EOs and counties with observations, for 5-year intervals

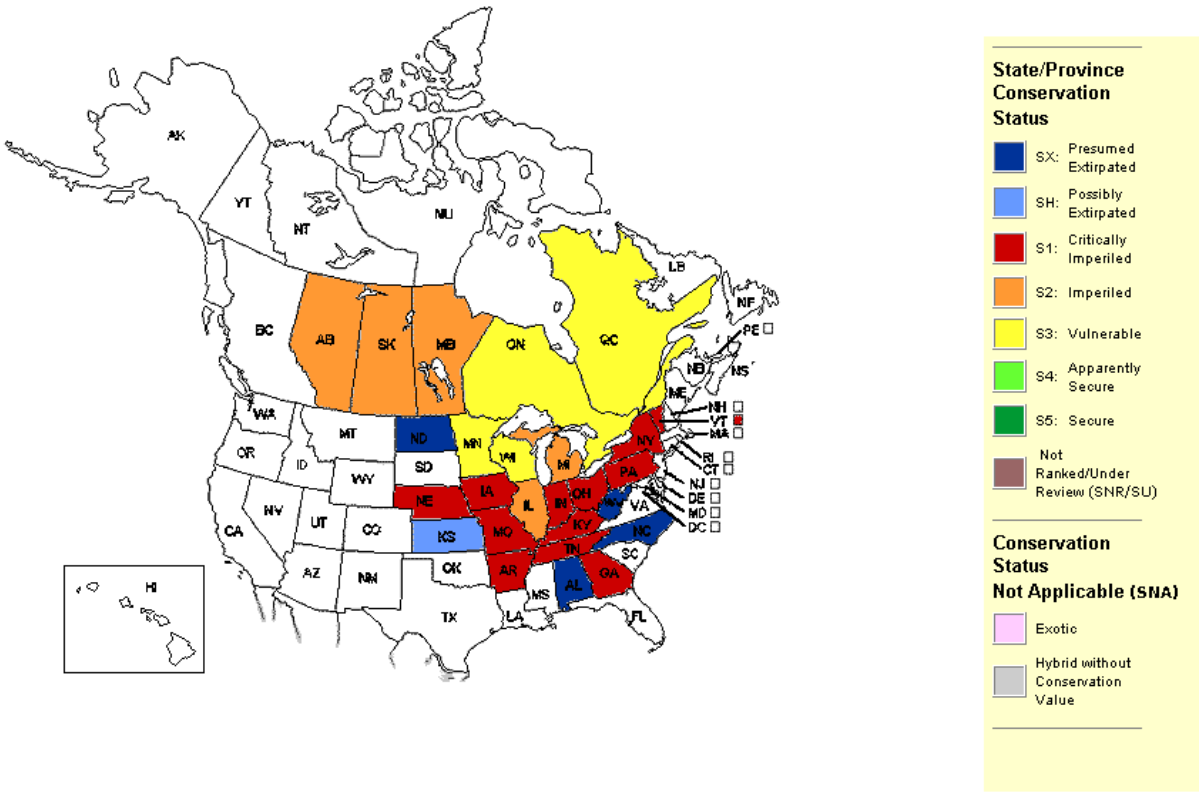


Reported vouchering

Year (# of voucher efforts) = 1934 (1); 1966 (1)

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
17	37	457	2 (5%)	3 (0.7%)	2 (100%)	1 (100%)

Acipenser fulvescens



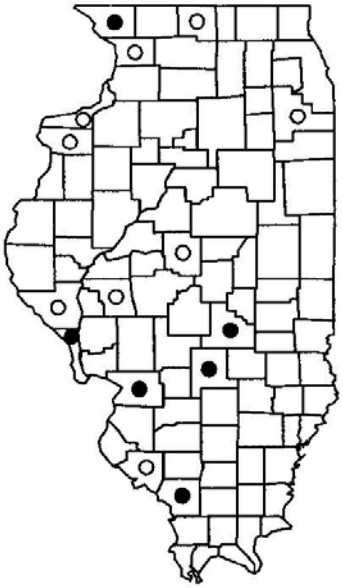
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Western Sand Darter, Ammocrypta clarum (Illinois endangered)

Listed as IL E, 03/17/1989
Reason for listing: formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures

Ammocrypta clarum Jordan & Meek

WESTERN SAND DARTER **PERCIDAE** **Status:** Endangered in Illinois



Present Distribution: The western sand darter occurs in the Mississippi River from Wisconsin and Minnesota south to Mississippi and Texas and in the Lake Michigan basin in Wisconsin (Page and Burr 1991). In Illinois the western sand darter is found in the Mississippi, Kankakee, and Kaskaskia rivers. Recent records from Jackson County extend the range of this species in the Mississippi River to include southern Illinois (Dimmick 1988).
Former Illinois Distribution: Identifying the former distribution of this species in Illinois is confounded by its earlier confusion with the eastern sand darter. However, this species probably once occurred sparingly over nearly all the state except for the Wabash-Ohio drainage (Smith 1979).
Habitat: The western sand darter is restricted to sandy runs of medium to large rivers (Page and Burr 1991). It apparently avoids strong currents, preferring the quiet margins of the stream channels and shallow backwaters, and is intolerant of excessive siltation and turbidity (Pflieger 1975).
Reason For Status: Siltation, impoundments, and related stream degradation have greatly reduced populations of this species within Illinois (Smith 1979, Page 1983).
Management Recommendations: Streams known to support this species must be protected from siltation and excessive turbidity in order to reduce the risk of extirpation for this species in Illinois. Also, more natural hydrologic regime on the Mississippi and Kaskaskia Rivers may promote stable or increases in populations.
Note: This species is also referred to as *Etheostoma clarum* (Page and Burr 1991).

KEY

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Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

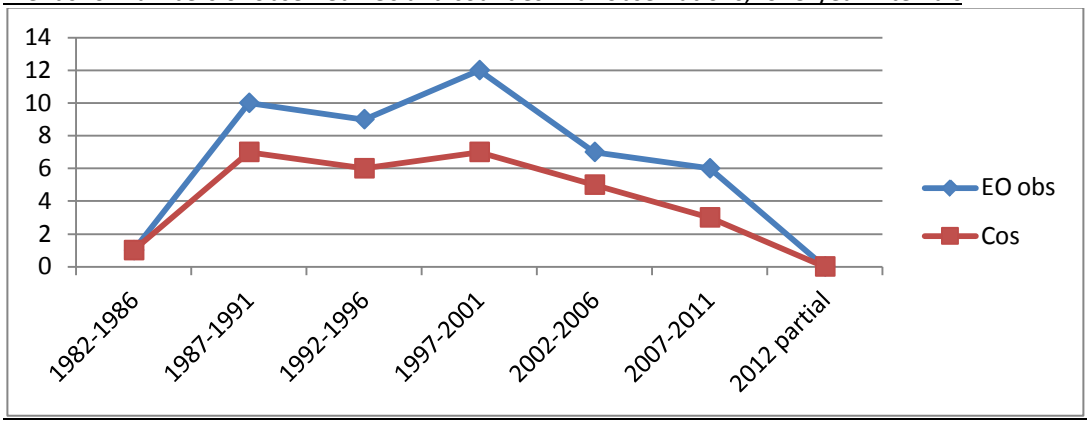
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2010-08-10	35	8	1	30	14	6

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	1	10	9	12	7	6	0
Cos	1	7	6	7	5	3	0

Trends for numbers of observed EOs and counties with observations, for 5-year intervals



Reported vouchering

Year (# of voucher efforts) = 1963 (1); 1989 (3); 1990 (1); 1991 (2); 1992 (4); 2007 (3); 2008 (1); 2009 (1); 2010 (1)

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
35	104	364+	17 (16%)	111 (30%)	15 (88%)	1 (24%) 1 (12%) Same 2 shared (29%) Others (35%)

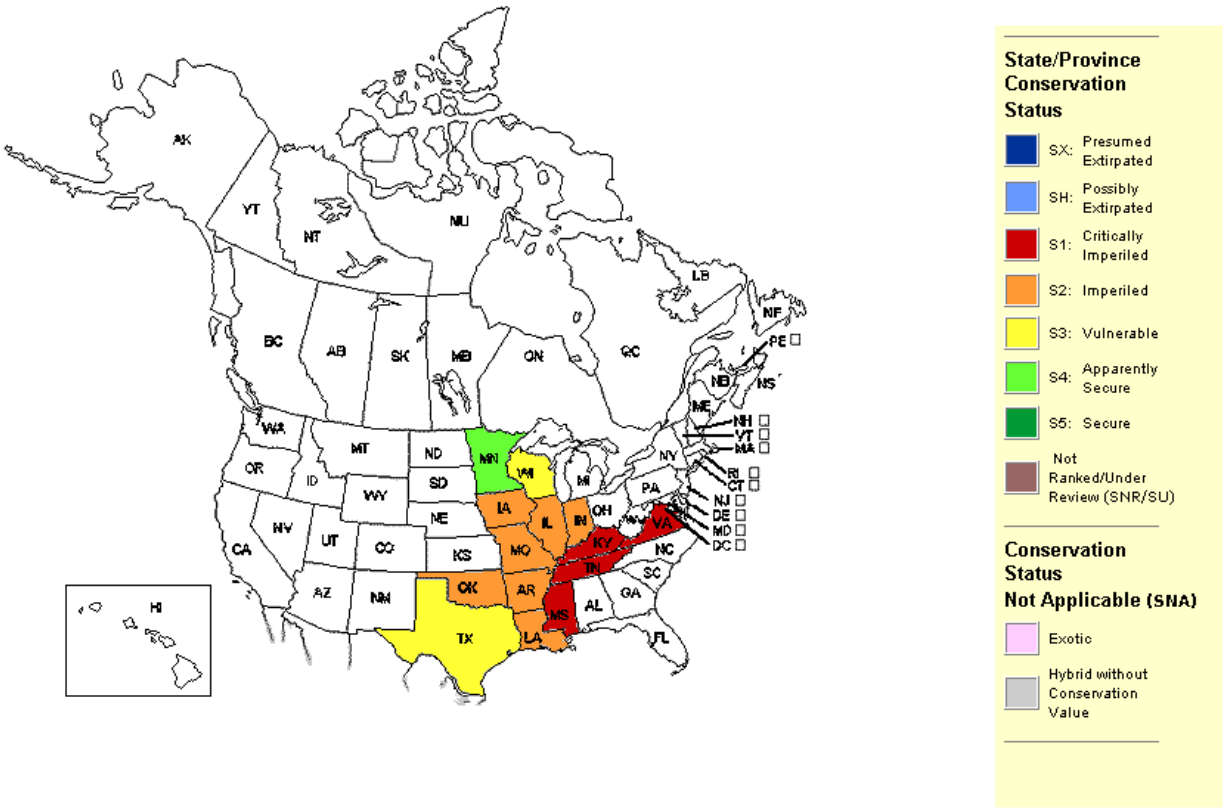
Mankowski notes and recommendation:

Although there was an increase in observations and even some new occurrences added during the 1992-1996 and 1997-2001 windows, many EOs are historic, many are based on single observations, and there has been a drop-off in total observations (including five EOs that were surveyed with no observations) during the 2002-2006 and 2007-2011.

Additionally, with vouchering of 30% of all individuals that were reported to the Illinois Natural Heritage Database, it appears that vouchering may be impacting the continued conservation and/or recovery of this species in Illinois. It is unclear why some institutions continue to voucher specimens of the same species and it is unclear how IDNR evaluates how much vouchering to permit an individual researcher or institution or by species or site. The ESPB's policy does not endorse physical vouchering of live specimens and only endorses taking live specimens under specified terms for approved research. Additional vouchering is not recommended for this species.

Mankowski recommendation – no change in status. It is recommended that the Board advise the IDNR to not permit vouchering of this species.

Ammocrypta clara



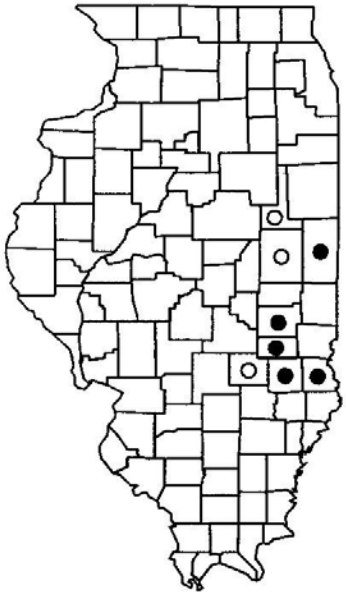
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Eastern Sand Darter, Ammocrypta pellucidum (Illinois threatened)

Listed as IL E, 03/17/1989; Listed as T, 4/26/1999
Reason for listing: restricted habitats or low pops in IL;

Ammocrypta pellucidum (Agassiz)

EASTERN SAND DARTER **PERCIDAE** **Status:** Threatened in Illinois



Present Distribution: The eastern sand darter occurs in the St. Lawrence River drainage, southern Quebec, Vermont, New York, and in the Great Lakes and Ohio basins from western New York to eastern Illinois and south to Kentucky (Page and Burr 1991). In Illinois, the eastern sand darter is restricted to the Vermilion, Embarras, and Little Wabash river systems (Smith 1979).
Former Illinois Distribution: The eastern sand darter was formerly more general in occurrence in the Embarras, Little Wabash, and Wabash river systems.
Habitat: The eastern sand darter occurs in sandy runs of small to medium rivers with high water quality and a water depth of 60 cm or more (Smith 1979, Page and Burr 1991).
Reason For Status: Siltation, impoundments, and declining water quality have decimated populations of this species in Illinois and throughout its range (Smith 1979, Page and Burr 1991). Recent increases in siltation in the Embarras River may further threaten this species' status in the state.
Management Recommendations: Efforts must be made to protect and maintain high water quality and clean sandy bottoms in the few streams in which this darter occurs.
Note: This species is also referred to as *Etheostoma pellucidum* (Page and Burr 1991).

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

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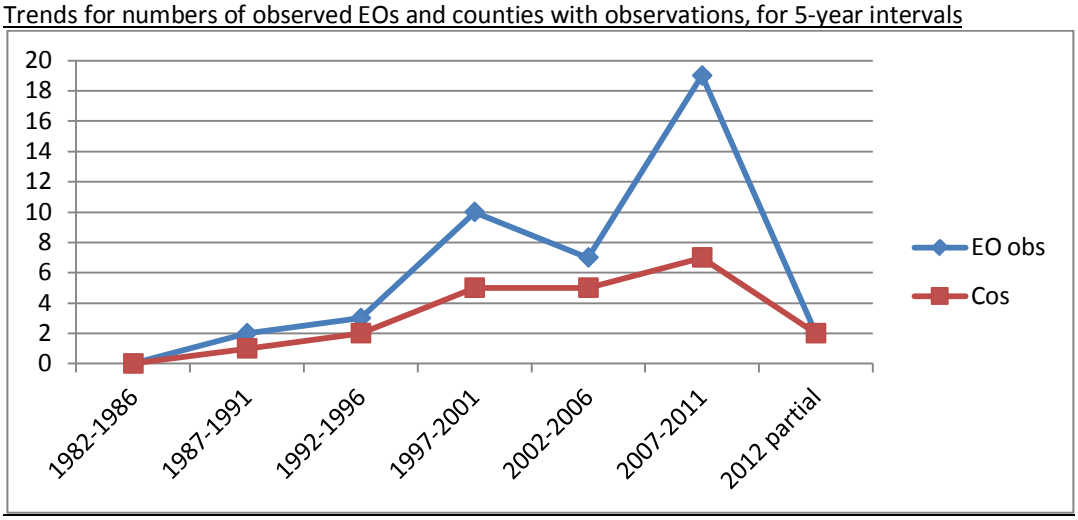
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-08-27	35	26	0	23	12	8

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	0	2	3	10	7	19	2
Cos	0	1	2	5	5	7	2

Trends for numbers of observed EOs and counties with observations, for 5-year intervals



Reported vouchering

Year (# of voucher efforts) = 1960 (1); 1967 (1); 1997 (1); 2000 (1); 2002 (1); 2003 (1); 2006 (1); 2007 (1); 2008 (1); 2011 (2); 2012 (1)

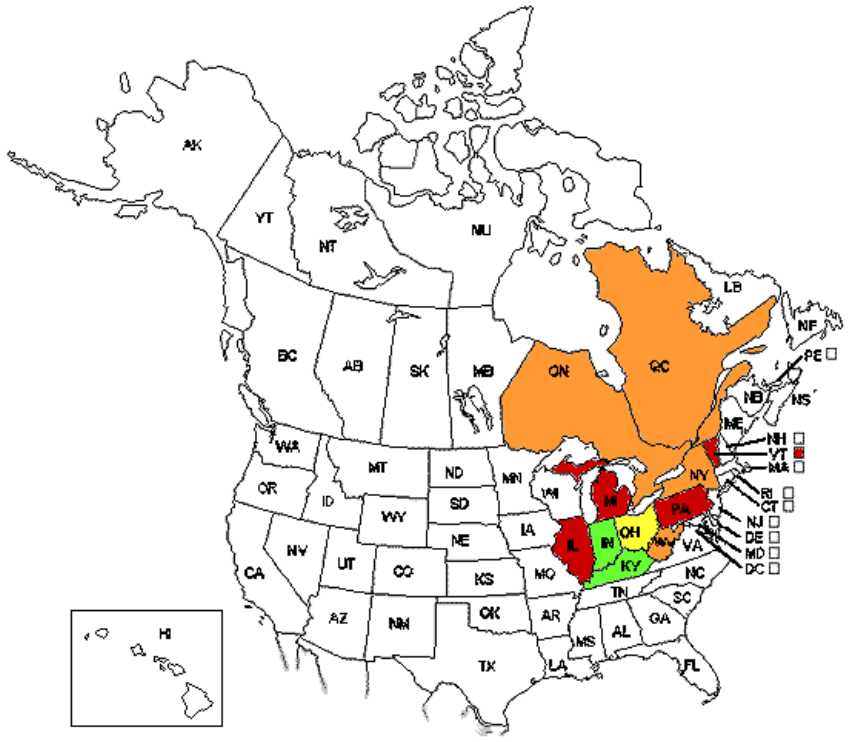
# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
35	91	1,153	12 (13%)	17 (1.5%)	9 (75%)	1 (58%) 1 (25%) others (17%)

Mankowski notes and recommendation:

The spike in observations during the 2007-2011 window at least partly reflects increased search effort. Data indicate six new EOs were added during that interval; five for new stream reaches in known counties and one for a new county. Additionally, that 13 EOs (37%) have had at least three repeated observations over a number of years may indicate some population stability. However, of 35 total EOs, 6 (26%) have not been observed since 2001 or prior, 8 (23%) are based on single observations; and no observations have been made in 2 of 8 counties also since 1971 or prior. It would be good to see the increased numbers sustained over another interval.

Mankowski recommendation – no change in status.

Ammocrypta pellucida



State/Province Conservation Status

- SX: Presumed Extirpated
- SH: Possibly Extirpated
- S1: Critically Imperiled
- S2: Imperiled
- S3: Vulnerable
- S4: Apparently Secure
- S5: Secure
- Not Ranked/Under Review (SNR/SU)

Conservation Status Not Applicable (SNA)

- Exotic
- Hybrid without Conservation Value

NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Longnose Sucker, Catostomus catostomus (Illinois threatened)

Listed as IL T, 12/31/1977
Reason for listing: restricted habitats or low pops in IL – invasive competition noted

Catostomus catostomus (Forster)

LONGNOSE SUCKER **CATOSTOMIDAE** **Status:** Threatened in Illinois

Present Distribution: The longnose sucker is the most widespread sucker in North America, occurring in the Atlantic, Arctic, and Pacific basins throughout Canada and Alaska including the Great Lakes basin and Mississippi River (Page and Burr 1991). All Illinois records are from Lake Michigan where small numbers of this species are seen in most years.
Former Illinois Distribution: The longnose sucker was formerly considered to be abundant in Lake Michigan (Jordan 1878) and in Illinois has always been confined to Lake Michigan (Smith 1979).
Habitat: The longnose sucker usually occurs in clear, cold, deep water of lakes, and tributary streams (Page and Burr 1991). It has been taken at depths of approximately 200 m in the Great Lakes (Page and Burr 1991). In Ohio the species enters water less than 8 m deep only in spring, presumably to spawn (Trautman 1957).
Reason for Status: The longnose sucker is threatened in Lake Michigan because of the deteriorating quality of the water and the ecological imbalance caused by introductions of non-native fishes.
Management Recommendations: Attempts are under way to prevent further deterioration of the natural environment of Lake Michigan and eventually to restore its native biota. If the attempts are successful, the threatened longnose sucker, cisco, and lake whitefish will all be among the beneficiaries.

KEY

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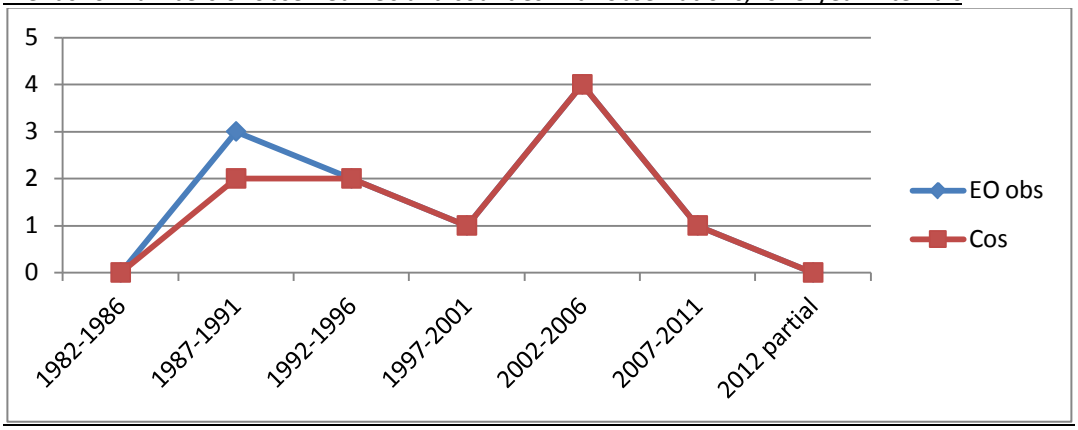
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2005-07-07	10	4	0	9	7	4

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	0	3	2	1	4	1	0
Cos	0	2	2	1	4	1	0

Trends for numbers of observed EOs and counties with observations, for 5-year intervals

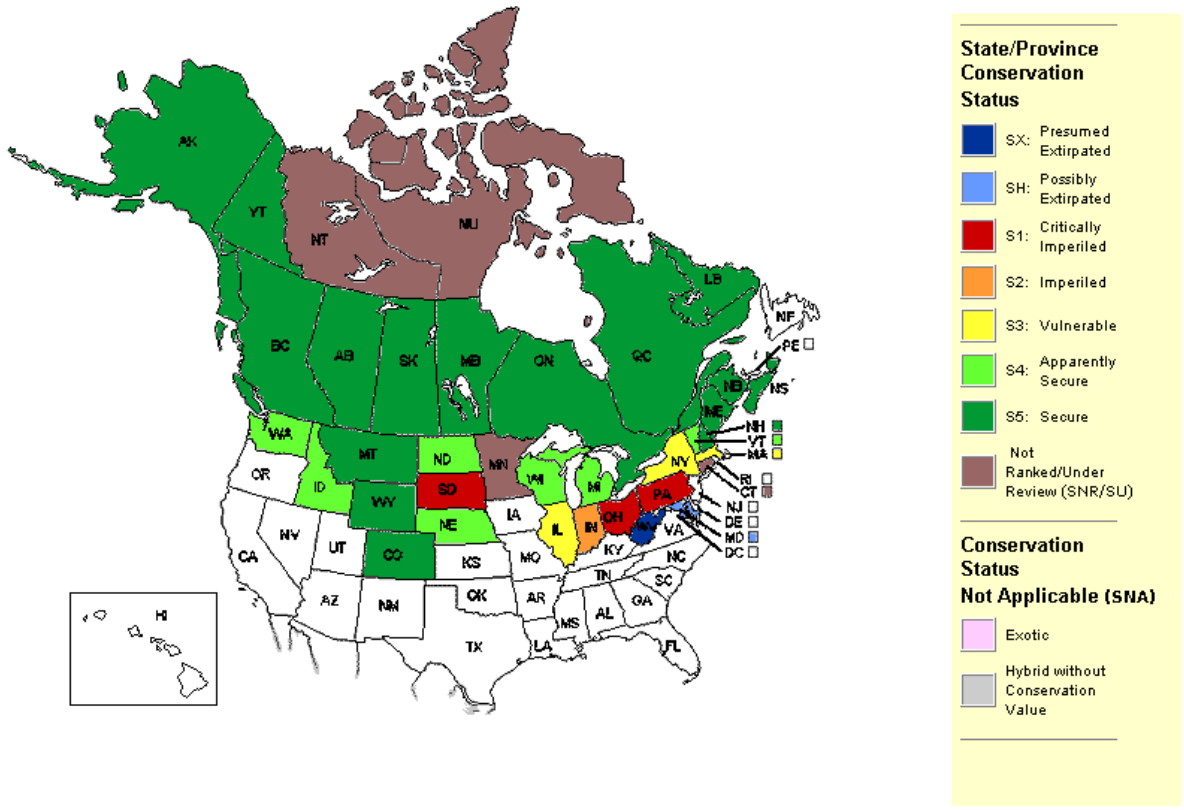


Reported vouchering

Year (# of voucher efforts) = 2005 (1)

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
10	16	45	1 (6%)	1 (2%)	1 (100%)	1 (100%)

Catostomus catostomus



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Cisco, Coregonus artedi (Illinois threatened)

Listed as IL T, 12/31/1977
Reason for listing: restricted habitats or low pops in IL – invasive competition noted

Coregonus artedi Lesueur

CISCO **SALMONIDAE** **Status:** Threatened in Illinois

Present Distribution: Widespread throughout much of Canada and the northern United States in the Great Lakes, Arctic and upper Mississippi River basins to northern Ohio and Illinois (Page and Burr 1991). The cisco has one of the most extensive ranges of any North American species of *Coregonus*. It is extremely rare in Illinois, occurring only in Lake Michigan.

Former Illinois Distribution: The cisco was formerly very abundant in Lake Michigan (Jordan 1878, Nelson 1876a) and was possibly once the most abundant food fish in the Great Lakes (O'Donnell 1935). Completion of the canals between Lake Michigan and the Illinois River allowed the cisco to disperse occasionally as far down the river as Meredosia (Large 1903). Subsequent pollution of the river and canals restricted the species in Illinois once again to Lake Michigan (Smith 1979).

Habitat: The cisco lives in deep waters of large lakes and occasionally in large rivers. The depth at which schools have been found varies according to season and temperature; Dryer (1966) found an all-season depth range of 15-55 m.

Reason for Status: Until the late 1940s the cisco was common in Lake Michigan and was a commercially valuable fish. The introduction of the parasitic sea lamprey (*Petromyzon marinus*) caused the population of the cisco to decline. The subsequent control of the sea lamprey has failed to restore a large population of ciscoes, apparently because of competition with the bloater (*Coregonus hoyi*) and later with an introduced species, the ecologically similar alewife (*Alosa pseudoharengus*). Hrabik *et al.* (1998) found that the introduced rainbow smelt (*Osmerus mordax*) and the cisco have similar temperature preferences, and that adult smelt can heavily prey on young cisco.

Management Recommendations: Restoration or partial restoration of the natural character of Lake Michigan, especially a reduction in industrial and municipal pollution and eradication of the alewife and rainbow smelt, might enable the cisco to reestablish a large population.

KEY

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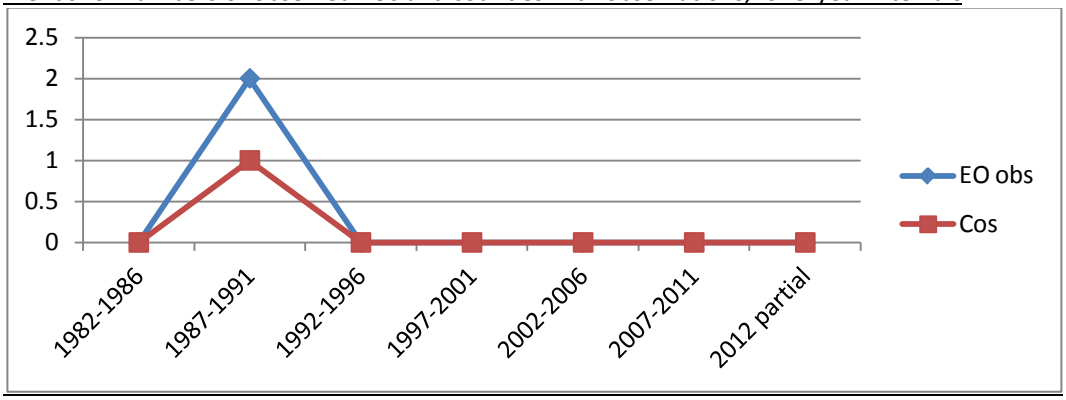
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
1988-10-20	3	0	0	3	2	0

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	0	2	0	0	0	0	0
Cos	0	1	0	0	0	0	0

Trends for numbers of observed EOs and counties with observations, for 5-year intervals



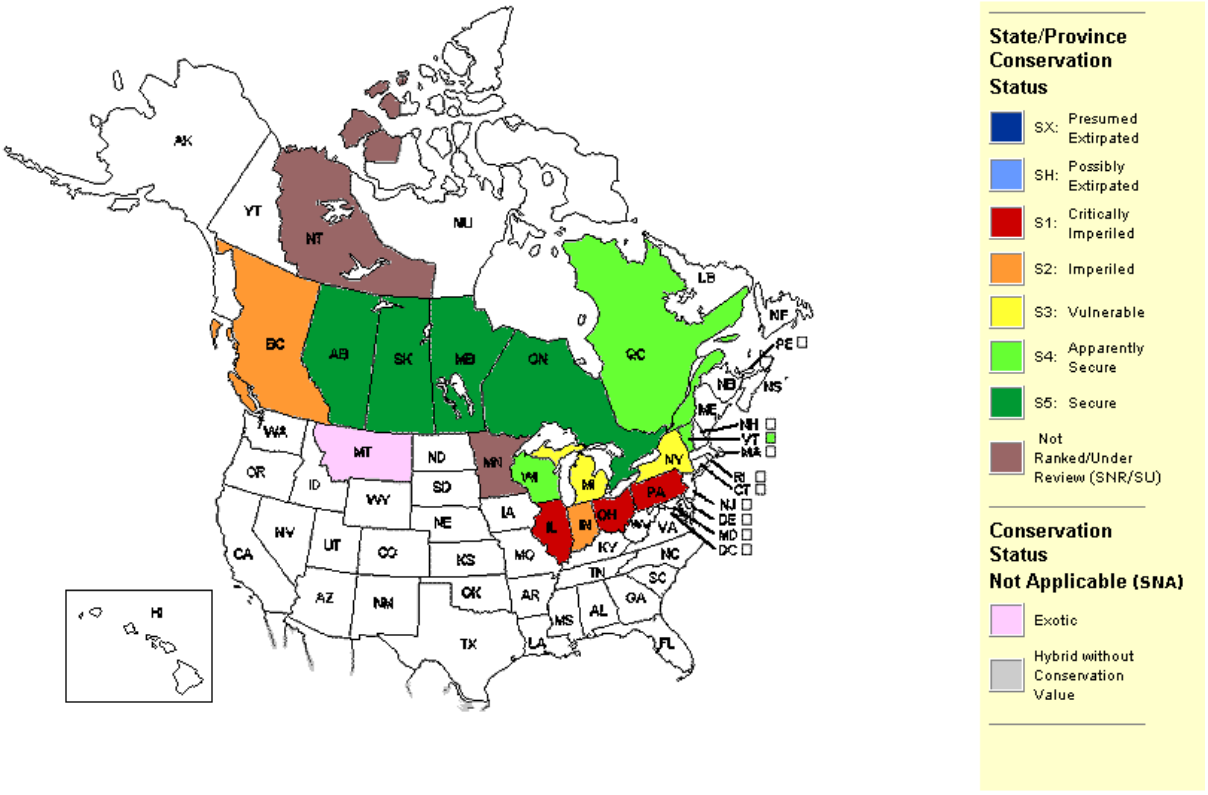
Reported vouchering
Year (# of voucher efforts) =

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
3	6	13	0	0	0	n/a

Mankowski notes and recommendation:
This species has not been observed in the state since 1988 when it was observed at two of the three EOs. The other EO has not had an observation since 1935. It appears none of the EOs have been surveyed since those last observations. There is too little data to warrant a listing status change recommendation.

Mankowski recommendation – no change in status.

Coregonus artedi



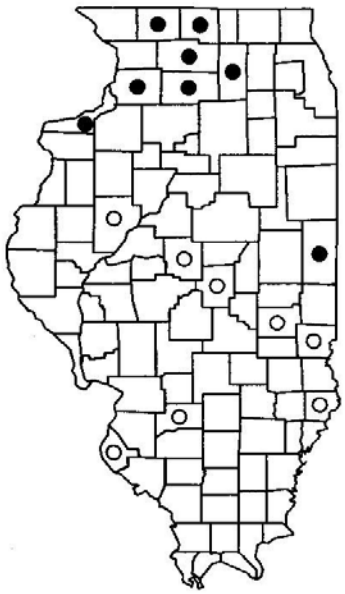
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Gravel Chub, Erimystax x-punctatus (Illinois threatened)

Listed as IL T, 09/01/2004
Reason for listing: formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures

Erimystax x-punctatus (Hubbs & Crowe)

GRAVEL CHUB **CYPRINIDAE** **Status:** Threatened in Illinois



Present Distribution: The gravel chub occurs in the Ohio River basin from New York and the Mississippi River basin from southern Wisconsin and Minnesota south to the Quachita River drainage, Arkansas (Page and Burr 1991). In Illinois the most recent reports of this species are from the Rock River system in northwestern Illinois and a recent record from the Wabash drainage in southeastern Illinois.
Former Illinois Distribution: The gravel chub was once widespread around the state and occurred sporadically throughout most of central Illinois but was probably never common (Smith 1979). Historically it was very common in the Rock River drainage but less common in the in the Mississippi and Wabash rivers.
Habitat: In Illinois the gravel chub occupies small rivers where it occurs in rather deep riffles and channels of moderate to very fast current over a substrate of gravel or firm sand-gravel (Smith 1979)
Reason For Status: This species was once widespread and relatively common around the state and has recently had a drastic decline it its range in Illinois. Nearly all recent records are from the Rock River system. The reason for this species decline is almost certainly the increase in silt in streams over most of the state. The gravel chub can exist only in channels and raceways where the current keeps the gravel bottom swept clean of silt (Smith 1979).
Management Recommendations: Protection from siltation and water control structures is the primary management needs for the gravel chub in Illinois.

KEY

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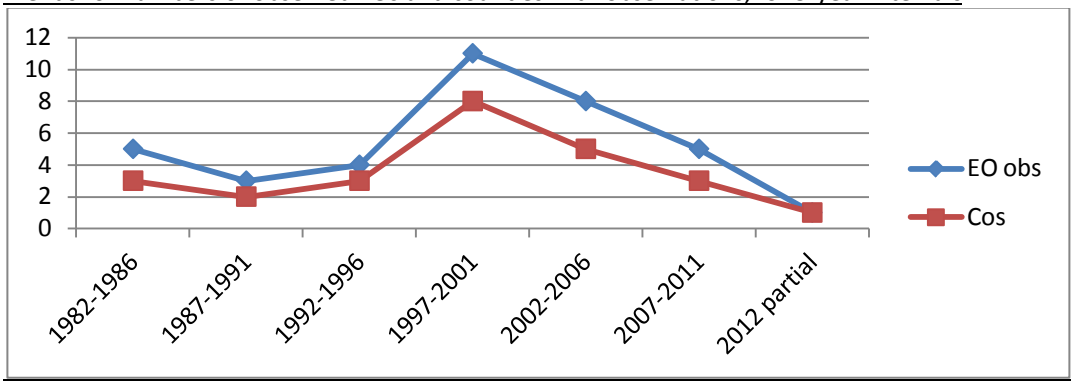
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-06-06	33	13	0	30	13	9

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	5	3	4	11	8	5	1
Cos	3	2	3	8	5	3	1

Trends for numbers of observed EOs and counties with observations, for 5-year intervals



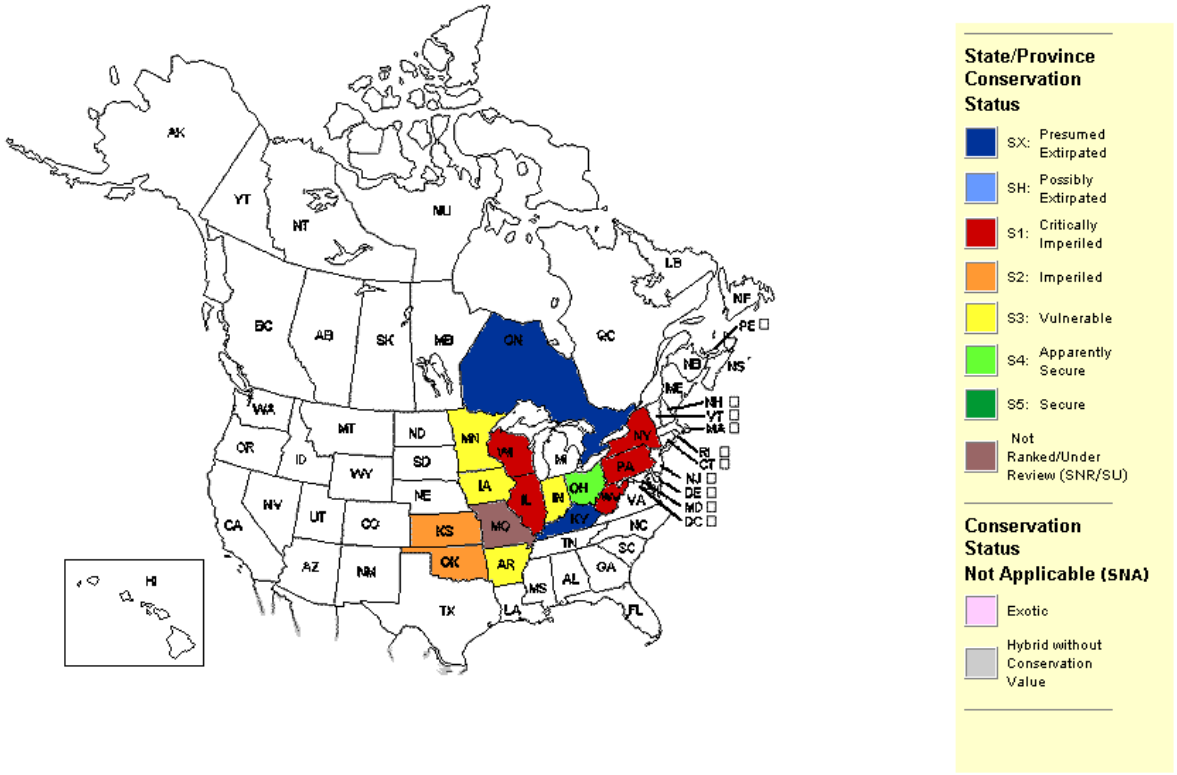
Reported vouchering
Year (# of voucher efforts) = 2008 (3); 2012 (1)

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
33	80	353	4 (5%)	7 (2%)	3 (75%)	1 (75%) 1 (25%)

Mankowski notes and recommendation:
It appears that a peak in relatively recent observations (1997-2001 window) preceded the listing of this species. Since that time, there has been a steady drop-off in observations – at least partly explained by a drop-off in search effort since for the 33 total EOs, 21 observations (64%) are from 2001 or earlier and 18 EOs (55%) are based on single observations. Additional survey data would better clarify if the species' population has declined and warrants a downgrading in listing status.

Mankowski recommendation – no change in status.

Erimystax x-punctatus



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Bluebreast Darter, Etheostoma camurum (Illinois endangered)

Listed as IL E, 12/31/1977
Reason for listing: restricted habitats or low pops in IL

Etheostoma camurum (Cope)

BLUEBREAST DARTER **PERCIDAE** **Status:** Endangered in Illinois

Present Distribution: The bluebreast darter ranges from the Ohio basin in western New York to eastern Illinois, and south to the Tennessee River in North Carolina and Tennessee (Page and Burr 1991). The species is sporadically distributed and is absent from many rivers within its range. In Illinois the bluebreast darter is moderately common in the Middle Fork of the Vermilion River in Vermilion County, between Collison and Kickapoo State Park (Smith 1979) and in the Salt Fork of the Vermilion River (L.M. Page, Illinois Natural History Survey, unpublished data).

Former Illinois Distribution: O'Donnell (1935) believed that the bluebreast darter may have formerly occurred elsewhere in central and southern Illinois, although there are no historic records for anywhere in the state except the Vermilion River system. Its recent rediscovery in the Salt Fork extends its known range in Illinois to include all of its known former range.

Habitat: Adults are almost always found near large boulders in fast riffles of large, clear streams at a depth of 10 to 30 cm. Young are usually found in the same riffles but associated with somewhat smaller stones in shallower water.

Reason for Status: Illinois is on the edge of the range of the bluebreast darter, and the Vermilion River system is the only Illinois stream system the species is known to occupy. The Middle Fork of the Vermilion River is one of the finest aquatic ecosystems in Illinois and supports a great diversity and abundance of organisms (Smith 1971, Evers and Page 1977). However, the water quality of the Middle Fork has deteriorated, primarily as a result of agricultural runoff, and fish populations are smaller than formerly.

Management Recommendations: Acquisition of the Middle Fork as a river corridor park has helped to protect the species, but a reduction of agricultural pollution and municipal effluents is also needed to ensure the security of the bluebreast darter in Illinois.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

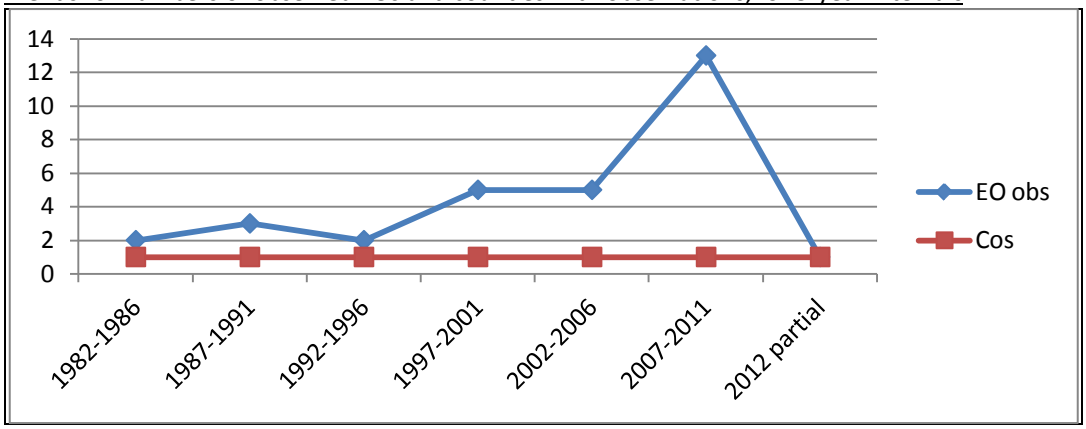
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-08-13	16	14	1	7	2	2

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	2	3	2	5	5	13	1
Cos	1	1	1	1	1	1	1

Trends for numbers of observed EOs and counties with observations, for 5-year intervals



Reported vouchering

Year (# of voucher efforts) = 1960 (2); 1986 (1); 1996 (1); 2001 (1); 2002 (1); 2007 (2); 2012 (1)

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
16	59	70+	9 (15%)	27 (39%)	3 (33%)	1 (56%) 1 (33%) Others (11%)

Mankowski notes and recommendation:

The spike in observations during the 2007-2011 window at least partly reflects increased search effort. Data indicates that five new EOs were added during that interval; all for new stream reaches and one in a new county. The addition of a new county is significant since all previous records were known from a single county.

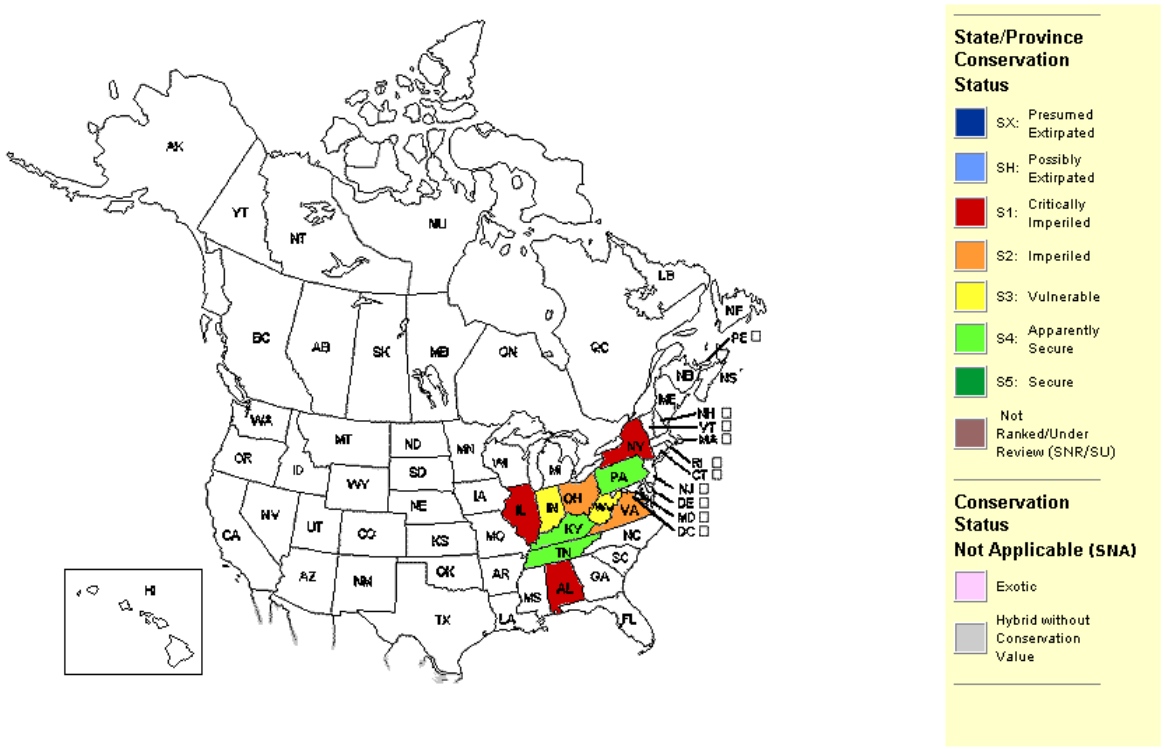
The recent increase in observations and new occurrences are encouraging. Additionally, while there are only 16 EOs, there are no reports for surveys with no observations at any EO, there are repeated observations over years at 10 EOs (63%), and only 2 EOs (13%) have not been surveyed since 2001 or prior.

While the 2007-2011 window data is encouraging, it would be better to see the trend continue for another interval. Additionally, it appears that vouchering may be impacting the continued conservation and/or recovery of this species in Illinois – fully 39% of all individuals that have been reported to the Illinois Natural Heritage Database were vouchered. It is unclear why some institutions continue to voucher specimens of the same species and it is unclear how IDNR evaluates how much vouchering to permit an individual researcher or institution or by species or site. The ESPB's policy does not endorse physical vouchering of live specimens and only endorses

taking live specimens under specified terms for approved research. Additional vouchering is not recommended for this species.

Mankowski recommendation – no change in status. It is recommended that the Board advise the IDNR to not permit vouchering of this species.

Etheostoma camurum



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Iowa Darter, Etheostoma exile (Illinois threatened)

Listed as IL T, 3/17/1989; Listed as IL E, 1/18/1994; Listed as IL T, 9/01/2004
Reason for listing: formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures

Etheostoma exile (Girard)

IOWA DARTER **PERCIDAE** **Status:** Threatened in Illinois

Present Distribution: The Iowa darter occurs in the St. Lawrence River, Great Lakes, Hudson Bay, and Mississippi River basins from southern Quebec to northern Alberta south to Ohio, Illinois, and Colorado (Page and Burr 1991). In Illinois it is known from glacial lakes in northeastern Illinois, a few streams in extreme northern Illinois, and a small stream in Vermilion County.
Former Illinois Distribution: This species was formerly generally distributed throughout the northern fourth of Illinois including the upper Illinois River (Smith 1979).
Habitat: The Iowa darter occurs in clear well-vegetated lakes, sloughs, and streams where it occurs in quiet pools over a mud or clay bottom with detritus and brush (Smith 1979, Page and Burr 1991).
Reason For Status: This species' decimation in Illinois is probably the result of habitat degradation, including pollution, drainage of wetlands, and introductions of nonnative species. This species is presently known from only a few locations, and its habitat is susceptible to degradation. Continued urbanization of northeastern Illinois will pressure existing populations.
Management Recommendations: Maintenance and restoration of water quality in areas supporting this species are needed, especially in streams and lakes where populations of this species continue to decline.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

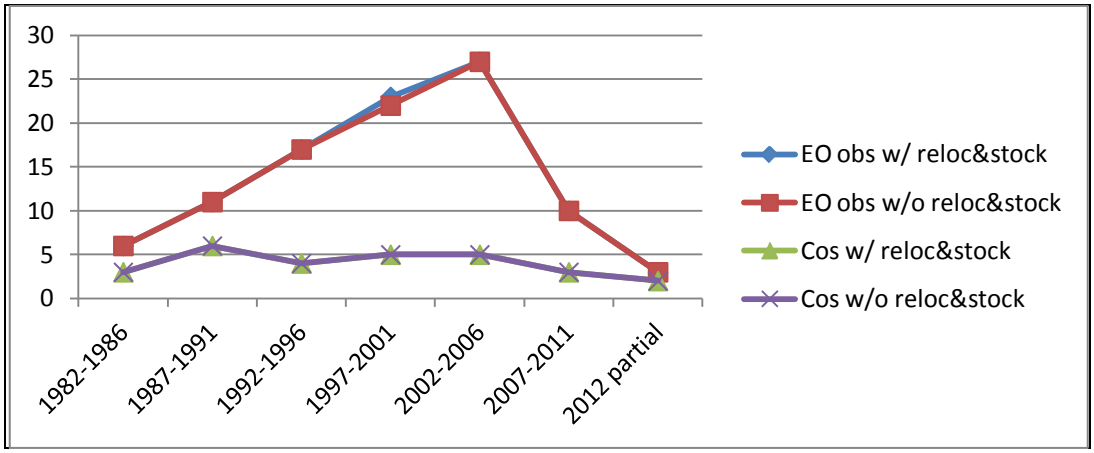
Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-06-07	63	33	7	31	13	7

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

Table and graph have entries to exclude from "EO obs" relocated and stocked EOs with no subsequent obs

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	6	11	17	23 [1]	27	10	3
Cos	3	6	4	5	5	3	2

[#] = # EO relocated, no subsequent obs



Reported vouchering

Year (# of voucher efforts) = 1959 (1); 1960 (1); 1963 (1); 1965 (2); 1969 (1); 1986 (1); 1987 (1); 1991 (1); 1993 (1); 1994 (2); 1995 (1); 1996 (1); 1998 (2); 1999 (1); 2002 (3); 2003 (1); 2004 (1); 2006 (1); 2009 (1); 2012 (3)

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
63	184	774+	27 (15%)	128 (17%)	20 (74%)	1 (48%) Others (26%) 1 (15%) 1 (11%)

Mankowski notes and recommendation:

A steady increase in observations and occurrences resulted in the 2004 listing status change from endangered to threatened. Since that time, there has been a sharp drop-off in observations, with current numbers below a level that triggered a change from endangered to threatened in 2004.

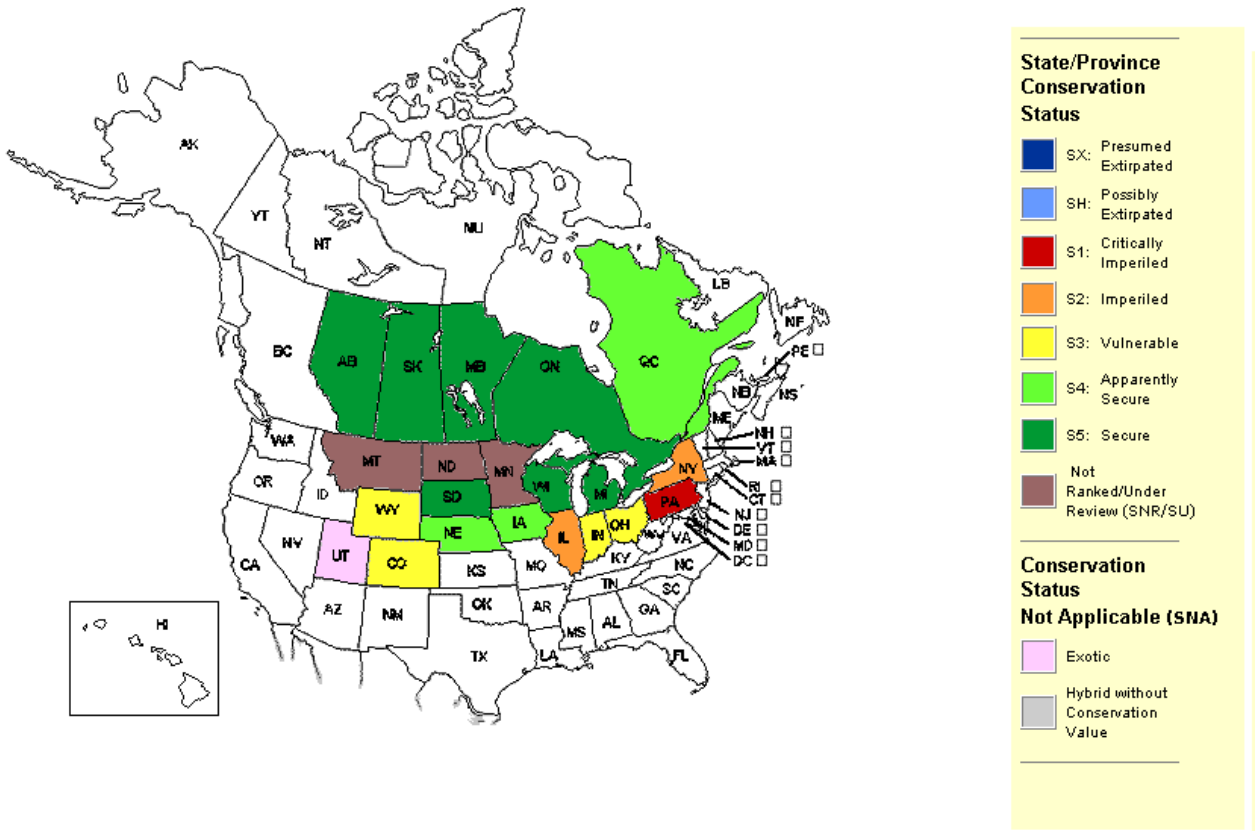
However, assessing a trend for the species is complicated by a lack of data from the review period - of 63 total EOs, 37 (59%) have been surveyed since 2002 and only 13 (20%) have been surveyed since 2007. In addition, 25 occurrences (56%) are based on single observations. Considering only data that was reported since 2002 there were observations for 78% and surveys without observations for 22% of occurrences; 28 existing occurrences were surveyed (20 with and 8 without observations) and 9 new occurrences were reported. No new counties were added; the 8 occurrences without observations and the 9 new occurrences were in the same counties. However, this does not consider over 40% of EOs for the species. Additionally, occurrences are also still lacking

for several counties with historic records, although this was also the case when the species was upgraded from endangered to threatened.

It appears that vouchering may also be impacting the continued conservation and/or recovery of this species in Illinois, with 17% of all individuals reported to the Illinois Natural Heritage Database having been vouchered. It is unclear why some institutions continue to voucher specimens of the same species and it is unclear how IDNR evaluates how much vouchering to permit an individual researcher or institution or by species or site. The ESPB's policy does not endorse physical vouchering of live specimens and only endorses taking live specimens under specified terms for approved research. Additional vouchering is not recommended for this species.

Mankowski recommendation – no change in status. It is recommended that the Board advise the IDNR to not permit vouchering of this species.

Etheostoma exile



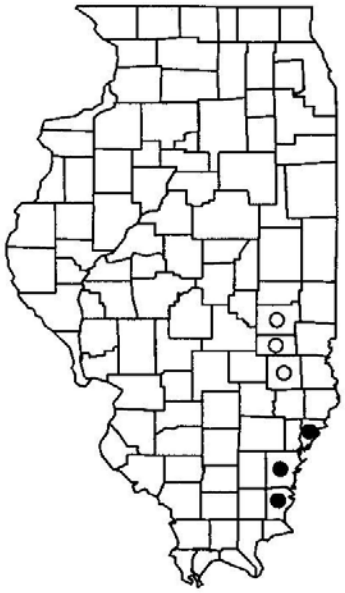
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Harlequin Darter, Etheostoma histrio (Illinois endangered)

Listed as IL T, 12/31/1977
Reason for listing: restricted habitats or low pops in IL; significant disjuncts in IL - IL pop far removed from rest of species' range

Etheostoma histrio Jordan & Gilbert

HARLEQUIN DARTER **PERCIDAE** **Status:** Endangered in Illinois



Present Distribution: Harlequin darters are found in scattered localities in tributaries of the lower Mississippi River from southeastern Missouri and western Kentucky south to Louisiana, and in the Gulf Coast drainages from the Florida panhandle to Texas (Page and Burr 1991). Geographically disjunct populations are also known from the Wabash drainage in Illinois and Indiana and the Green River system in Kentucky (Page and Burr 1991). In Illinois this species formerly occurred in a 30 km stretch of the Embarras River in southern Cumberland and northern Jasper counties, where it was extremely rare (Smith 1979). The last observation of the species in the Embarras River was in 1984. Populations of this species have been found recently in the Wabash River in southeastern Illinois. At one site in Wabash County, harlequin darters were found at the river margin in shallow water over sticks and leaves (Retzer, personal communication).

Former Illinois Distribution: The harlequin darter was discovered in Illinois in the Embarras River in 1964. A Wabash River locality (White County) assigned by Forbes and Richardson (1908) to the banded darter (*Etheostoma zonale*) probably was based on the morphologically similar harlequin darter (Smith 1979). The banded darter is not known to occur elsewhere in the Wabash River system. Presumably, the harlequin darter was always rare but once more widespread in the Wabash River system.

Habitat: Harlequin darters live in accumulations of leaves and other plant debris over sand or gravel in clean, clear, moderate to large streams (Hubbs and Pigg 1972).

Reason for Status: Within the short stretch of the Embarras River where this rare darter occurs, it has been found only in low numbers and not since 1984 (Burr 1991). The remaining Illinois population of this darter in the Wabash River is endangered by its limited range, small size, and the potential degradation by siltation and agricultural pollutants.

Management Recommendations: Management needs include a prohibition of dams and channelization and improved soil conservation measures in the Wabash basin to reduce sedimentation (Page 1985b). More intensive surveys need to be conducted to confirm the existence of this species in Illinois.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

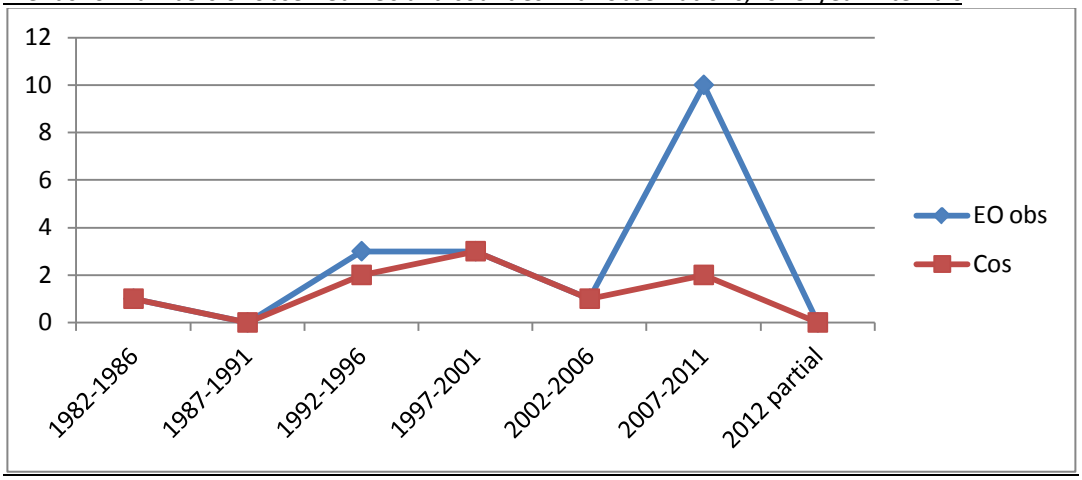
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2011-06-22	19	10	0	11	7	3

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	1	0	3	3	1	10	0
Cos	1	0	2	3	1	2	0

Trends for numbers of observed EOs and counties with observations, for 5-year intervals



Reported vouchering

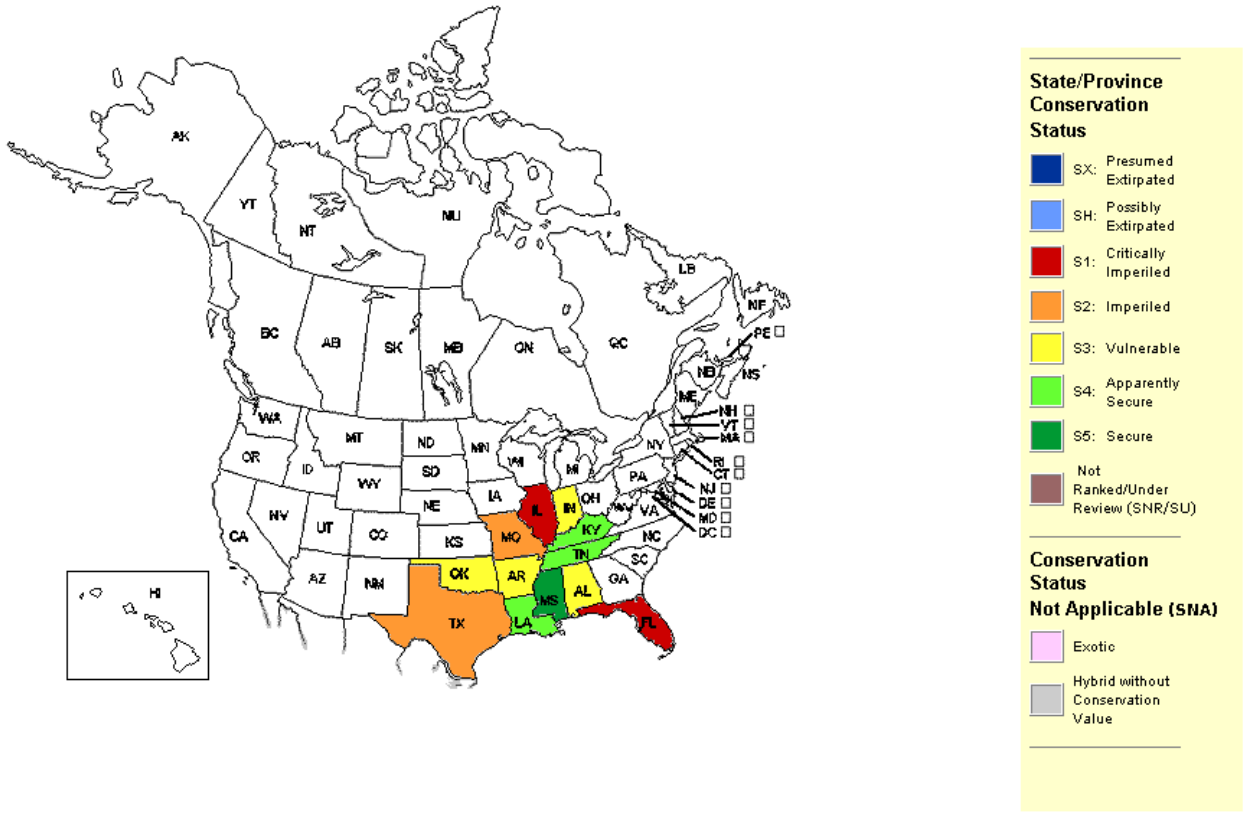
Year (# of voucher efforts) = n/a

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
19	32	60	0	0	0	n/a

Mankowski notes and recommendation:
The spike in observations during the 2007-2011 window is encouraging. There were eight new occurrences (no new counties) added during the period. However, the increase is from a single year of data during the interval, and overall the data is sparse for this species with 9 EOs (47%) not surveyed since 2001 or prior, 15 EOs (79%) are based on single observations, and 3 of 7 counties have not had observations since 1984 or prior.

Mankowski recommendation – no change in status.

Etheostoma histrio



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Banded Killifish, Fundulus diaphanus (Illinois threatened)

Listed as IL T, 3/17/1989
Reason for listing: restricted habitats or low pops in IL;

Fundulus diaphanus (Lesueur)

BANDED KILLIFISH **CYPRINODONTIDAE** **Status:** Threatened in Illinois

Present Distribution: The banded killifish occurs in the Atlantic slope drainage from Newfoundland to South Carolina, Great Lakes and Mississippi River basins from Quebec to Manitoba south to northern Illinois (Page and Burr 1991). In Illinois it is presently restricted to glacial lakes in Cook, Lake and McHenry Counties.
Former Illinois Distribution: Both Nelson (1876a) and Jordan (1878) considered this species to be very abundant in lakes, clear streams, and tributaries in northern Illinois. However, it has now apparently been extirpated from all but a few lakes in northeastern Illinois.
Habitat: In Illinois this species occurs in clear glacial lakes, usually over sand or mud, often near vegetation (O'Donnell 1935, Smith 1979). It is usually found in small schools near the surface of weedy lakes (Smith 1979).
Reason For Status: Reasons for the decline of this species are not well understood but are probably related to destruction and general deterioration of natural lakes and streams in northern Illinois (Smith 1979).
Management Recommendations: Protection of the glacial lakes in northeastern Illinois from development, pollution, and sport fish introductions are the most important management needs of this species in Illinois.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

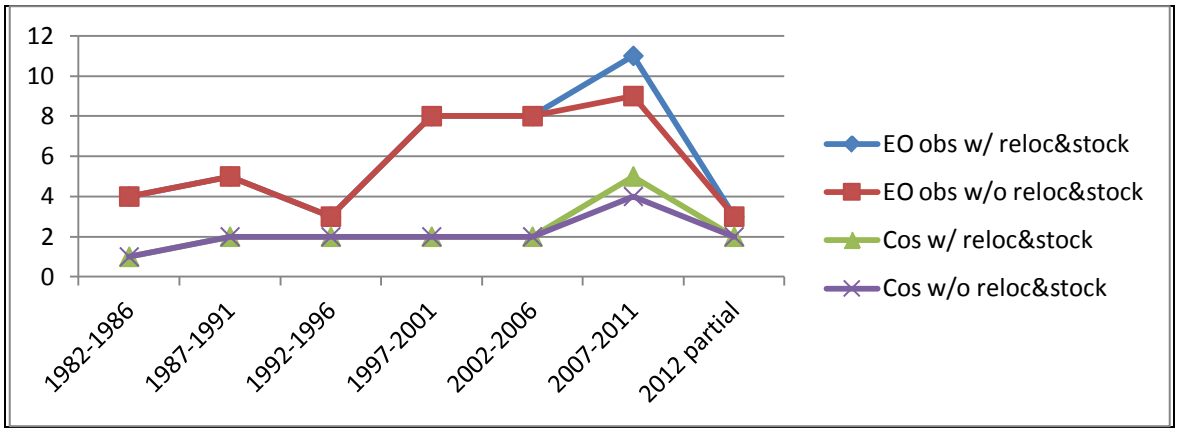
Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-09-10	22	15	6	15	6	5

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

Table and graph have entries to exclude from "EO obs" relocated and stocked EOs with no subsequent obs

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	4	5	3	8	8	11 (1)[1]	3
Cos	1	2	2	2	2	5 (1)	2

(#) = # of EOs established by stocking, no subsequent obs
[#] = # of EOs relocated, no subsequent obs



Reported vouchering
Year (# of voucher efforts) = 1930 (1); 1999 (1); 2002 (6); 2003 (1); 2010 (1); 2011 (2)

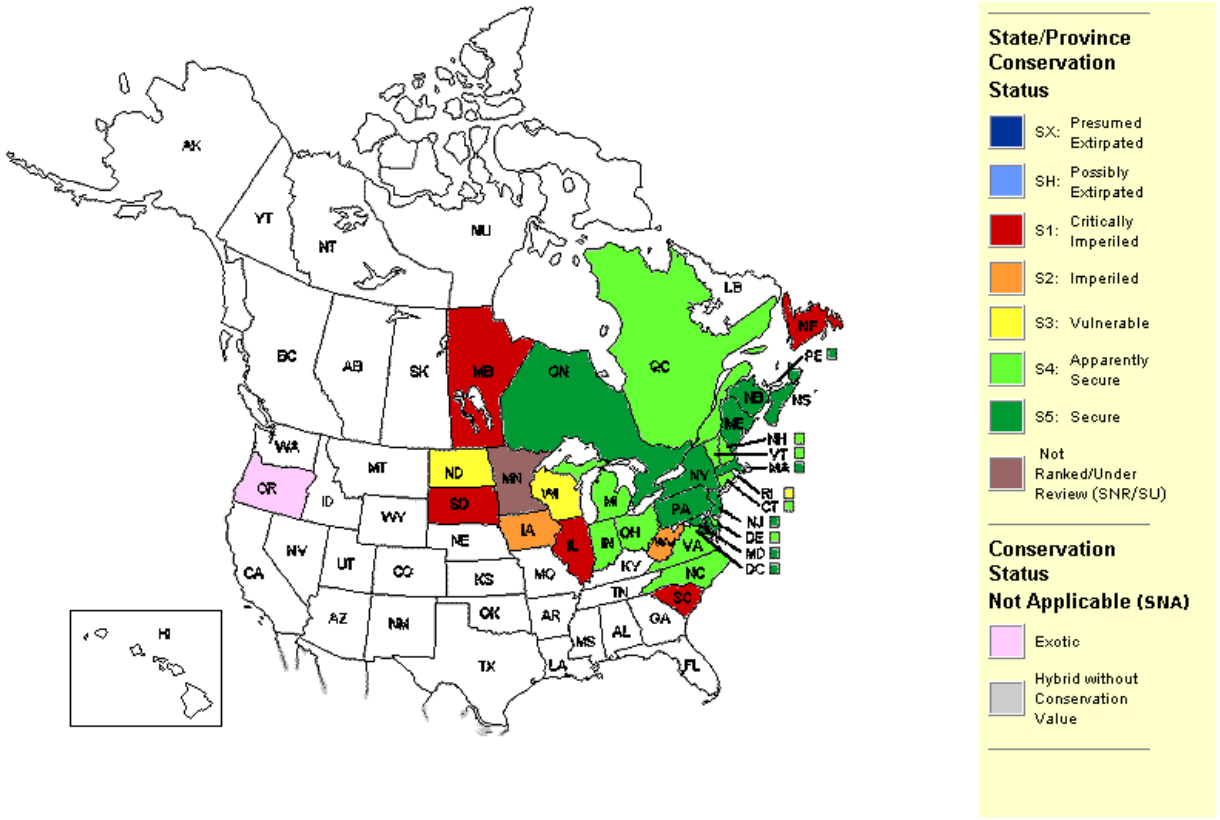
# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
22	111	1,143	12 (11%)	44 (4%)	5 (42%)	1 (67%) 1 (33%)

Mankowski notes and recommendation:
There has been an increase in observations over the last several intervals, but data for the species is sparse with only 22 total EOs, 7 (32%) of which have not been surveyed since 2001 or prior, and 7 (32%) of which are based on single observations.

During the 2007-2011 window, there was increased search effort resulting in five new occurrences and one new county and translocation/relocation activities intended to help recover the species resulting in one new occurrence and one new county during the period. However, there were no subsequent observations at the EO that served as the donor location (so that population may have been eliminated) nor at the new EO that received the relocated individuals (so relocated individuals may not have survived). Taking that into account, the net for the period is five new occurrences and one county added from increased search effort.

Mankowski recommendation – no change in status.

Fundulus diaphanus



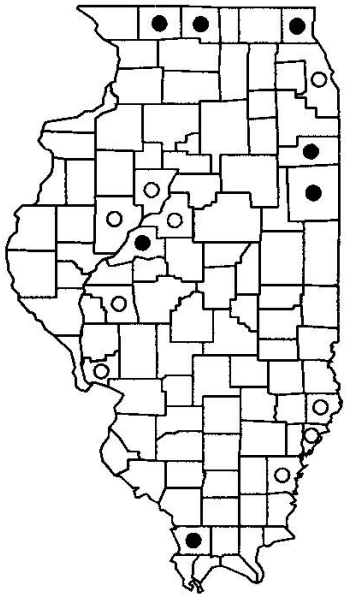
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Starhead Topminnow, Fundulus dispar (Illinois threatened)

Listed as IL T, 9/1/2004
Reason for listing: formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures

Fundulus dispar (Agassiz)

STARHEAD TOPMINNOW **CYPRINODONTIDAE** **Status:** Threatened in Illinois



Present Distribution: The northern starhead topminnow occurs in the Mississippi River and Lake Michigan basins south to the Ouachita River drainage of Arkansas and Louisiana (Page and Burr 1991). In Illinois it is most abundant in the northeastern part of the state with single occurrences also in Mason, Union and Winnebago counties.
Former Illinois Distribution: The distribution of the starhead topminnow is extremely sporadic in Illinois but it was often common in those few lakes and swamps were found (Smith 1979). It originally occurred in backwater lakes in the Illinois, Mississippi, and Wabash River drainage's, and the glacial lakes in the northeastern part of the state.
Habitat: In Illinois this species occurs in some glacial lakes, and in clear, well-vegetated floodplain lakes, swamps, and marshes, usually over sand or mud (Smith 1979).
Reason For Status: This species now has a much-reduced distribution in Illinois. The largest known populations are in the glacial lakes of northeastern Illinois. No recent records are known from the Illinois or Wabash River valleys. The disappearance of the starhead topminnow from the Wabash drainage is probably the result of oil pollution and drainage that has eliminated ideal floodplain swamp habitats (Smith 1979).
Management Recommendations: Protection of the glacial lakes in northeastern Illinois from development, pollution, and sport fish introductions are the most important management needs of this species in Illinois.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

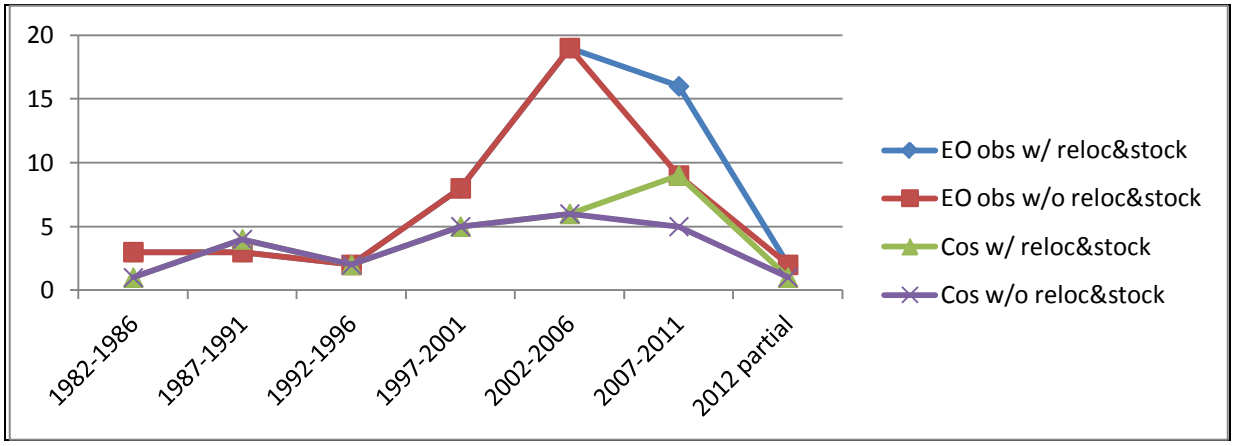
Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-09-10	53	33	4	39	22	13

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

Table and graph have entries to exclude from "EO obs" relocated and stocked EOs with no subsequent obs

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	3	3	2	8	19	16 (6){1}	2
Cos	1	4	2	5	6	9 (4)	1

(#) = # of EOs established by stocking, no subsequent obs
{#} = # of EOs stocked, but where 100% of subsequent obs were vouchered, with no additional sub obs



Reported vouchering
Year (# of voucher efforts) = 1882 (1); 1958 (1); 1962 (2); 1963 (2); 1964 (2); 1965 (2); 1967 (2); 1971 (1); 1972 (1); 1973 (1); 1979 (1); 1984 (3); 1991 (1); 1997 (2); 1998 (4); 1999 (4); 2001 (1); 2003 (1); 2005 (3); 2007 (1); 2008 (1); 2010 (1); 2011 (1)

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
53	118	11,620+ (1,544 w/o propagated)	39 (33%)	266 (2% of total) (17% of "wild")	36 (92%)	1 (72%) Others (15%) 1 (13%)

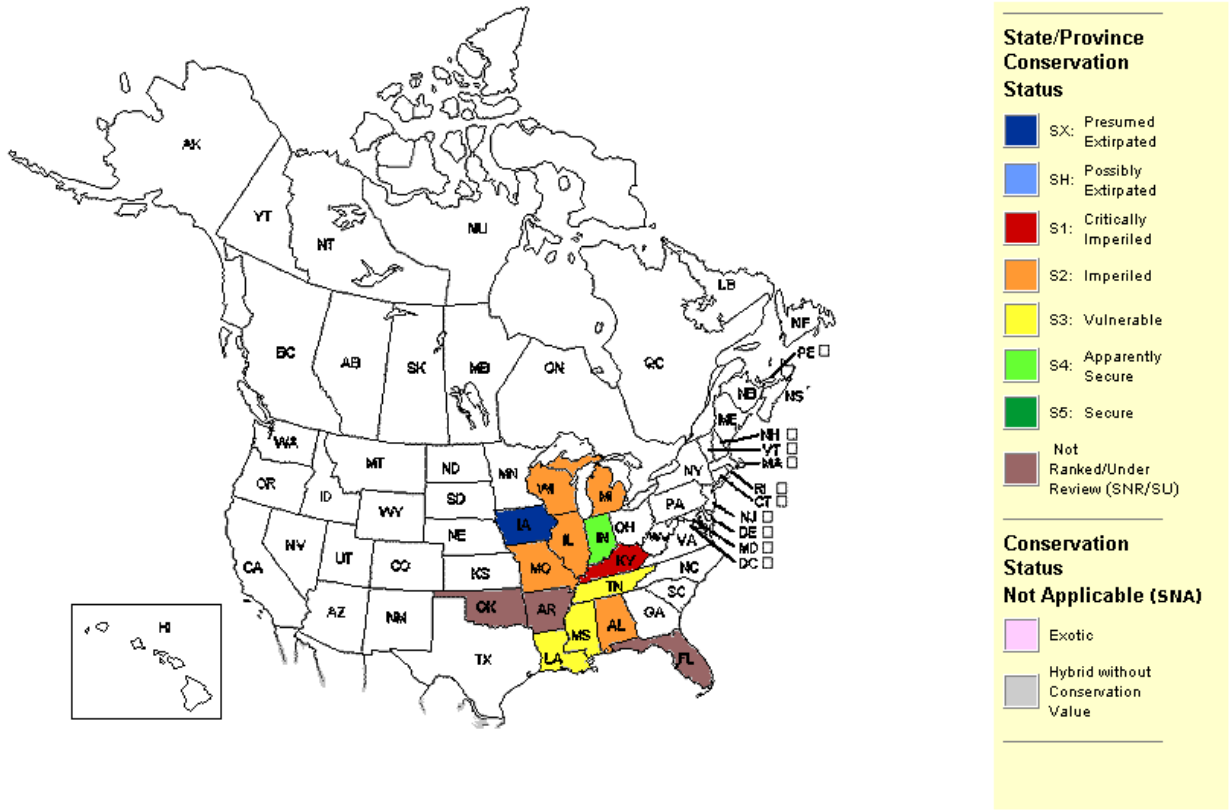
Mankowski notes and recommendation:
It appears that an increase in search effort accompanied the 2004 listing of this species and may explain the spike in observations during the 2002-2006 window. During the period, 33 of 53 (62%) of EOs were surveyed, adding 8 new EOs and 1 new county – all 8 EOs were single observations that have not been surveyed since. Overall, there are many EOs based on single observations (27 EOs, 51%) and many historic EOs for this species (20 EOs, 38%, have not been surveyed since 2001 or prior).

The apparent continuation of a positive trend into the 2007-2011 window does not reflect updated observations at existing EOs or addition of new naturally occurring EOs, but rather a boost from relocation/stocking efforts intended to help recover the species. During the subject period, nine new EOs (adding three counties) were established and one EO was augmented by stocking and relocation. Of the 10 efforts, only 3 had subsequent observations (not including 1 EO where 100% of subsequent observations were vouchered).

While propagation efforts seem to be successful for the species, it appears that vouchering may be counterproductive and impacting the continued conservation and/or recovery of this species in Illinois – excluding propagated individuals, 17% of individuals for this species that have been reported to the Illinois Natural Heritage Database were vouchered. It is unclear why some institutions continue to voucher specimens of the same species and it is unclear how IDNR evaluates how much vouchering to permit an individual researcher or institution or by species or site. The ESPB's policy does not endorse physical vouchering of live specimens and only endorses taking live specimens under specified terms for approved research. Additional vouchering is not recommended for this species.

Mankowski recommendation – no change in status. It is recommended that the Board advise the IDNR to not permit vouchering of this species.

Fundulus dispar



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Cypress Minnow, Hybognathus hayi (Illinois endangered)

Listed as IL E, 3/17/1989
Reason for listing: restricted habitats or low pops in IL;

Hybognathus hayi Jordan

CYPRESS MINNOW **CYPRINIDAE** **Status:** Endangered in Illinois

Present Distribution: The cypress minnow ranges in the Ohio and Mississippi River basins from southwest Indiana and southern Illinois to the Gulf of Mexico, also along Gulf Coast drainages (Page and Burr 1991). The cypress minnow has declined dramatically in abundance in the lower Ohio and lower Mississippi River basins (Warren and Burr 1989). In Illinois this species is apparently restricted to the Cache River and Horseshoe Lake drainage (Warren and Burr 1989).
Former Illinois Distribution: The cypress minnow has always been restricted to southern Illinois, but once also occurred in the Big Muddy River and Clear Creek drainages (Warren and Burr 1989).
Habitat: The cypress minnow is a lowland species inhabiting sluggish backwaters of streams, oxbows and cypress lakes over soft substrates, usually sand, overlain with silt and detritus or mud (Burr and Mayden 1982, Warren and Burr 1989).
Reason For Status: The cypress minnow is disappearing from the northern parts of its range (Page and Burr 1991), and was formerly thought to be extirpated in Illinois (Smith 1979). It was rediscovered in Illinois in 1984, but is known only from Horseshoe Lake, Alexander County, and the Cache River system in Johnson and Pulaski counties (Warren and Burr 1989).
Management Recommendations: Protection from wetland destruction, pollution, and excessive siltation are the primary needs of this species in Illinois (Warren and Burr 1989).

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

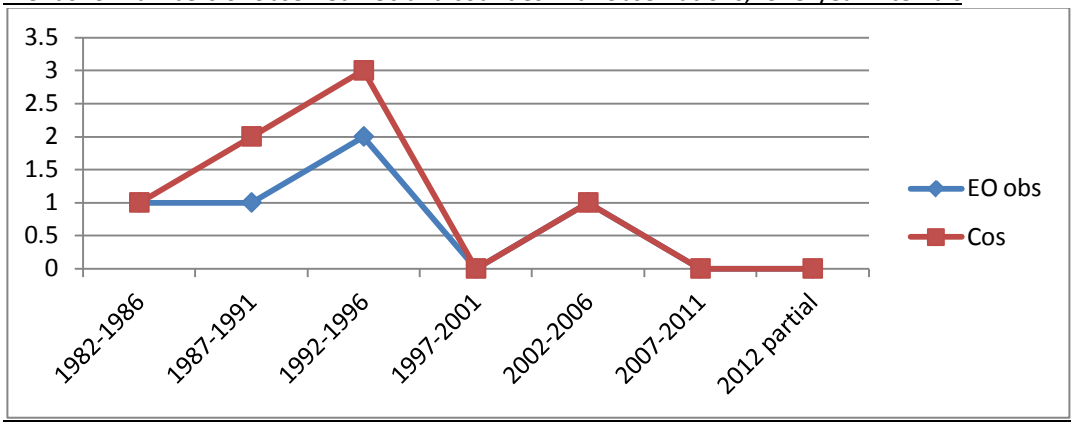
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2004-09-16	6	1	1	5	6	1

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	1	1	2	0	1	0	0
Cos	1	2	3	0	1	0	0

Trends for numbers of observed EOs and counties with observations, for 5-year intervals

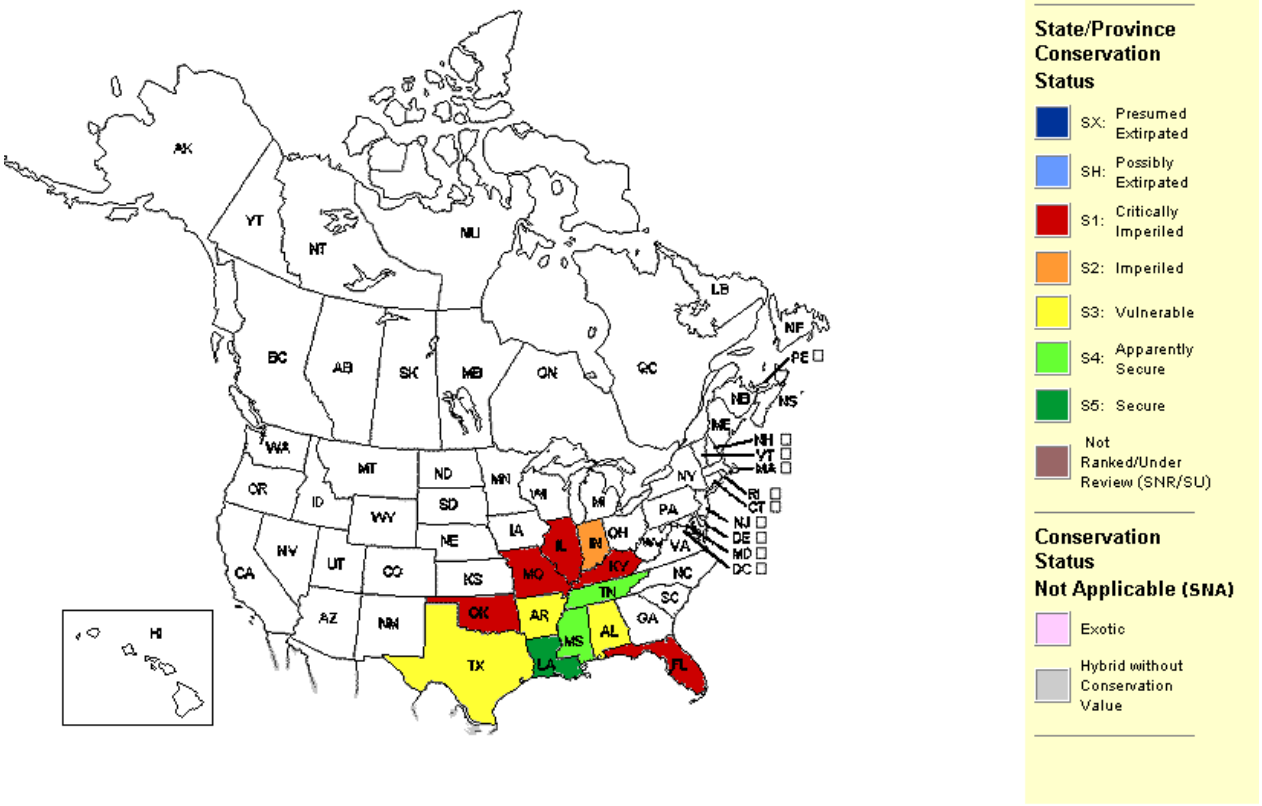


Reported vouchering

Year (# of voucher efforts) = 1993 (1); 2004 (1)

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
6	32	239	2 (6%)	4 (2%)	1 (50%)	1 (50%) 1 (50%)

Hybognathus hayi



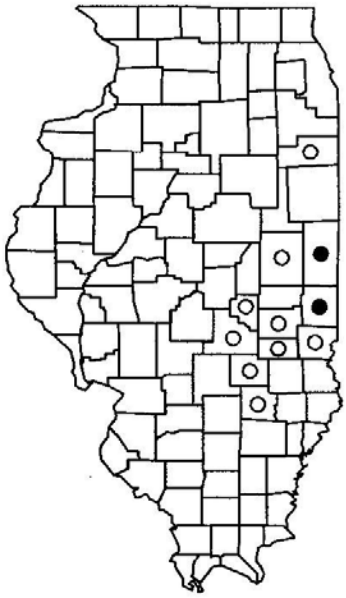
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Bigeye Chub, Hybopsis amblops (Illinois endangered)

Listed as IL E, 12/31/1977
Reason for listing: restricted habitats or low pops in IL;

Hybopsis amblops (Rafinesque)

BIGEYE CHUB **CYPRINIDAE** **Status:** Endangered in Illinois



Present Distribution: The bigeye chub is rapidly disappearing from many parts of its range, which within historic times extended from Oklahoma and eastern Kansas northeast to southern Michigan and western New York and south to northern Alabama and Georiga. This species is now extirpated in Kansas (Cross 1967), nearly extirpated from Illinois (Burr 1991), and is declining in much of its northern range, especially in agricultural areas (Page and Burr 1991). In Illinois the bigeye chub was recently found in the Vermilion River and Brouilletts Creek (Page and Retzer 2002).
Former Illinois Distribution: The bigeye chub once occurred in the Wabash, Kaskaskia, Vermilion, Embarras, and Little Wabash river systems (Warren and Burr 1988). O'Donnell (1935) described it as abundant in southeastern Illinois.
Habitat: The bigeye chub lives in rocky pools with current, usually occurring near riffles and vegetation (Page and Burr 1991).
Reason for Status: An exceptional intolerance of silt appears to be the most important factor causing the decline of the bigeye chub. The relationship between increased siltation and the decline of the bigeye chub was noted by Trautman (1957) and Smith (1968, 1971, 1979).
Management Recommendations: If high water quality is restored to certain streams in Illinois, particularly the Vermilion, Embarras, and Little Wabash rivers, the bigeye chub would continue to exist in southeastern Illinois.
Note: This species is referred to as *Notropis amblops* in previous editions (Herkert 1992).

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

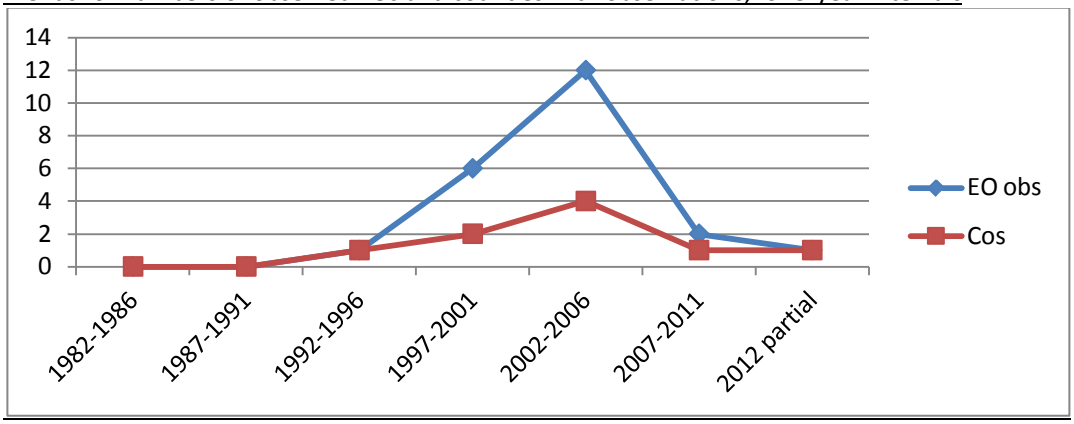
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-08-13	22	14	1	18	8	5

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	0	0	1	6	12	2	1
Cos	0	0	1	2	4	1	1

Trends for numbers of observed EOs and counties with observations, for 5-year intervals



Reported vouchering

Year (# of voucher efforts) = 1957 (1); 2001 (1); 2004 (1); 2006 (3); 2008 (1); 2012 (1)

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
22	38	318+	8 (21%)	35 (11%)	4 (50%)	1 (63%) 1 (25%) Others (12%)

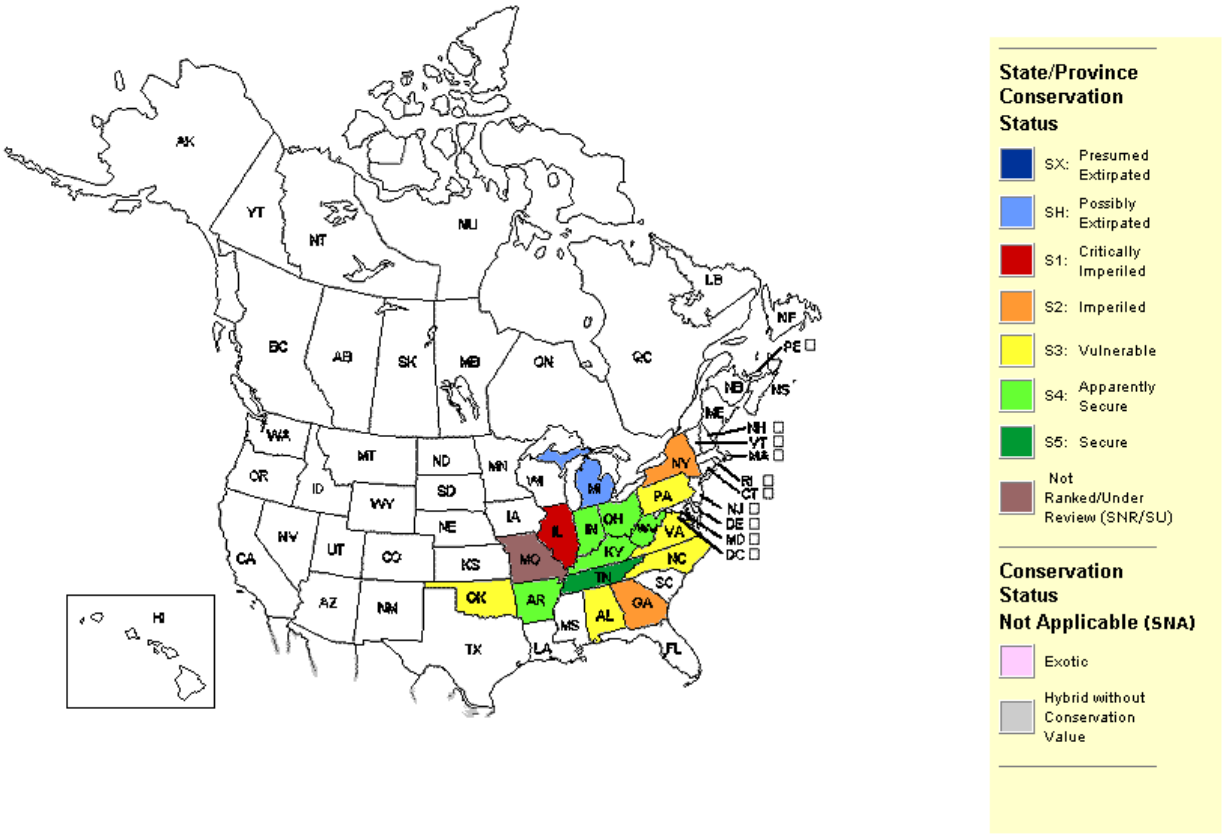
Mankowski notes and recommendation:

The spike in observations during the 2002-2006 window is encouraging and at least partly reflects increased search effort. There were 6 new occurrences and 2 new counties added during the period, however, all were based on single observations. Despite that bounce, overall the data is sparse for this species with 22 total EOs, where 8 (36%) have not been observed since 2001 or prior, 15 (68%) are based on single observations, and 3 of 8 counties have not had observations since 1950 or prior.

Vouchering may also be impacting the continued conservation and/or recovery of this species in Illinois with 11% of individuals reported to the Illinois Natural Heritage Database having been vouchered. It is unclear why some institutions continue to voucher specimens of the same species and it is unclear how IDNR evaluates how much vouchering to permit an individual researcher or institution or by species or site. The ESPB's policy does not endorse physical vouchering of live specimens and only endorses taking live specimens under specified terms for approved research. Additional vouchering is not recommended for this species.

Mankowski recommendation – no change in status. It is recommended that the Board advise the IDNR to not permit vouchering of this species.

Hybopsis amblops



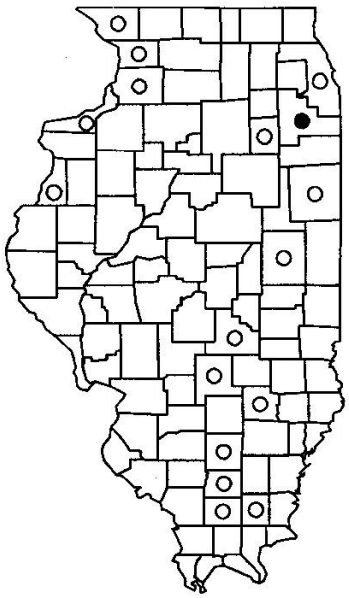
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Pallid Shiner, Hybopsis amnis (Illinois endangered)

Listed as IL E, 3/17/1989
Reason for listing: formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures

Hybopsis amnis (Hubbs & Greene)

PALLID SHINER **CYPRINIDAE** **Status:** Endangered in Illinois



Present Distribution: The pallid shiner occurs in the Mississippi River basin from Wisconsin and Michigan south to Louisiana, also in Gulf Coast drainages from Louisiana to Texas (Page and Burr 1991). In Illinois it is apparently restricted to the Illinois, Mississippi, and Kankakee rivers (Page and Retzer 2002).
Former Illinois Distribution: The pallid shiner formerly occurred in the Kaskaskia, Little Wabash, Wabash, Saline, Big Muddy and, possibly, in the Mackinaw and Sangamon river systems (Warren and Burr 1989).
Habitat: In Illinois the pallid shiner occurs in pools with negligible current in medium to large rivers having clear water and a sand-silt substrate (Skelly and Sule 1983, Kwak 1991). It is apparently intolerant of excessive siltation and turbidity (Pflieger 1975).
Reason For Status: Pflieger (1975) wrote that no other Missouri fish had exhibited as sharp a decline as the pallid shiner between 1945 and 1975, and listed it as on the verge of elimination within Missouri. In Illinois, Smith (1979) regarded it as nearly extirpated. The reasons for the decline of this species are unknown but probably involve increased siltation from changing land use patterns (Pflieger 1975).
Management Recommendations: Protection from siltation and water control structures are the primary management needs for the pallid shiner in Illinois.
Note: This species is referred to as *Notropis amnis* in previous editions (Herkert 1992).

KEY
The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

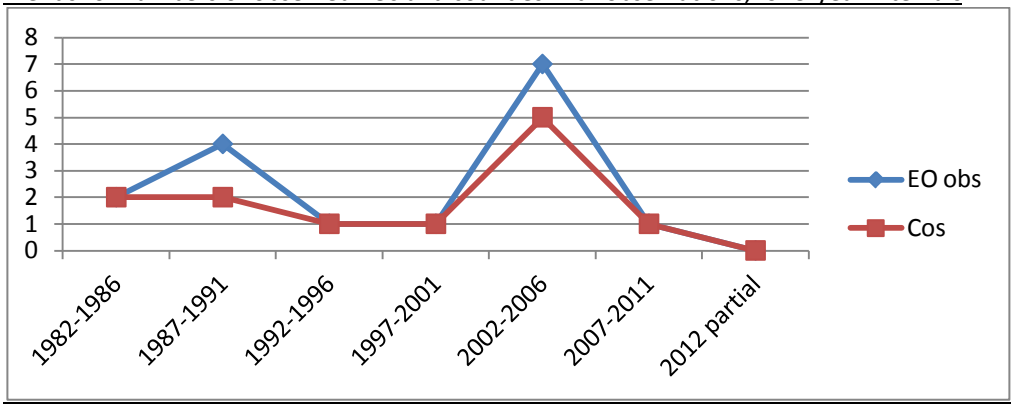
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2010-06-28	16	7	2	12	8	4

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	2	4	1	1	7	1	0
Cos	2	2	1	1	5	1	0

Trends for numbers of observed EOs and counties with observations, for 5-year intervals



Reported vouchering
Year (# of voucher efforts) = 1987 (1); 2005 (4); 2010 (1)

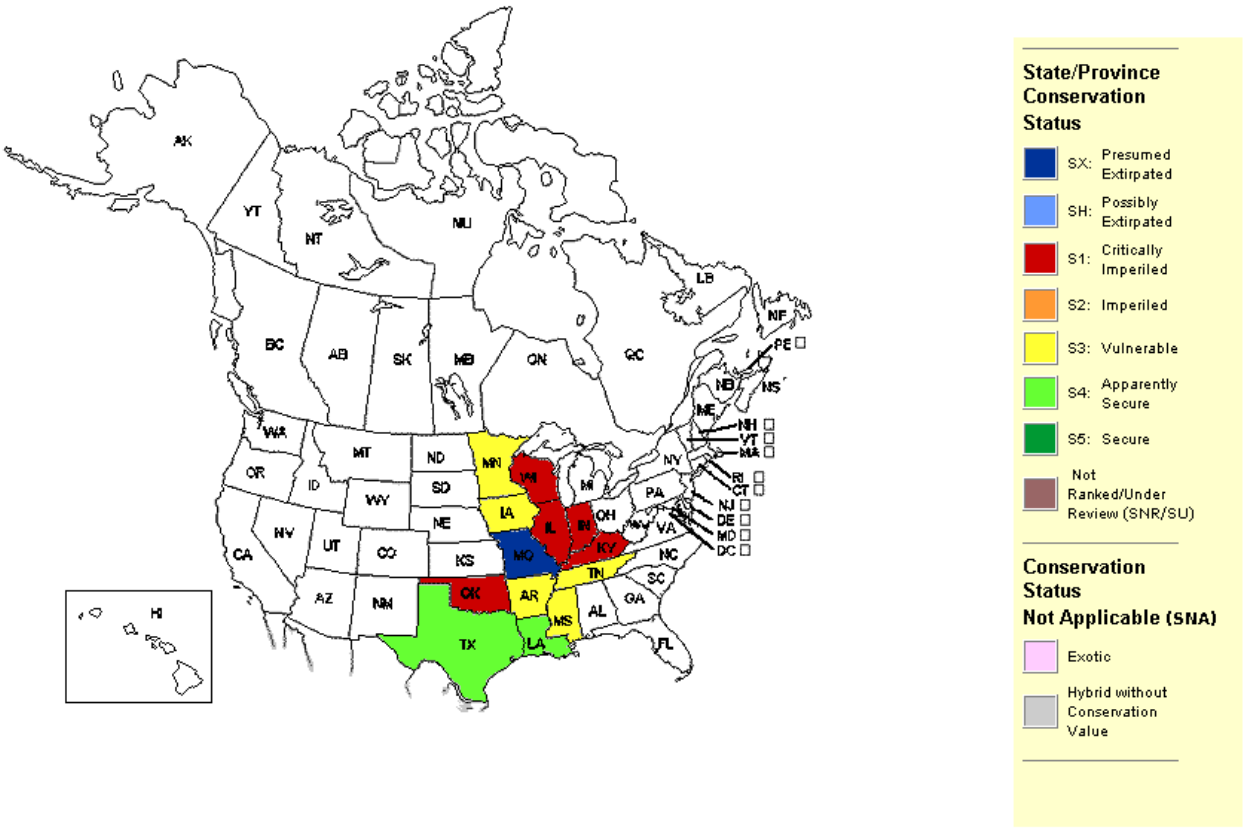
# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
16	48	125	6 (13%)	10 (8%)	6 (100%)	1 (83%) Other 17%)

Mankowski notes and recommendation:
The spike in observations during the 2002-2006 window is encouraging and at least partly reflects increased search effort. There were three new occurrences and one new county added during the period, however, all were based on single observations and 100% of individuals sampled were vouchered. Despite that bounce, overall the data is sparse for this species with 16 total EOs, where 7 (44%) have not been observed since 2001 or prior, 11 (69%) are based on single observations, and 3 of 8 counties have not had observations since 1963 or prior.

As mentioned above, vouchering may also be impacting the continued conservation and/or recovery of this species in Illinois with vouchering taking place for 8% of all individuals and 100% of individuals from four new occurrences since 2005 (three in 2005 and one in 2010) reported to the Illinois Natural Heritage Database. It is unclear why some institutions continue to voucher specimens of the same species and it is unclear how IDNR evaluates how much vouchering to permit an individual researcher or institution or by species or site. The ESPB's policy does not endorse physical vouchering of live specimens and only endorses taking live specimens under specified terms for approved research. Additional vouchering is not recommended for this species.

Mankowski recommendation – no change in status. It is recommended that the Board advise the IDNR to not permit vouchering of this species.

Hybopsis amnis



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Northern Brook Lamprey, Ichthyomyzon fossor (Illinois endangered)

Listed as IL E, 3/17/1989
Reason for listing: restricted habitats or low pops in IL;

Ichthyomyzon fossor Reighard & Cummins

NORTHERN BROOK LAMPREY **PETROMYZONTIDAE** **Status:** Endangered in Illinois

Present Distribution: The northern brook lamprey ranges in the St. Lawrence River, from Quebec west through the Great Lakes and northern Mississippi River basins; also local in Ohio River basin of northwest Pennsylvania, western West Virginia, eastern Kentucky, Ohio and northern Indiana, and the Missouri River basin in Missouri (Page and Burr 1991). In Illinois the northern brook lamprey is apparently restricted to the Kankakee River (Page and Retzer 2002).
Former Illinois Distribution: The only Illinois collections of this species are all somewhat recent (1963-1991) records from the Kankakee River in Kankakee County (Page and Retzer 2002).
Habitat: Adult northern brook lampreys occur in clean, clear gravel riffles and runs of small rivers; the larval stage inhabits quiet waters over sand, silt and debris (Page and Burr 1991). Sutton and Bowen (1994) have demonstrated the importance of detritus in the diet of the northern brook lamprey.
Reason For Status: This lamprey has a very restricted range in Illinois and its habitat is threatened by declining water quality.
Management Recommendations: Efforts to protect the Kankakee River from degradation are needed to protect stream faunas and the northern brook lamprey.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

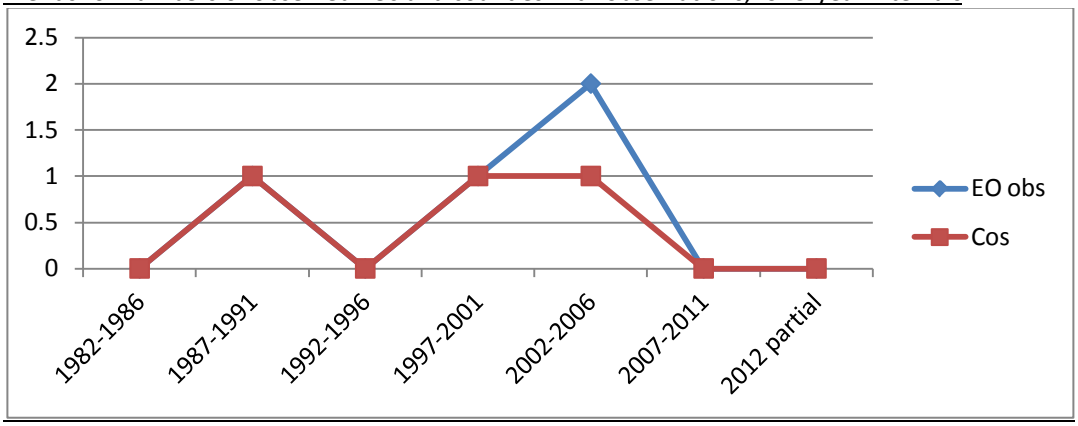
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
1998-04-12	4	0	0	4	2	1

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	0	1	0	1	2	0	0
Cos	0	1	0	1	1	0	0

Trends for numbers of observed EOs and counties with observations, for 5-year intervals

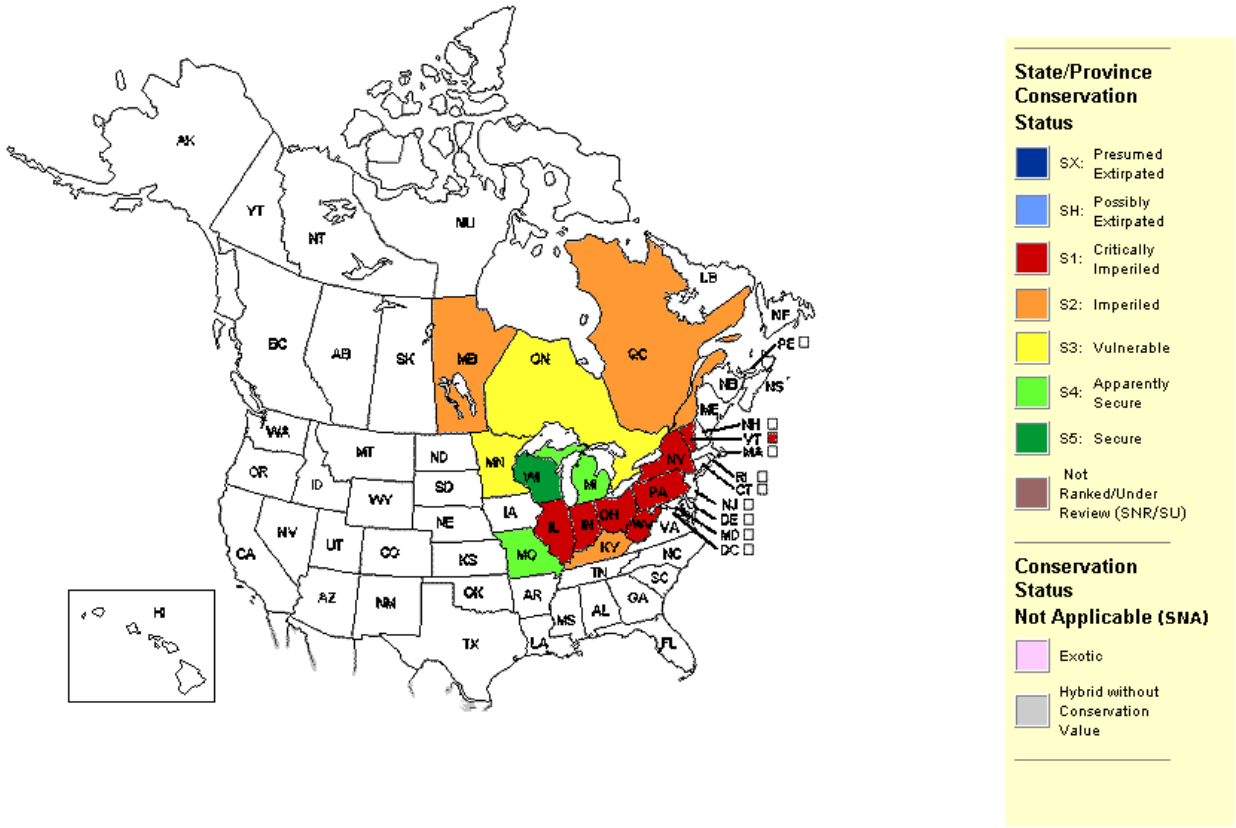


Reported vouchering

Year (# of voucher efforts) = 1998 (1)

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
4	7	10	1 (14%)	2 (20%)	1 (100%)	1 (100%)

Ichthyomyzon fossor



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Least Brook Lamprey, Lampetra aepyptera (Illinois threatened)

Listed as IL T, 3/17/1989
Reason for listing: restricted habitats or low pops in IL;

Lampetra aepyptera (Abbott)

LEAST BROOK LAMPREY **PETROMYZONTIDAE** **Status:** Threatened in Illinois

Present Distribution: The least brook lamprey occurs in the Atlantic slope from southeastern Pennsylvania to North Carolina; and in the Mississippi River basin from western Pennsylvania to south-central Missouri and northern Arkansas south to northern Alabama (Page and Burr 1991). In Illinois this lamprey is known from only five creeks in the southern part of the state.
Former Illinois Distribution: The least brook lamprey was first discovered in Illinois in 1956 (Gunning and Lewis 1956). It may have once occurred throughout the eastern portion of the Shawnee Hills of southern Illinois, but has apparently always been rare within the state.
Habitat: Adult least brook lampreys occupy clean, clear, gravelly riffles and runs of creeks and small rivers; the larval stage occurs in spring-fed wetlands, quiet pools, and backwaters of small sand or mud bottom streams (Page and Burr 1991). Sex ratios for this species may be density dependent, and detritus could be a major food source for larvae (Docker and Beamish 1994, Sutton and Bowen 1994).
Reason For Status: The least brook lamprey is known to occur at few locations in the state and is dependent on clean, clear water.
Management Recommendations: Protection from impoundments and siltation in streams known to support this species is needed in order to insure the continued existence of this lamprey in Illinois.

KEY

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Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

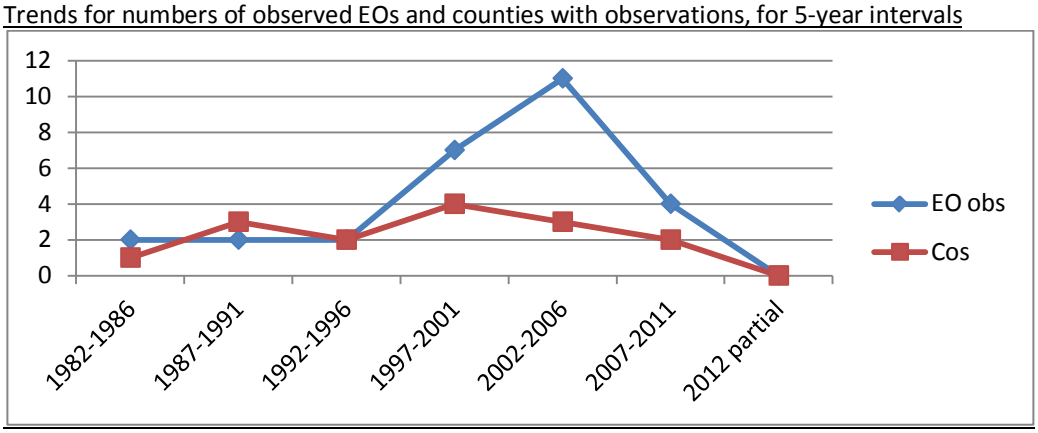
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2010-10-08	13	12	0	9	4	4

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	2	2	2	7	11	4	0
Cos	1	3	2	4	3	2	0

Trends for numbers of observed EOs and counties with observations, for 5-year intervals



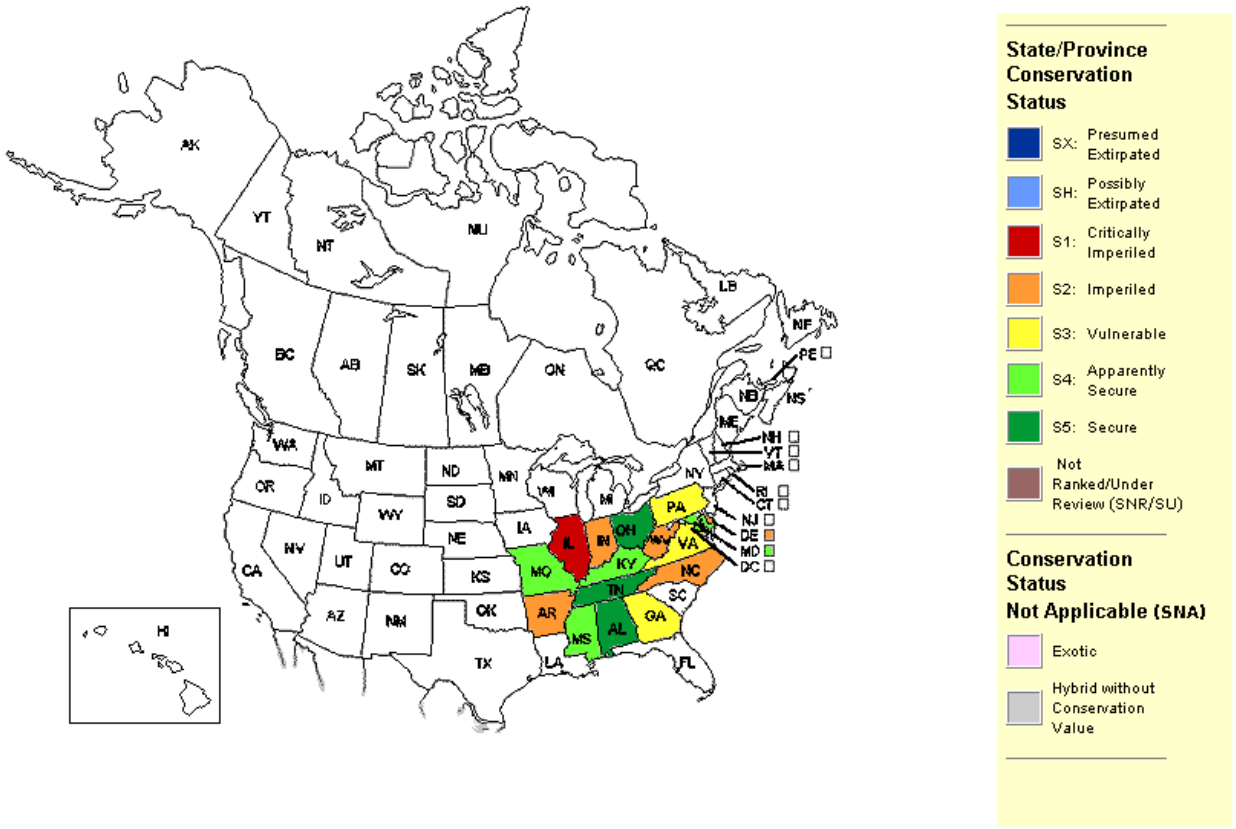
Reported vouchering
Year (# of voucher efforts) = 1976 (1); 1998 (4); 2000 (1); 2001 (1)

# of EOs	# of reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
13	62	1,535+	7 (11%)	96+ (6%)	3 (43%)	1 (71%) 1 (29%)

Mankowski notes and recommendation:
Increased search effort at may explain a boost in observations during the 1997-2001 and 2002-2006 windows. Those efforts confirmed observations at eight known locations, and did not report "surveyed with no observations" at any locations, and added five new EOs. The recent increase in observations and new occurrences is encouraging, although three EOs are based on single observations and one is based on two observations made during the same year.

Mankowski recommendation – no change in status.

Lampetra aepyptera



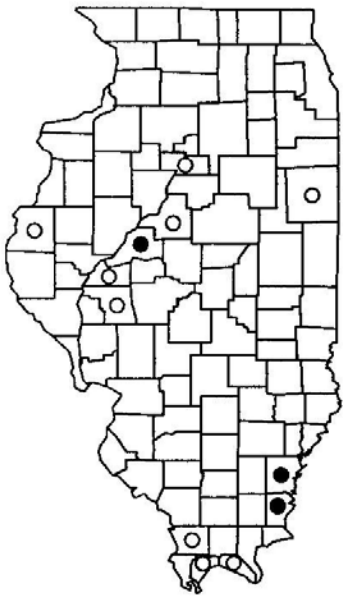
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Redspotted Sunfish, Lepomis miniatus (Illinois endangered)

Listed as IL T, 3/17/1989; Listed as E 10/30/2009
Reason for listing: restricted habitats or low pops in IL;

Lepomis miniatus Forbes and Richardson

REDSPOTTED SUNFISH **CENTRARCHIDAE** **Status:** Threatened in Illinois



Present Distribution: A species of the Mississippi River valley and its major tributaries, the redspotted sunfish ranges from Illinois to Texas and Louisiana. This species is presently found in only a few bottomland lakes, swamps, and sluggish ditches along the middle Illinois River valley and in the southern part of the state in the Ohio, Wabash, Little Wabash, Illinois, Cache and Mississippi rivers (Smith 1979).
Former Illinois Distribution: Although never abundant in Illinois, the redspotted sunfish was once more widespread than at present. It is now known from a few bottomland lakes in Mason, White, and Gallatin counties in Illinois.
Habitat: This sunfish occurs in shallow water of swamps, bottomland lakes, and sluggish ditches, usually over mud or sand, in association with dense beds of vegetation (Warren 1989, Page and Burr 1991).
Reason For Status: The decline of the redspotted sunfish in Illinois is probably the result of the drainage of swamps, bottomland lakes, and the general deterioration of water quality. In the lower Wabash River, oil pollution is a possible reason for the species decline (Smith 1979).
Management Recommendations: Increased protection of swamp, slough and lake habitats are essential to adequately protect this species in Illinois.
Note: Page and Burr (1991) considers this entity to be a subspecies of *Lepomis punctatus*.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

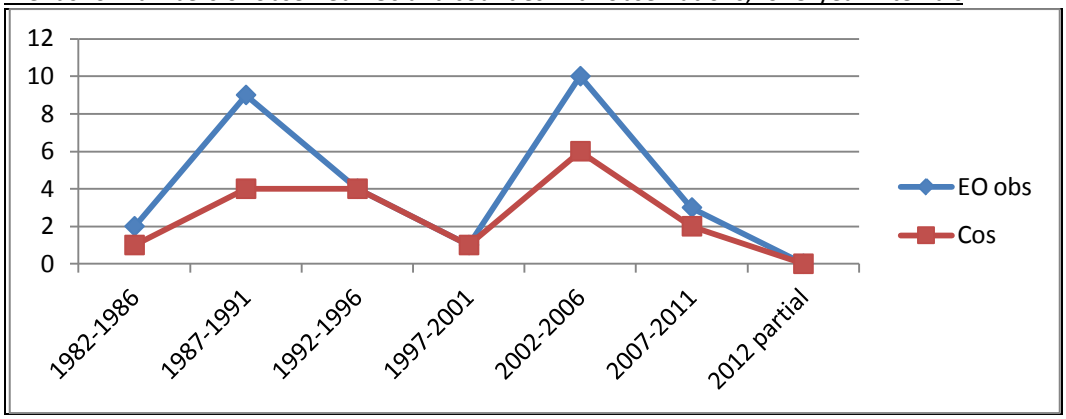
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2010-10-20	27	11	1	23	13	7

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	2	9	4	1	10	3	0
Cos	1	4	4	1	6	2	0

Trends for numbers of observed EOs and counties with observations, for 5-year intervals



Reported vouchering
Year (# of voucher efforts) = 1976 (1); 1989 (1); 1993 (1); 2003 (1); 2007 (1)

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
27	71	6,124+ (2,124 w/o propagation)	5 (7%)	12 (0.2% of total) (0.6% of "wild")	5 (100%)	1 (60%) 1(20%) Other (20%)

Mankowski notes and recommendation from 12/14/12 1st cut fish list review draft:

There were no notes or recommendation for a change in status – data do not warrant change.

ESPB TEC comments/evidence in response to Mankowski recommendation from 12/14/12 1st cut fish list review draft document and Mankowski response included in 01/25/13 1st cut fish list review final document:

ESPB TEC Trent Thomas comments received 12/28/12:
A great amount of effort has been put into the redspotted sunfish in recent years. Initial efforts included a statewide survey of historic occurrence records for this species. Although some newly discovered locations were discovered in this effort, it was determined that only two relatively stable remnant populations existed in the state.

In southeast Illinois, a population was found in a tributary of the Saline River basin. This population has not been revisited for several years now to confirm its status. As that area has had bouts with both extreme flood events and extended drought conditions, a visit is warranted and recommended.

In the region of the Middle Illinois River basin, a sizeable population was also discovered. This natural remnant population has met with a significant decline in the number of individuals since 2009, when persistent high water conditions brought schools of grass carp and possibly an influx of agricultural herbicides into the reach known to support redspotted sunfish. As a result, a precipitously. Furthermore, the drought of 2012 caused the supporting stream to drop to nearly dry conditions. It is yet to be seen if this was an extirpation event for the redspotted sunfish at that location.

Prior to 2009, this population supported successful efforts of captive propagation and translocation. Two refuge populations were established that have proven highly productive to date. The 72-acre refuge population at Emiquon Nature Preserve was established with more than 8,000 pond-reared redspotted sunfish. This refuge population has already supported the translocation of over 15,000 redspotted sunfish to water bodies at Emiquon Nature Preserve, Dixon Waterfowl Refuge, Banner Marsh State Fish and Wildlife Area, Spring Lake State Fish and Wildlife Area, and Snakeden Hollow State Fish and Wildlife Area. There is likely more redspotted sunfish in Illinois now than at any recorded point in history. Furthermore, genetic analyses have confirmed that the propagation efforts have succeeded in capturing the genetic diversity (albeit, relatively low when compared to larger populations in Missouri) of the source population.

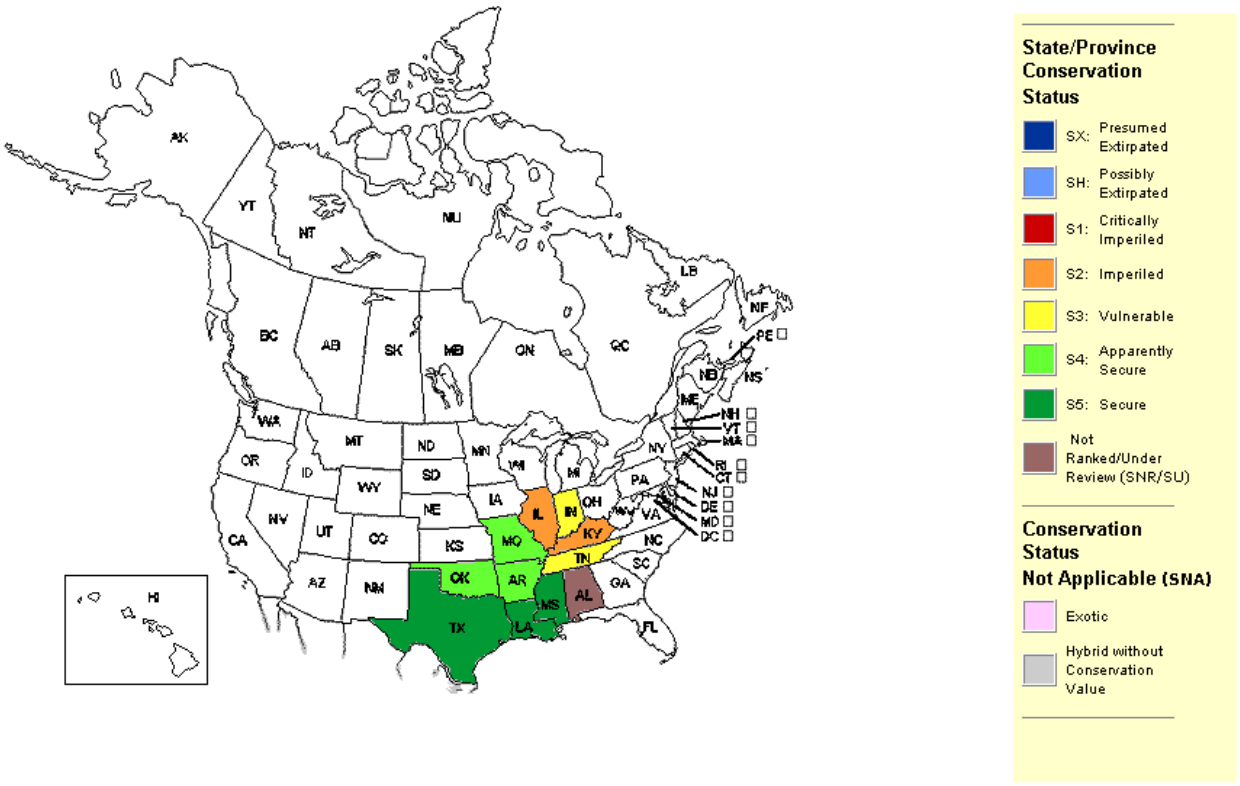
Although the known natural remnant populations of redspotted sunfish continue to be highly vulnerable to perturbations, I feel the species is no longer in immediate danger of becoming extirpated. The establishment of two "genetically correct" refuge populations has insured this. Reintroduced populations into suitable water bodies in the region are also showing promising signs of continued success with this species.

I recommend upgrading redspotted sunfish from endangered to threatened at this time.

Mankowski response 01/13/13:
Comment was submitted with accompanying report that will be forwarded to the IDNR Natural Heritage Database for their consideration/investigation. As I believe you understand, the data needs to be in the Database for consideration by the ESPB in the List review. I will include your comment and my response in the final draft ESPB staff fish list review document submitted to the Board for consideration at the February Board meeting.

While the comments and submitted report speak to multiple (5) newly stocked occurrences, evidence documenting those occurrences was not in the Database as of November 2012 for consideration in this draft of the ESPB fish list review. Any stocked locations will need to have subsequent observations documented to the Database over a few years to demonstrate survivorship and success. As of November 2012, the Database only had one EO (in Fulton County) identified as a stocked location and it is noted as having subsequent observation after one year. The report submitted speaks to subsequent observations at two locations after one year. Consistent with ESPB procedure in the List review, the evidence submitted needs to verified by the Database. However, it appears that the evidence submitted only proposes one possible additional EO with subsequent observation after only one year. While the ongoing stocking work may result in data that warrants a recommendation for a change in status during the next 5-year review, at this time, I maintain my recommendation for no change in status.

Lepomis miniatus



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Bantam Sunfish, Lepomis symmetricus (Illinois threatened)

Listed as IL T, 12/31/1977
Reason for listing: restricted habitats or low pops in IL;

Lepomis symmetricus Forbes

BANTAM SUNFISH **CENTRARCHIDAE** **Status:** Threatened in Illinois

Present Distribution: Primarily restricted to the Gulf Coastal Plain, the bantam sunfish ranges from southern Illinois to Texas and Louisiana (Burr 1977). The species is common in the southern part of its range, but in Illinois it presently occurs only from the Pine Hills area south through the Clear Creek drainage to Horseshoe Lake (Burr *et al.* 1988).
Former Illinois Distribution: The bantam sunfish was first described from specimens collected in 1880 from Pekin, Tazewell County (Burr 1977). The species also formerly occurred in backwater ponds and sloughs of the Wabash River in White County.
Habitat: This sunfish lives in swamps and mud-bottomed, heavily vegetated ponds, lakes, and sloughs (Page and Burr 1991).
Reason for Status: The species disappeared for unknown reasons from Tazewell and White counties near the turn of the century. The Union County populations are on the edge of this sunfish's present range, and this region may provide the only remaining suitable habitat for the species in Illinois.
Management Recommendations: The population in Pine Hills Swamp was protected by the establishment of the LaRue-Pine Hills Ecological Area, and the north end of Wolf Lake is now part of Shawnee National Forest and is protected from exploitation. However, complete protection of Wolf Lake from accidental chemical discharges, spills and other forms of pollution are necessary to protect the unusual animals in the lake.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

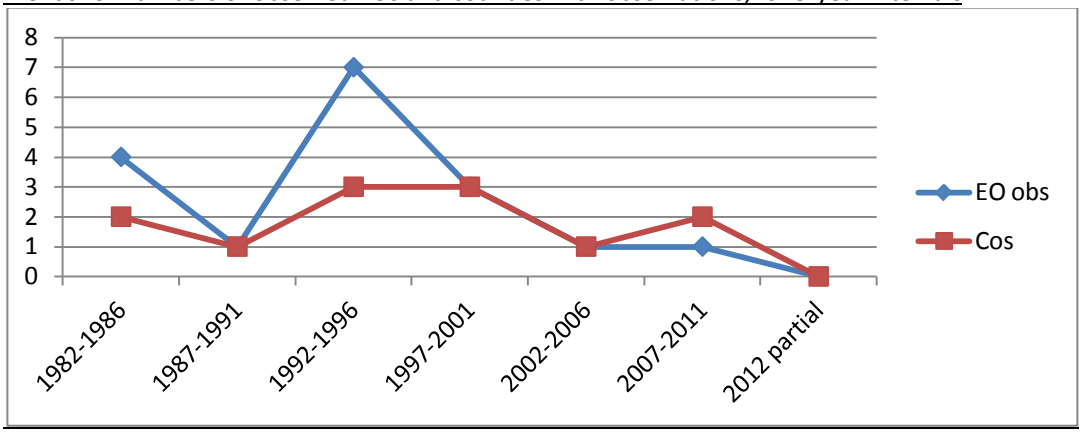
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2009-07-08	12	2	0	8	5	3

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	4	1	7	2	1	2	0
Cos	2	1	3	3	1	2	0

Trends for numbers of observed EOs and counties with observations, for 5-year intervals



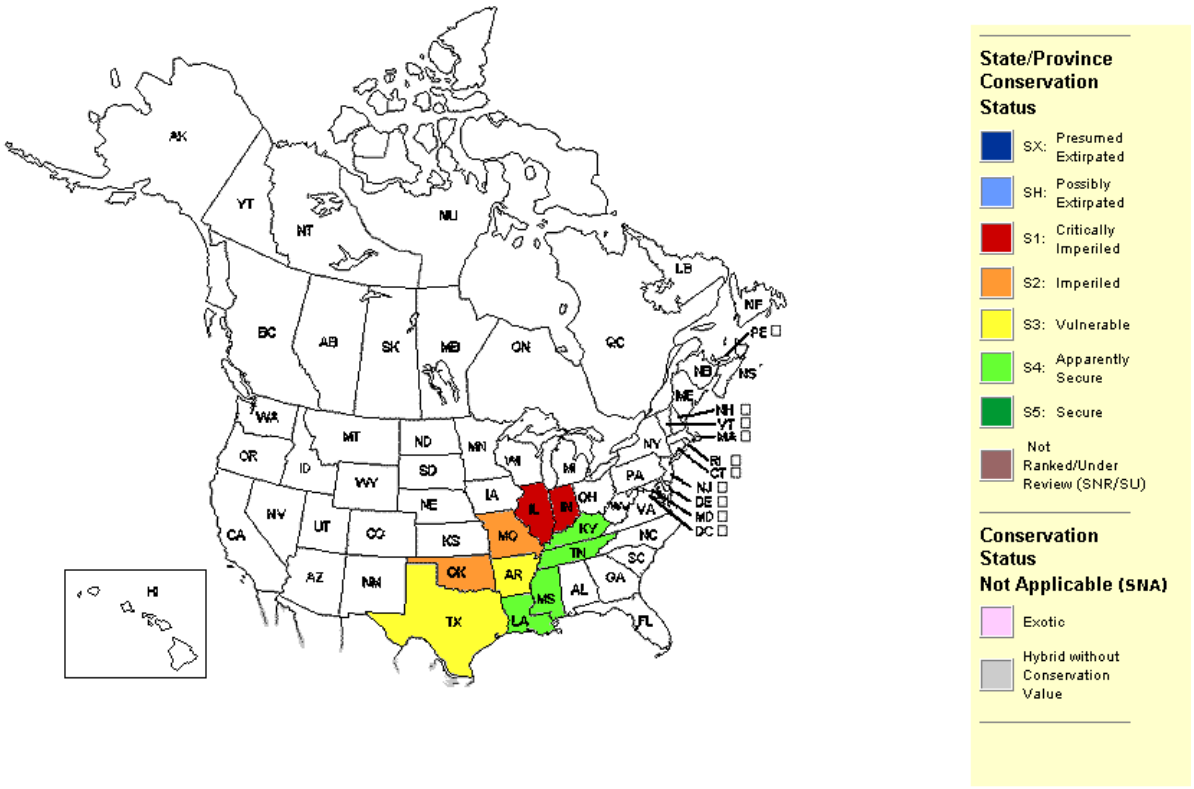
Reported vouchering
Year (# of voucher efforts) = 1985 (2); 2004 (1)

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
12	49	221	3 (6%)	19 (9%)	3 (100%)	1 (33%) 1 (33%) Other (33%)

Mankowski notes and recommendation:
The data for this species is very sparse and while there appears to be a decline in observations, it may be related to search effort. Of the total 12 EOs for the species, 8 (67%) have not had reports since 2001 or prior and 6 (50%) are based on single-year observations; 4 are based single observations, 1 is based on two observations made during a single year, and 1 is based on three observations made during a single year. During the 20-year period beginning in 1992, there were 14 EO reports submitted, adding 6 new EOs and only 2 reports documented "surveyed with no observation" for existing EOs. Additional years of survey data would be helpful in evaluating whether this species' status has declined and warrants a change from threatened to endangered.

Mankowski recommendation – no change in status.

Lepomis symmetricus



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Sturgeon Chub, Macrhybopsis gelida (Illinois endangered)

Listed as IL E, 1/18/1994
Reason for listing: restricted habitats or low pops in IL;

Macrhybopsis gelida (Girard)

STURGEON CHUB **CYPRINIDAE** **Status:** Endangered in Illinois

Present Distribution: The sturgeon chub occurs in the Missouri River basin from Montana and Wyoming to Illinois, the Mississippi River between the mouths of the Missouri and Ohio Rivers, and in southern Mississippi and Louisiana (Page and Burr 1991). It is fairly common in the Missouri River but relatively rare elsewhere (Page and Burr 1991).
Former Illinois Distribution: In Illinois, this fish is restricted to the Mississippi River below the mouth of the Missouri River. Historically, it is known from Madison, Jackson, and Union counties.
Habitat: In Illinois, the sturgeon chub is found in shallow fast riffles over fine gravel or coarse sand of medium to large turbid rivers (Smith 1979, Page and Burr 1991).
Reason for Status: The sturgeon chub has apparently always been rare in Illinois due to its highly specialized habitat requirements. However, populations in the state are now declining and sporadic. Sturgeon chubs appear to be declining throughout much of their range (L. Page, personal communication).
Management Recommendations: Like other Illinois fishes that inhabit large river systems, the sturgeon chub is in need of clean water and silt-free breeding substrates. Further modifications of the lower Mississippi River, particularly by siltation, channelization and impoundments, would likely limit the potential for recovery of this species in Illinois. Its life history is poorly known, making management difficult.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

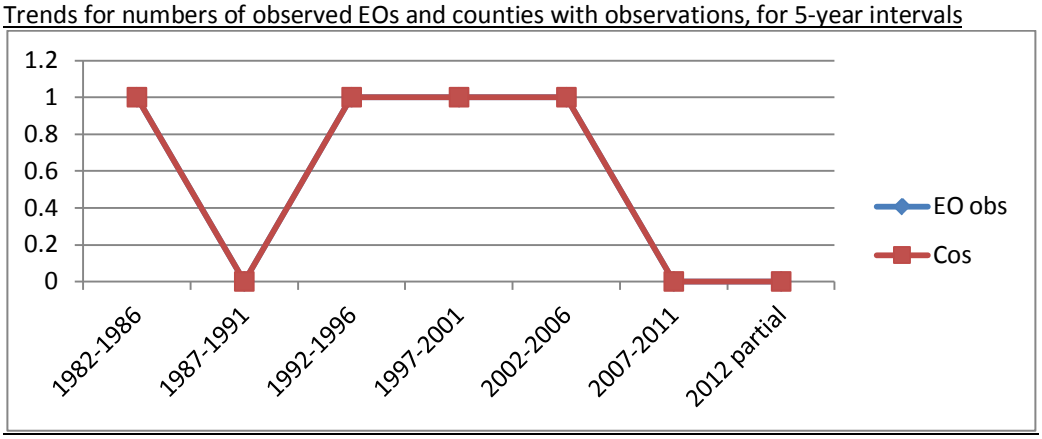
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2003-03-22	1	1	0	2	1	1

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	1	0	1	1	1	0	0
Cos	1	0	1	1	1	0	0

Trends for numbers of observed EOs and counties with observations, for 5-year intervals

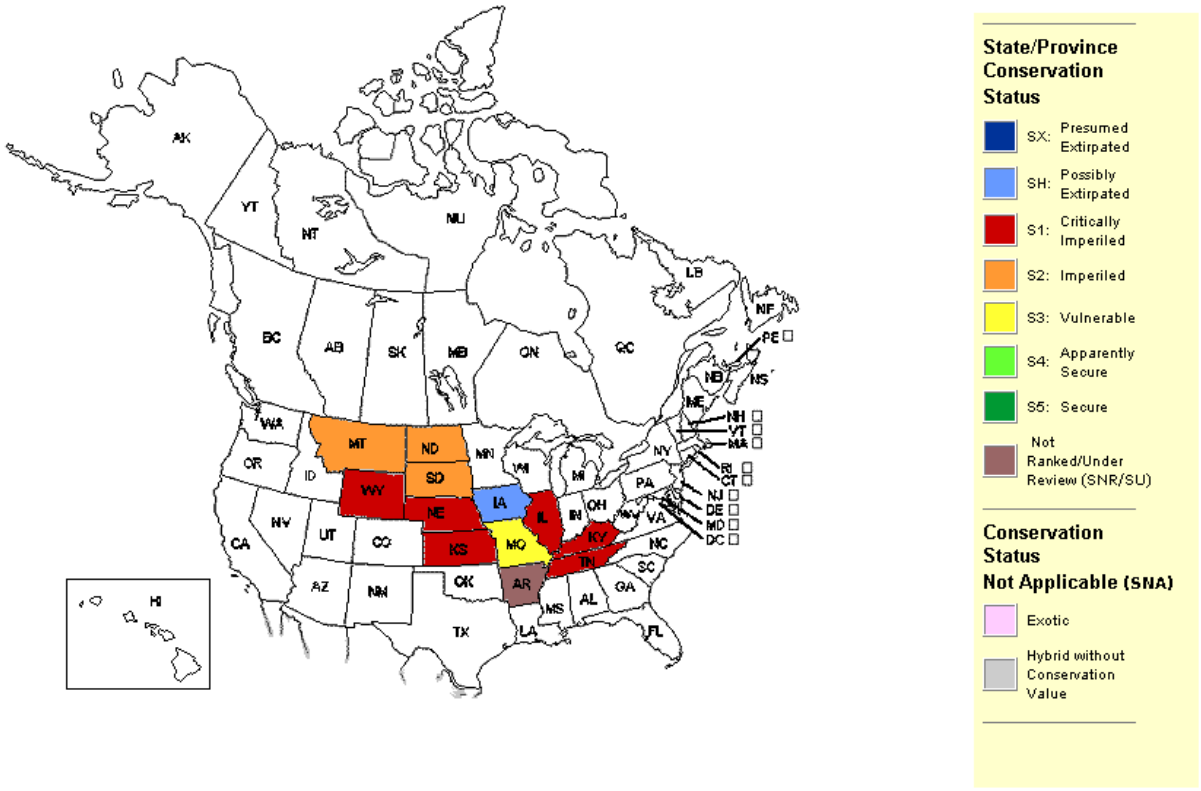


Reported vouchering

Year (# of voucher efforts) =

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
1	14	41	0	0	0	n/a

Macrhybopsis gelida



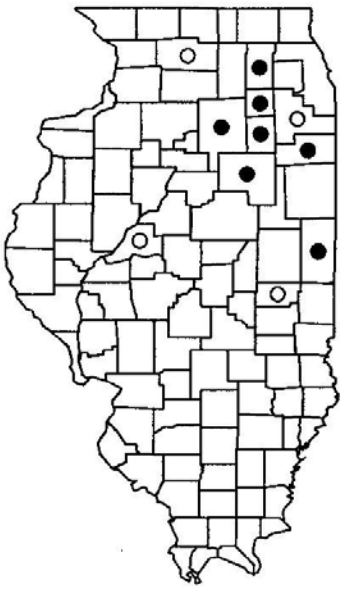
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

River Redhorse, Moxostoma carinatum (Illinois threatened)

Listed as IL T, 3/17/1989
Reason for listing: restricted habitats or low pops in IL;

Moxostoma carinatum (Cope)

RIVER REDHORSE **CATOSTOMIDAE** **Status:** Threatened in Illinois



Present Distribution: The river redhorse occurs in the St. Lawrence-Great Lakes and Mississippi River basins from southern Quebec to central Minnesota and western Iowa, south to northern Alabama and eastern Oklahoma, also along the Gulf Coast drainages from Florida to Mississippi (Page and Burr 1991). Since 1980, the river redhorse has been recorded from 10 localities in Illinois. These records are all restricted to the upper Illinois River basin and to the Vermilion River basin of the Wabash River (Retzer and Kowalik 2002).
Former Illinois Distribution: This species has apparently always been relatively rare in Illinois, occurring only in the Wabash, Rock and Illinois river drainages (Jordan 1878, Forbes and Richardson 1908, O'Donnell 1935, Retzer and Kowalik 2002).
Habitat: The river redhorse inhabits deep, swift, gravelly riffles of small and medium sized rivers and is apparently intolerant of silty bottoms, turbid water, intermittent flow, and pollution (Pflieger 1975, Smith 1979).
Reason For Status: The river redhorse has a limited distribution within Illinois and is threatened by declining water quality, siltation, increased turbidity and pollution.
Management Recommendations: Maintenance of high water quality and protection from siltation, increased turbidity, and pollution in streams in which this species occurs are the primary management needs for the river redhorse in Illinois.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

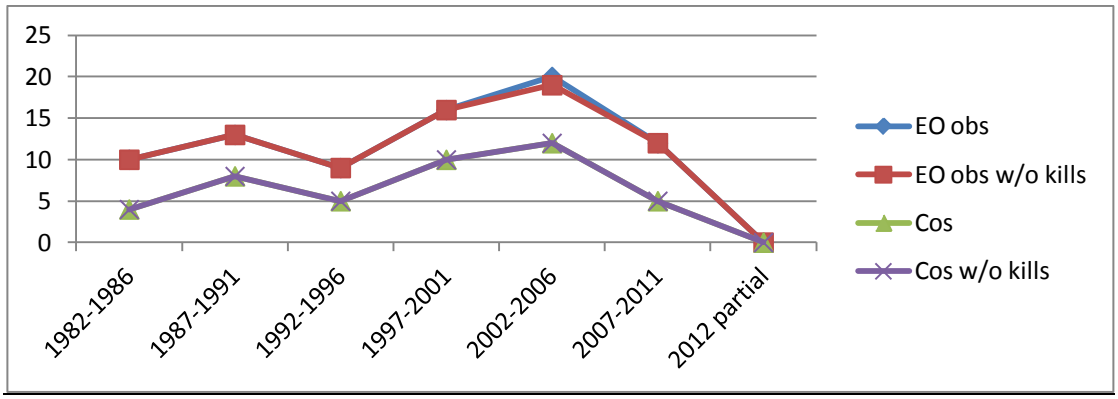
Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2011-09-26	44	25	1	36	16	14

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

Table and graph have entries to exclude from "EO obs" relocated and stocked EOs with no subsequent obs

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	10	13	9	16	20 <1>	12	0
Cos	4	8	5	10	12	5	0

<#> = # of EOs where 100% of individuals were killed in fish kill, no previous obs and no subsequent obs



Reported vouchering
Year (# of voucher efforts) = 1968 (1); 1991 (2); 1994 (1); 2000 (5); 2004 (2); 2005 (6); 2006 (2)

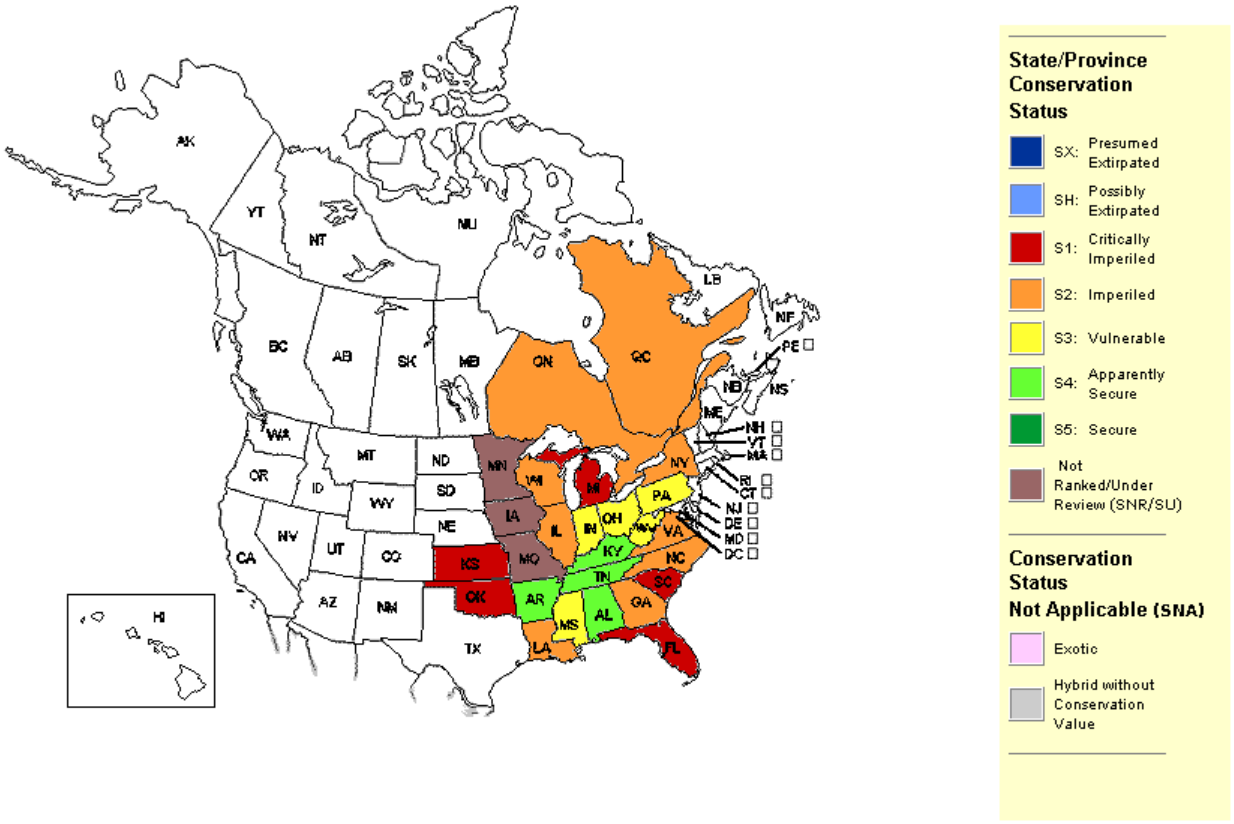
# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
44	223	871	19 (9%)	64 (7%)	15 (80%)	1 (63%) 1 (21%) Other (16%)

Mankowski notes and recommendation:
Increased search effort may explain much of the increase in observations during the 1997-2001 and 2002-2006 windows for this species. During the 1997-2001 window, reports were submitted for 18 EOs (12 re-occurrence; 4 new; and, 2 "surveyed with no observation"). During the 2002-2006 window, reports were submitted for 22 EOs (14 re-occurrence; 6 new; and, 2 "surveyed with no observation"). For the subsequent window of 2007-2011 there was less effort with reports submitted for 13 EOs (9 re-occurrence; 4 new; and, 1 "surveyed with no observation").

The new EOs are encouraging, but all 14 reported since 1997 are based on single observations; in all, 21 of the 44 total EOs for the species (48%) are based on single observations. Additionally, 15 EOs (34%) have not been surveyed since 2001 or prior.

Mankowski recommendation – no change in status.

Moxostoma carinatum



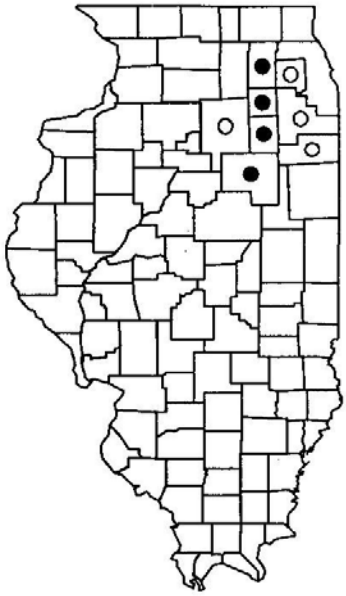
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Greater Redhorse, Moxostoma valenciennesi (Illinois endangered)

Listed as IL E, 3/17/1989
Reason for listing: restricted habitats or low pops in IL;

Moxostoma valenciennesi Jordan

GREATER REDHORSE **CATOSTOMIDAE** **Status:** Endangered in Illinois



Present Distribution: The greater redhorse occurs in the Great Lakes, Hudson Bay and Mississippi River basins from Quebec and Vermont to southern Ontario and northern Minnesota and south to the Ohio River in Kentucky (Page and Burr 1991). In Illinois the greater redhorse is known from the Illinois, Vermilion, and Fox rivers in Grundy, Kane, Kendall, La Salle, and Livingston counties (Seegert 1991a, 1991b, Retzer and Kowalik 2002).
Former Illinois Distribution: This species was considered to be extirpated in Illinois until its rediscovery in 1985 (Seegert 1986). Recently Retzer and Kowalik (2002) recorded this species from 13 localities in the upper Illinois River basin. Prior to its recent rediscovery, the only record for the state was a 1901 specimen collected in Salt Creek, Du Page County. Presently most younger greater redhorse have been found in two areas: the Vermilion River of the Illinois River basin, and Aux Creek in Grundy County.
Habitat: The greater redhorse occurs in sandy to rocky pools and runs of medium to large rivers and lakes (Page and Burr 1991).
Reason For Status: Recently thought to be extirpated in Illinois (Smith 1979), the greater redhorse was rediscovered in 1985 and is presently known from only a few areas in four counties.
Management Recommendations: Like the preceding species, maintenance of high water quality and protection from siltation, increases in turbidity, and pollution in streams in which it occurs are the primary management needs for the greater redhorse in Illinois. Protection of areas where this species presently occurs would help maintain viable populations in the state.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

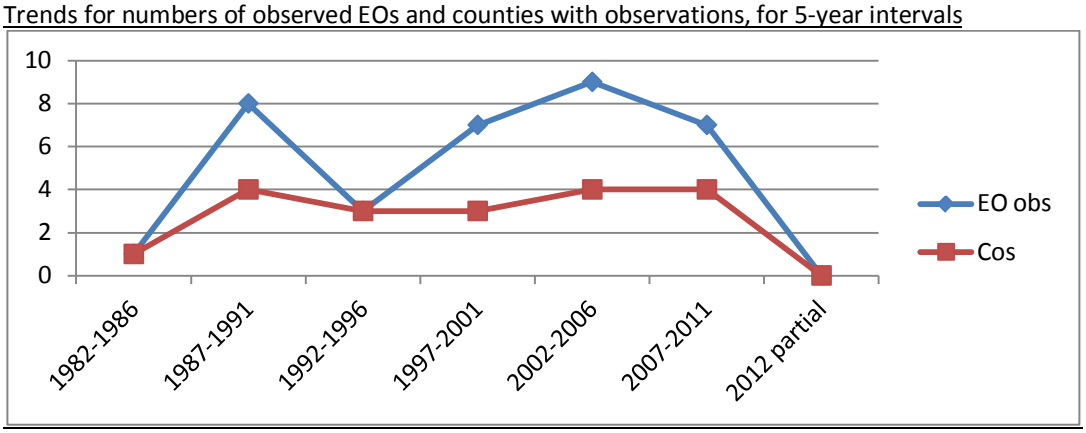
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2011-06-06	23	14	0	16	6	6

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	1	8	3	7	9	7	0
Cos	1	4	3	3	4	4	0

Trends for numbers of observed EOs and counties with observations, for 5-year intervals



Reported vouchering

Year (# of voucher efforts) = 1985 (1): 1998 (1); 2005 (1); 2010 (1)

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
23	50	136	4 (8%)	14 (10%)	3 (75%)	1 (50%) 1 (25%) Other (25%)

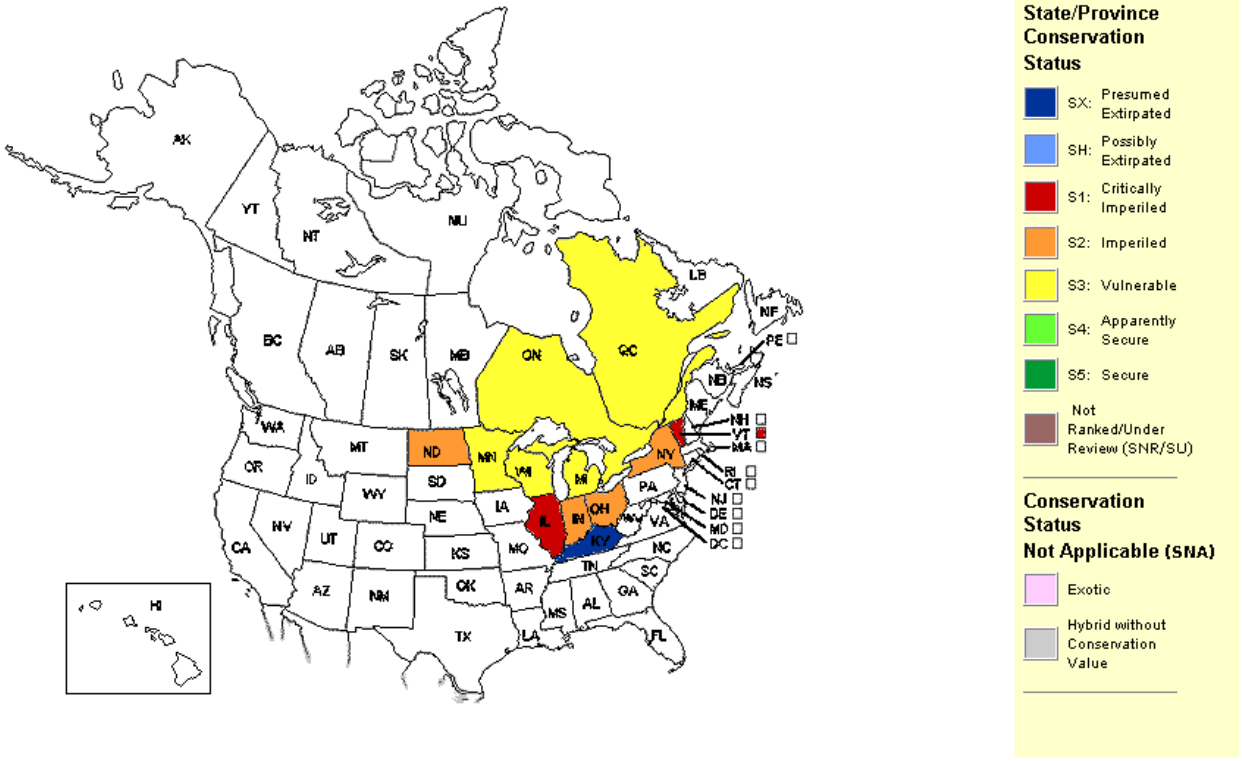
Mankowski notes and recommendation

There are some encouraging indications for this species with a rebound in observations has been largely sustained over three 5-year intervals, 17 (74%) of all EOs for the species have been surveyed since 2002 and only 2 of the 17 EOs (12%) had no observation, and during that same time frame the species has been observed in all counties with EOs and 2 new EOs in 1 new county were added.

However, there are a relatively small number of total EOs (23) and for individual 5-year window observations, averaging 8 in each of the last 3 windows and 10 EOs (43%) are based on single observations, and vouchering may be impacting the continued conservation and/or recovery of this species in Illinois, with vouchering taking place for 10% of all individuals that have been reported to the Illinois Natural Heritage Database. It is unclear why some institutions continue to voucher specimens of the same species and it is unclear how IDNR evaluates how much vouchering to permit an individual researcher or institution or by species or site. The ESPB's policy does not endorse physical vouchering of live specimens and only endorses taking live specimens under specified terms for approved research. Additional vouchering is not recommended for this species.

Mankowski recommendation – no change in status. It is recommended that the Board advise the IDNR to not permit vouchering of this species.

Moxostoma valenciennesi



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

River Chub, Nocomis micropogon (Illinois endangered)

Listed as IL E, 1/18/1994
Reason for listing: restricted habitats or low pops in IL;

Nocomis micropogon (Cope)

RIVER CHUB **CYPRINIDAE** **Status:** Endangered in Illinois

Present Distribution: The river chub occurs in Atlantic drainages from New York to Virginia, the Great Lakes basin from New York to Michigan, and the Ohio River basin from New York to Illinois, and south to northern Georgia and Alabama. The river chub is common and locally abundant in many parts of its range (Page and Burr 1991). In Illinois this species was considered to be extirpated until it was recently (1987) discovered in Vermilion County (Page and Retzer 2002).
Former Illinois Distribution: The river chub is a peripheral species in Illinois that was first reported for the state by O'Donnell (1935). Prior to its recent discovery in the Little Vermilion River, the only known locations for this species in Illinois were from the Wabash River in Clark and Lawrence counties. It is apparently fairly common and widely distributed in large creeks in adjacent Indiana (Smith 1979).
Habitat: In Illinois, the river chub is found in rocky runs and flowing pools of small to medium rivers (Page and Burr 1991).
Reason for Status: Although always relatively rare in Illinois, the river chub is now known from only one location in the state.
Management Recommendations: Management needs for this species in Illinois include a prohibition of dams and channelization and improved soil conservation measures in the Little Vermilion River.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

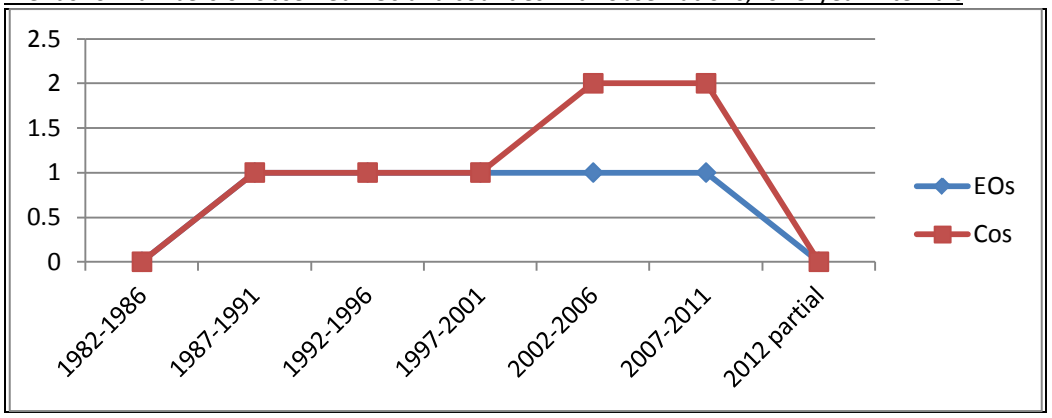
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2007-10-16	8	2	0	8	8	4

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	0	1	1	1	1	1	0
Cos	0	1	1	1	2	2	0

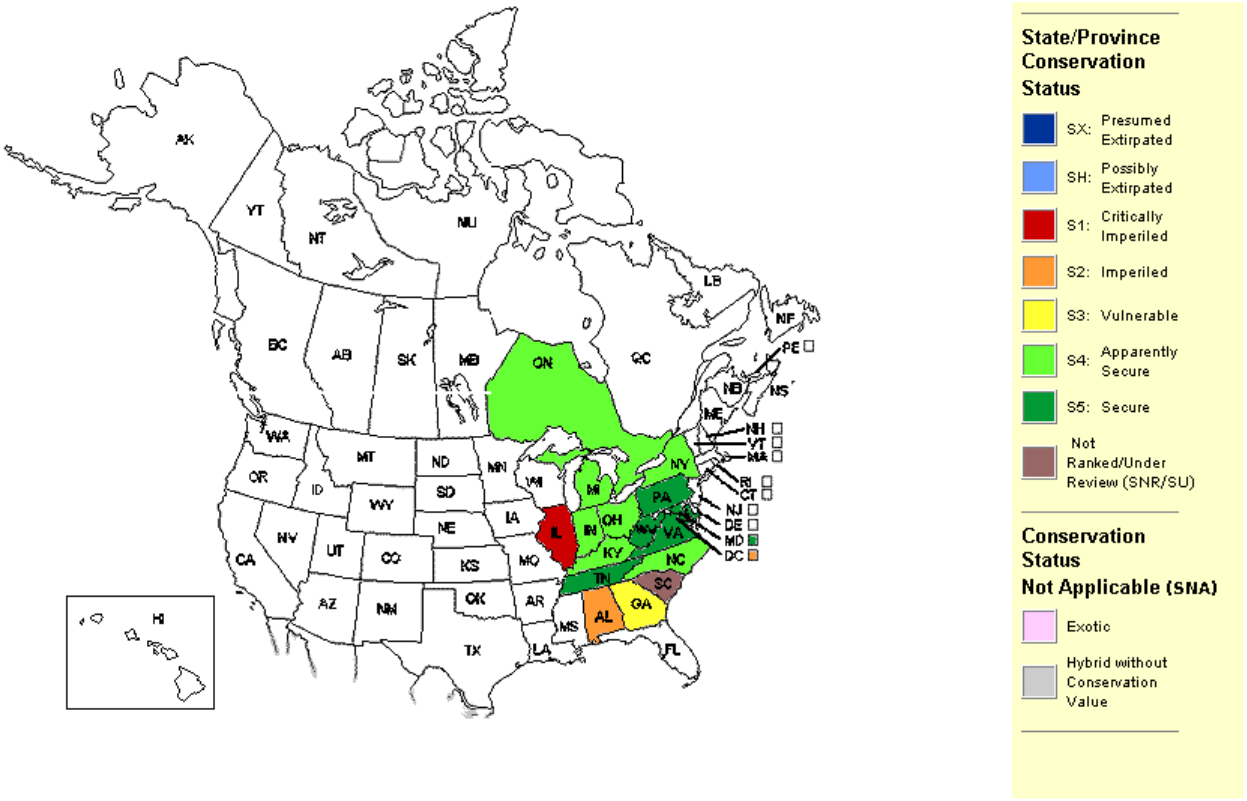
Trends for numbers of observed EOs and counties with observations, for 5-year intervals



Reported vouchering
Year (# of voucher efforts) =

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
8	12	32	0	0	0	n/a

Nocomis micropogon



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Pugnose Shiner, Notropis anogenus (Illinois endangered)

Listed as IL T, 12/31/1977; Listed as IL E, 3/17/1989
Reason for listing: restricted habitats or low pops in IL;

Notropis anogenus Forbes

PUGNOSE SHINER **CYPRINIDAE** **Status:** Endangered in Illinois

Present Distribution: The pugnose shiner ranges from eastern Ontario and western New York to southeastern North Dakota and central Illinois (Page and Burr 1991). In Illinois the species is now present only in a few glacial lakes in Lake and McHenry counties (Page 1985b, Seegert 1990, Page and Retzer 2002).
Former Illinois Distribution: This shiner was described by S.A. Forbes from specimens collected in the Fox River of McHenry County in 1885. He also collected it in Fourth Lake in Lake County in 1892 and in an Illinois River floodplain lake in Mason County in 1909. The Mason County record is far south of any other known locality for the species.
Habitat: Throughout its range the pugnose shiner lives in clear, heavily vegetated lakes and more rarely in vegetated low-gradient streams, where it usually occurs over sand or mud substrates (Page and Burr 1991).
Reason for Status: Bailey (1959) indicated this shiner as one of the rarest cyprinids of northern United States and adjacent Canada. It is rather widespread but rare in Minnesota, Wisconsin, and Michigan, and is disappearing from peripheral areas primarily because of increased turbidity of lake and stream waters and reduction in aquatic vegetation (Trautman 1957, Smith 1979).
Management Recommendations: Glacial lakes in northeastern Illinois support many organisms seldom or never encountered elsewhere in the state (Evers and Page 1977). Management of these lakes should include protection from further development, a prohibition of sport fish introductions, protection and enhancement of emergent and submerged vegetation, and protection from pollution and the use of herbicides (Page 1985b).

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

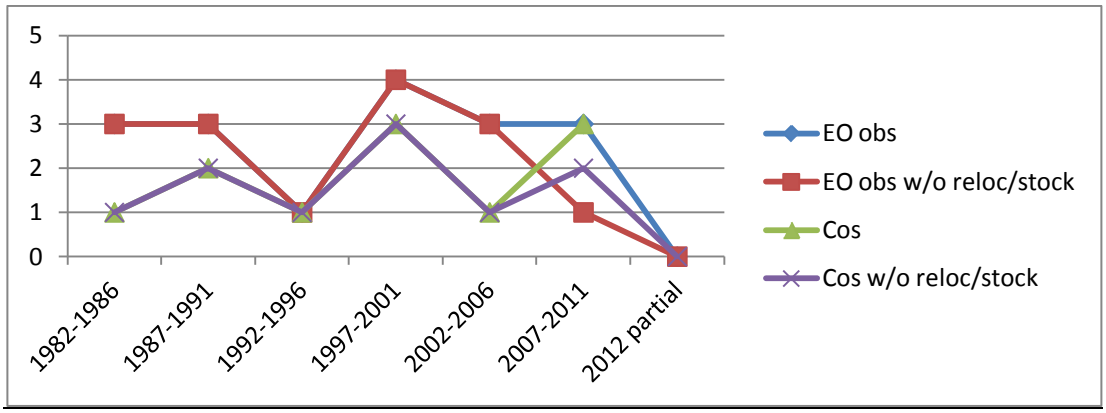
Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2011-08-10	17	5	1	14	11	4

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

Table and graph have entries to exclude from "EO obs" relocated and stocked EOs with no subsequent obs

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	3	3	1	4	3	3 (1)[1]	0
Cos	1	2	1	3	1	3 (1)	0

(#) = # of EOs established by stocking, no subsequent obs
[#] = # of EOs relocated, no subsequent obs

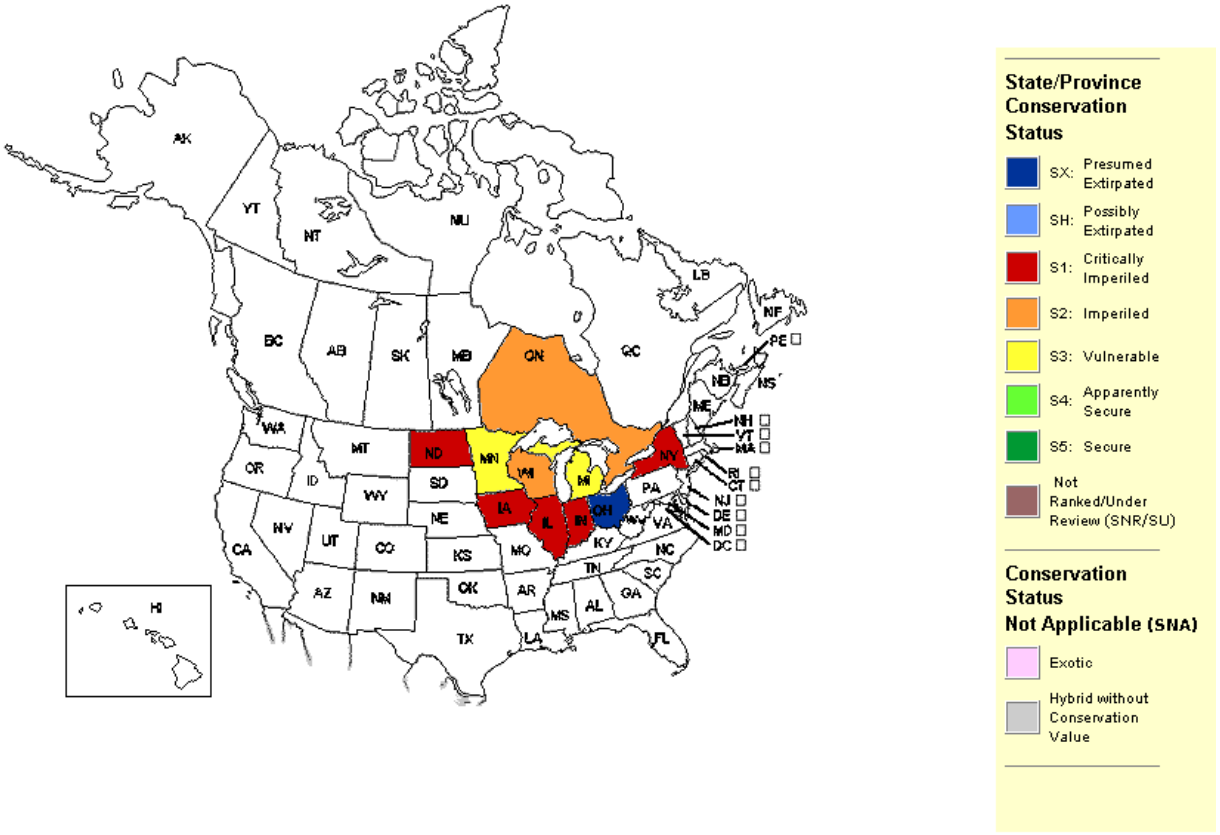


Reported vouchering

Year (# of voucher efforts) = 1991 (1); 2002 (2); 2003 (1); 2010 (1)

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
17	37	576+ (376 w/o stocked)	5 (14%)	8 (1.4% of total) 2% of "wild"	3 (60%)	1 (60%) 1 (40%)

Notropis anogenus



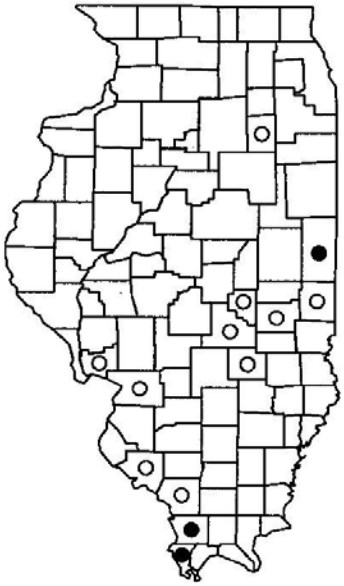
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Bigeye Shiner, Notropis boops (Illinois endangered)

Listed as IL T, 3/17/1989; Listed as IL E, 1/18/1994
Reason for listing: formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures

Notropis boops Gilbert

BIGEYE SHINER **CYPRINIDAE** **Status:** Endangered in Illinois



Present Distribution: The bigeye shiner occurs from the Lake Erie drainage in Ohio to eastern Kansas and the Mississippi River basin south to northern Alabama, Louisiana, and southern Oklahoma (Page and Burr 1991). In Illinois it is uncommon but known from tributaries of the Mississippi and Wabash rivers.

Former Illinois Distribution: The bigeye shiner was formerly considered common in the Vermilion and Little Vermilion rivers but has always been relatively rare and sporadic in the rest of the state (Forbes and Richardson 1908, O'Donnell 1935, Smith 1979).

Habitat: The bigeye shiner occurs in clear, high-gradient streams over clean gravel or mixed sand and gravel (Smith 1979), often near emergent vegetation along the stream margin (Page and Burr 1991). It apparently avoids strong currents (Pflieger 1975).

Reason For Status: Siltation, increased turbidity and impoundments have caused a significant decrease in abundance of this species within Illinois (Smith 1979).

Management Recommendations: Efforts are needed to prevent continued declines in water quality in Illinois streams if our native stream fauna is to remain intact.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

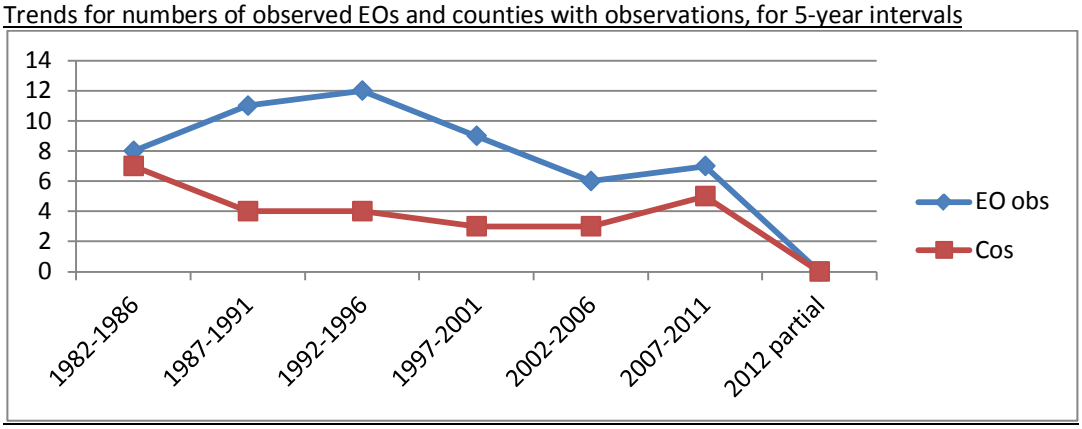
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2009-07-30	48	12	2	35	20	6

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	8	11	12	9	6	7	0
Cos	7	4	4	3	3	5	0

Trends for numbers of observed EOs and counties with observations, for 5-year intervals

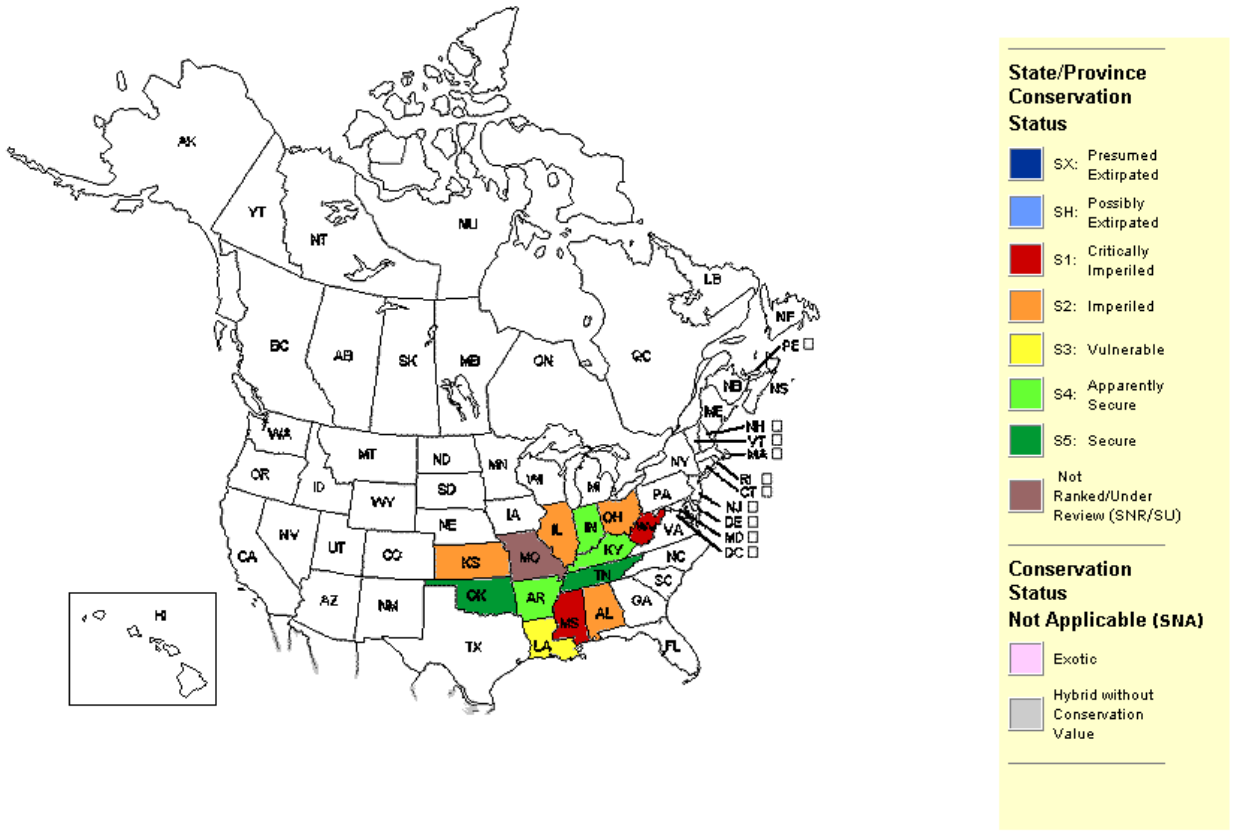


Reported vouchering

Year (# of voucher efforts) = 1967 (1); 1987 (1); 1980 (1); 2003 (1); 2004 (1); 2005 (1); 2008 (1)

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
48	135	1,548+	7 (5%)	18 (1.2%)	4 (60%)	1 (71%) 1 (29%)

Notropis boops



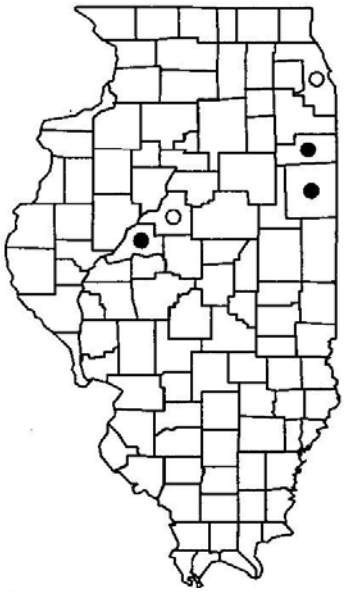
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Ironcolor Shiner, Notropis chalybaeus (Illinois threatened)

Listed as IL T, 3/17/1989
Reason for listing: restricted habitats or low pops in IL;

Notropis chalybaeus (Cope)

IRONCOLOR SHINER **CYPRINIDAE** **Status:** Threatened in Illinois



Present Distribution: Lowlands of the Atlantic and Gulf basins from New York to southern Florida across the Gulf Slope to Texas; also in the Mississippi Embayment from Louisiana to southeastern Missouri. Isolated populations occur in Texas, Illinois, Iowa, Wisconsin, Michigan and Indiana (Page and Burr 1991). In Illinois the ironcolor shiner is restricted to the sand areas of Kankakee, Iroquois, and Mason counties.
Former Illinois Distribution: Besides the modern collections from Kankakee, Iroquois, and Mason counties there is only one historic collection, a 1901 specimen taken from the Des Plaines River in Cook County.
Habitat: In Illinois, the ironcolor shiner usually occurs in small, clear, low-gradient streams with a sand/organic matter substrate and an abundance of aquatic macrophytes (Burr *et al.* 1989).
Reason For Status: This species' restricted distribution within Illinois and its clean water requirements threaten its continued existence in Illinois.
Management Recommendations: Protection of high quality Illinois streams from siltation, increased turbidity and pollution are necessary to prevent further decimation of the Illinois population of this species.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

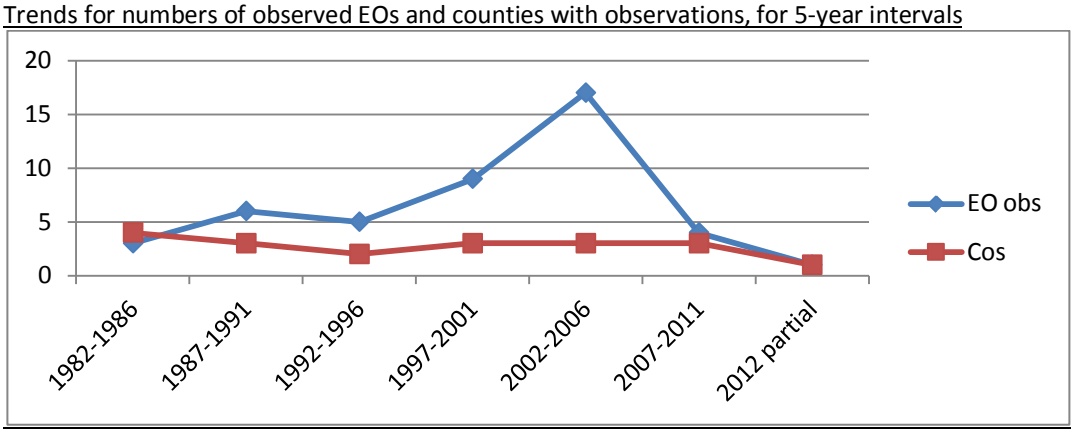
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-08-15	31	18	0	19	6	3

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	3	6	5	9	17	4	1
Cos	4	3	2	3	3	3	1

Trends for numbers of observed EOs and counties with observations, for 5-year intervals



Reported vouchering
Year (# of voucher efforts) = 1971 (1); 1989 (1); 1996 (1); 2000 (1); 2003 (4); 2004 (1); 2005 (5)

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
31	117	1,744+	14 (12%)	309+ (18%)	10 (71%)	1 (57%) 1 (29%) 1 (7%) 1 (7%)

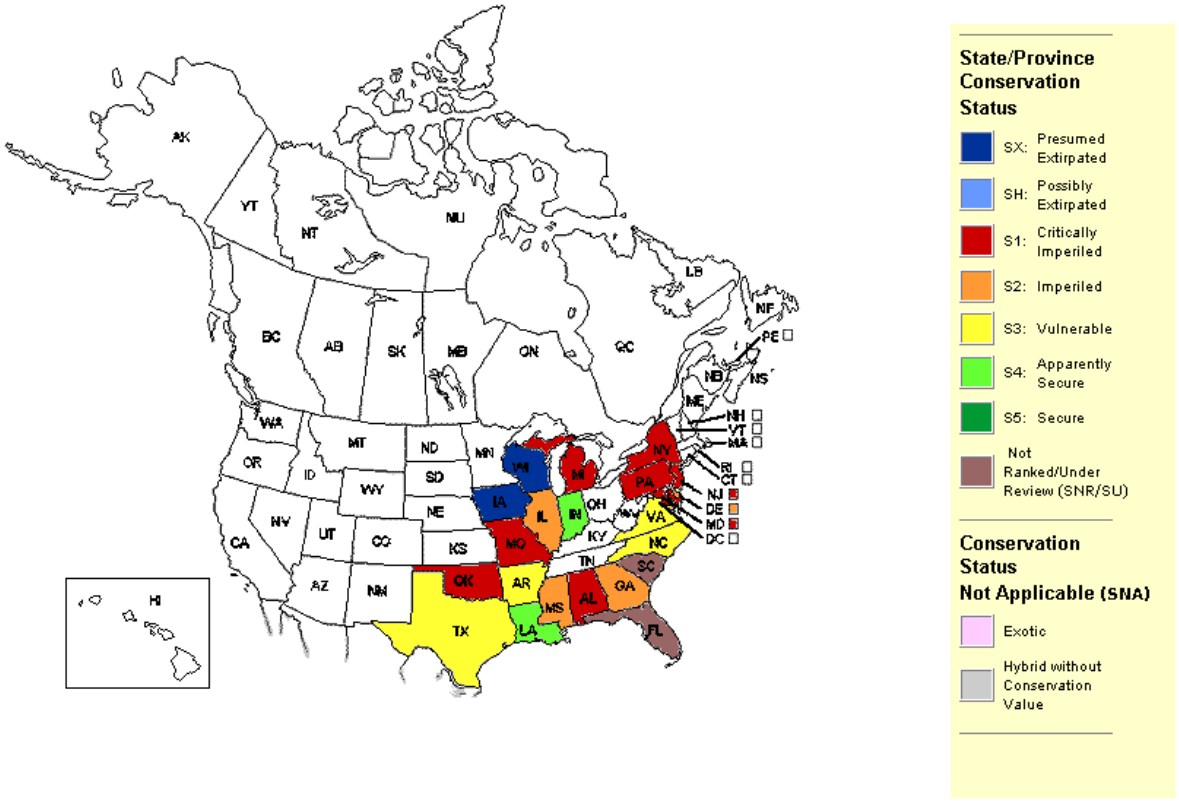
Mankowski notes and recommendation

The spike in observations during the 2002-2006 window is largely explained by increased search effort – survey reports were submitted for 10, 19, and 6 EOs during the 1997-2001, 2002-2006, and 2007-2011 windows, respectively. Of the 31 total EOs for the species, 19 (61%) are based on single observations, 12 (39%) have not been surveyed since 2001 or prior, and 3 of 6 counties have not had observations since 1986 or prior.

Vouchering may be impacting the continued conservation and/or recovery of this species in Illinois. In total, 10% of all individuals of this species that have been reported to the Illinois Natural Heritage Database have been vouchered. During the 2002-2006 window (the peak of observations), vouchers were taken at 10 of the 17 (59%) EOs with observations, with 7 (42%) of those vouchering 100% of individuals sampled. It is unclear why some institutions continue to voucher specimens of the same species and it is unclear how IDNR evaluates how much vouchering to permit an individual researcher or institution or by species or site. The ESPB's policy does not endorse physical vouchering of live specimens and only endorses taking live specimens under specified terms for approved research. Additional vouchering is not recommended for this species.

Mankowski recommendation – no change in status. It is recommended that the Board advise the IDNR to not permit vouchering of this species.

Notropis chalybaeus



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Blackchin Shiner, Notropis heterodon (Illinois threatened)

Listed as IL T, 3/17/1989
Reason for listing: restricted habitats or low pops in IL;

Notropis heterodon (Cope)

BLACKCHIN SHINER **CYPRINIDAE** **Status:** Threatened in Illinois

Present Distribution: The blackchin shiner ranges from southern Quebec and Vermont west to Minnesota and Iowa; mostly restricted to Great Lakes and upper Mississippi River basins (Page and Burr 1991). In Illinois this species is presently restricted to glacial lakes in Lake and McHenry counties, where it may be locally abundant (Seegert 1990).
Former Illinois Distribution: This species has apparently always been restricted to Cook, Lake and McHenry counties in northeastern Illinois (Smith 1979).
Habitat: In Illinois, the blackchin shiner occurs in clear, well-vegetated glacial lakes and their connected streams in northeastern Illinois (Smith 1979).
Reason For Status: Although still relatively common in a few of the glacial lakes in northeastern Illinois, the blackchin shiner has been eliminated from several others, especially those highly modified by human disturbance (Smith 1979).
Management Recommendations: Protection of northeastern Illinois glacial lakes is necessary in order to avert deterioration resulting from human development projects, pollution, and introductions of sport fishes.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

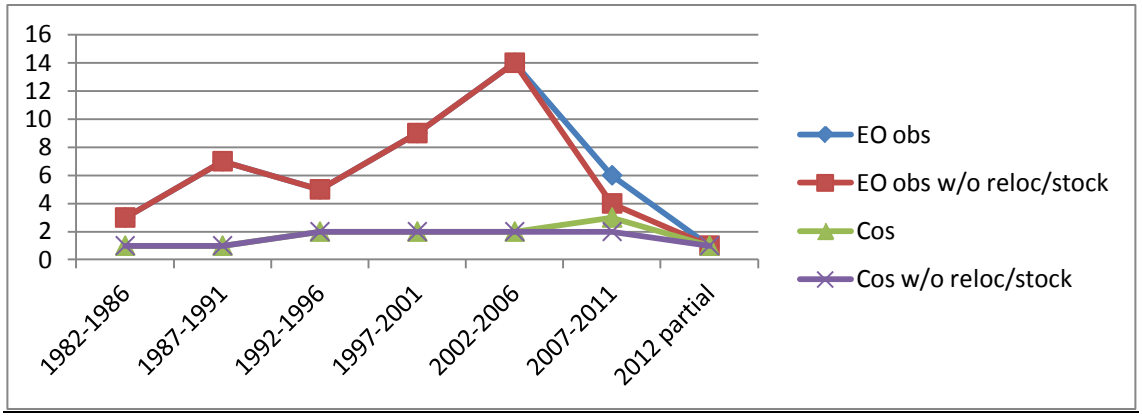
Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-09-10	23	15	4	11	4	3

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

Table and graph have entries to exclude from "EO obs" relocated and stocked EOs with no subsequent obs

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	3	7	5	9	14	6 (1)[1]	1
Cos	1	1	2	2	2	3 (1)	1

(#) = # of EOs established by stocking, no subsequent obs
[#] = # of EOs relocated, no subsequent obs

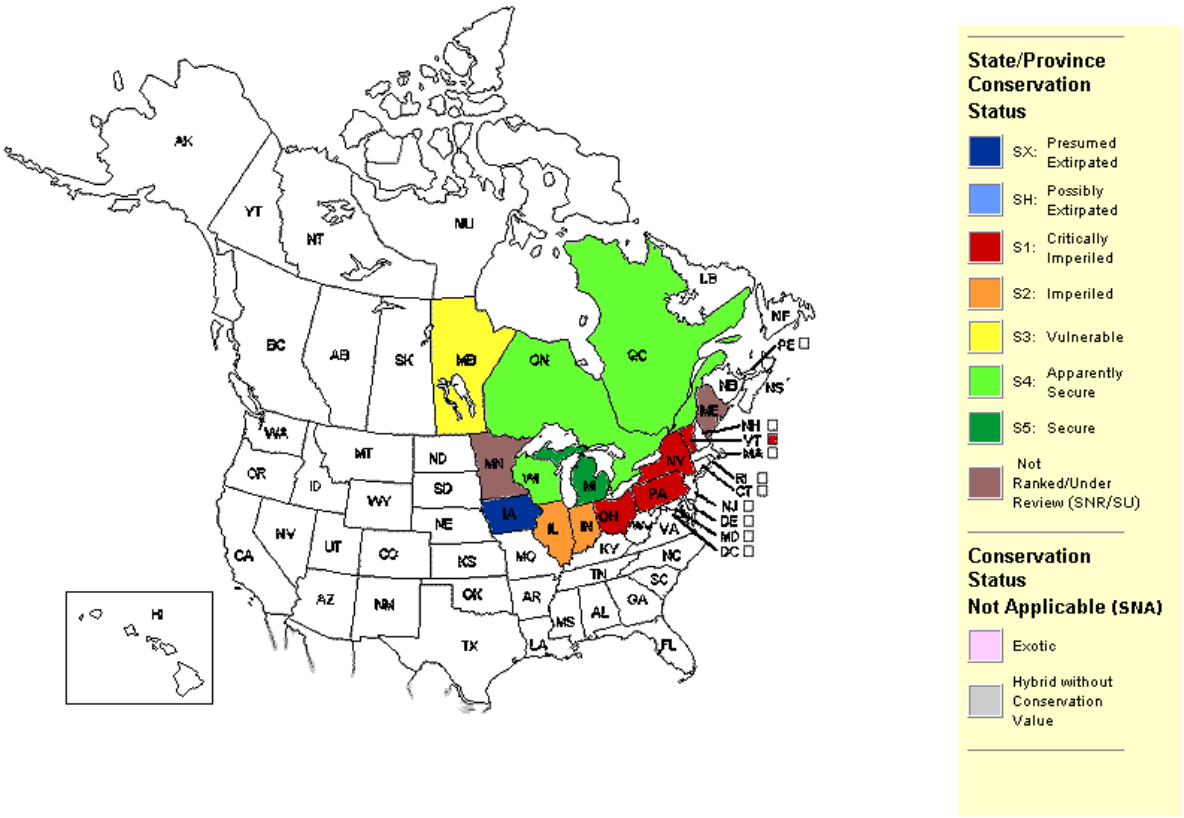


Reported vouchering

Year (# of voucher efforts) = 1985 (1); 1992 (2); 1993 (1); 1998 (1); 2002 (6); 2003 (1); 2005 (1)

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
23	93	3,594+ (3,394 w/o stocked)	13 (14%)	84 (2.3% of total) (2.5% of "wild")	6 (46%)	1 (46%) Other (23%) 1 (16%) 1 (15%)

Notropis heterodon



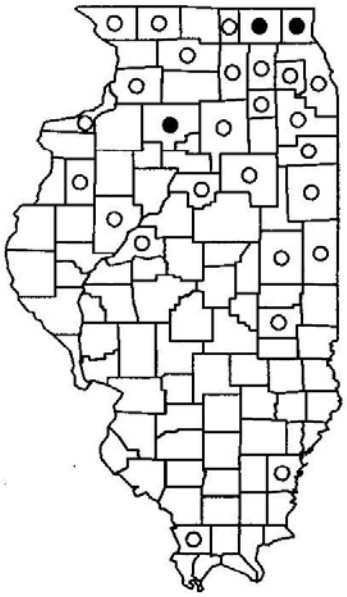
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Blacknose Shiner, Notropis heterolepis (Illinois endangered)

Listed as IL T, 12/31/1977; Listed as IL E 1/18/1994
Reason for listing: formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures; significant disjuncts in IL - IL pop far removed from rest of species' range

Notropis heterolepis Eigenmann & Eigenmann

BLACKNOSE SHINER **CYPRINIDAE** **Status:** Endangered in Illinois



Present Distribution: The blacknose shiner ranges from Nova Scotia to Saskatchewan and south to Ohio, Illinois, and Kansas (Page and Burr 1991). Presently the Illinois populations of the blacknose shiner are mostly in glacial lakes in northern Illinois (Page and Retzer 2002).
Former Illinois Distribution: The blacknose shiner formerly had a much larger distribution, occurring in creeks and rivers throughout the northern two-thirds of Illinois and in glacial lakes in northern Illinois (Forbes and Richardson 1908, O'Donnell 1935, Smith 1979).
Habitat: The blacknose shiner occurs in clear vegetated lakes, and pools and runs of clear streams. It usually occurs over sand and mud substrates (Page and Burr 1991).
Reason for Status: The disappearance of the blacknose shiner in Illinois has been among the most dramatic of any fish. Increased turbidity of lake and pool waters and the disappearance of aquatic vegetation have probably been the major factors causing its decline (Smith 1979). These factors are also responsible for its decline in Ohio (Trautman 1957) and Missouri (Pflieger 1975).
Management Recommendations: Better soil conservation practices that allow less silt to enter streams and protection of some glacial lakes would enhance the probability of survival for the blacknose shiner in Illinois. If streams were less turbid and silt-laden, aquatic vegetation could return to some areas and provide additional habitat for the blacknose shiner. If soil conservation does not improve, the glacial lakes of Lake and possibly McHenry counties offer this species its only chance for survival in Illinois.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

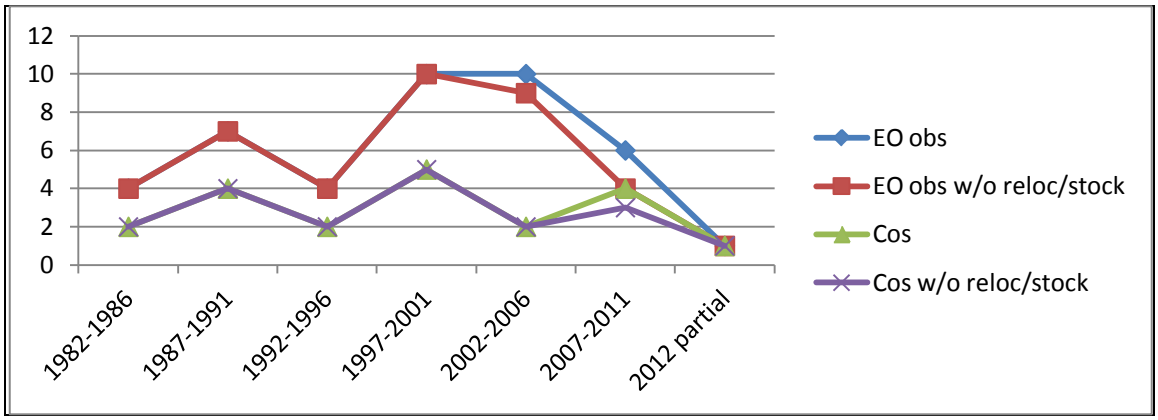
Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-09-10	31	13	2	25	12	7

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

Table and graph have entries to exclude from "EO obs" relocated and stocked EOs with no subsequent obs

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	4	7	4	10	10(1)	6 (1)[1]	1
Cos	2	4	2	4	2	4 (1)	1

(#) = # of EOs established by stocking, no subsequent obs
[#] = # of EOs relocated, no subsequent obs



Reported vouchering
Year (# of voucher efforts) = 1992 (1); 1993 (2); 1998 (4); 2002 (8); 2003 (3); 2007 (1)

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
31	101	3,610+ (3,392 w/o stocked)	19 (19%)	277 (7.6% of total) (8.1% of "wild")	11 (58%)	1 (58%) 1 (21%) 1 (11%) Other (10%)

Mankowski notes and recommendation
The increase in observations during the 1997-2001 and 2002-2006 windows is largely explained by increased search effort – survey reports were submitted for 11, 14, and 7 EOs during the 1997-2001, 2002-2006, and 2007-2011 windows, respectively.

Of the 31 total EOs for the species, 16 (52%) are based on single observations, 15 (48%) have not been surveyed since 2001 or prior, and 3 of 12 counties have not had observations since 1986 or prior.

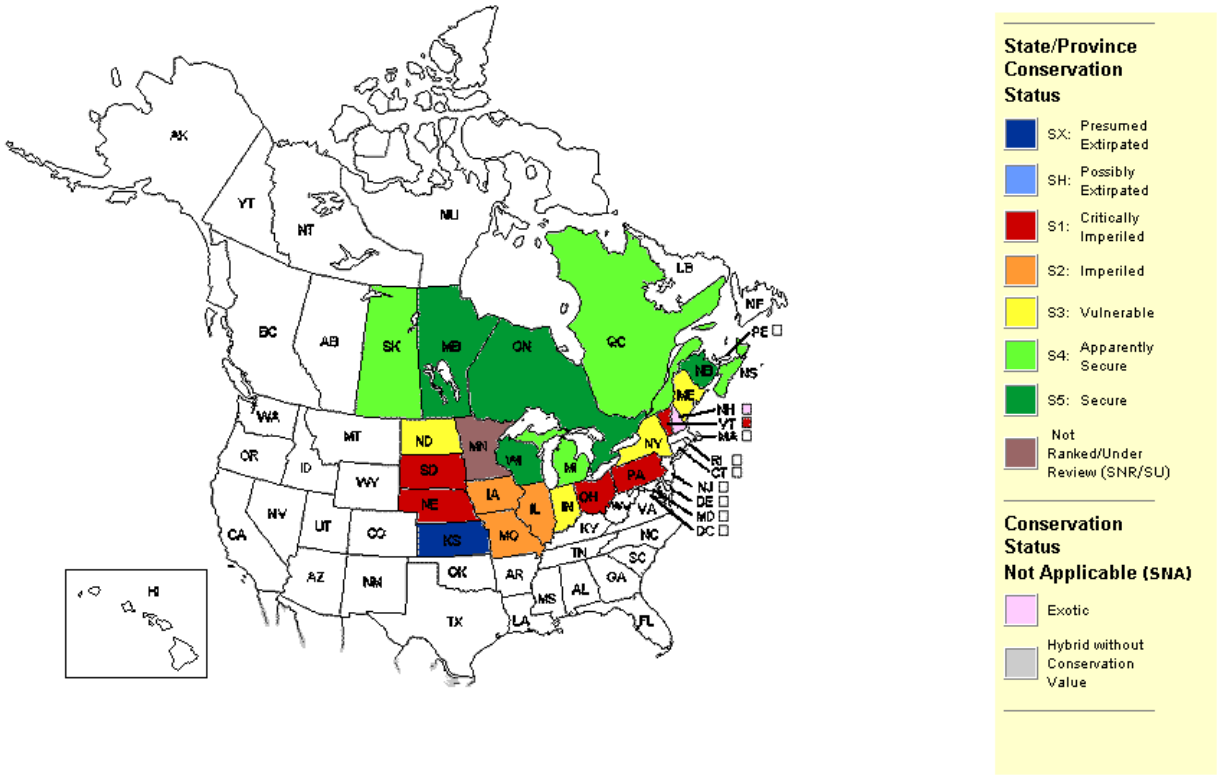
Vouchering may be impacting the continued conservation and/or recovery of this species in Illinois. In total, 8% of all individuals of this species that have been reported to the Illinois Natural Heritage Database have been vouchered. During the 1997-2001 window, vouchers were taken at 4 of 10 (40%) EOs with observation, with 3 of those vouchering 100% of individuals sampled. During the 2002-2006 window, vouchers were taken at 10 of 10 (100%) EOs with observation (vouchers were taken two years in a row at 1 of the EOs), with 3 of those vouchering

100% of individuals sampled. It is unclear why some institutions continue to voucher specimens of the same species and it is unclear how IDNR evaluates how much vouchering to permit an individual researcher or institution or by species or site. The ESPB's policy does not endorse physical vouchering of live specimens and only endorses taking live specimens under specified terms for approved research. Additional vouchering is not recommended for this species.

The intention and outcome of translocation/relocation/stocking efforts for the species are unclear. One effort collected 200 individuals from one existing EO and relocated them to a new location in a new county, but there were no subsequent observations at either location, so the "donor" population may have been eliminated and the relocated individuals may not have survived. Another effort stocked 18 individuals from what was described as "donor source unclear" to a new location. There were no subsequent observations of those individuals. With the observed increase in natural occurrences, population augmentation may not be necessary and could interfere with accurate monitoring and reporting of whatever natural recovery may be taking place. Additionally, introducing stock of unknown progeny could have various negative consequences,

Mankowski recommendation – no change in status. It is recommended that the Board advise the IDNR to not permit vouchering of this species.

Notropis heterolepis



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Taillight Shiner, Notropis maculatus (Illinois endangered)

Listed as IL E, 1/18/1994
Reason for listing: restricted habitats or low pops in IL;

Notropis maculatus (Hay)

TAILLIGHT SHINER **CYPRINIDAE** **Status:** Endangered in Illinois

Present Distribution: The taillight shiner occurs in the Atlantic, Gulf, and Mississippi River basins from North Carolina to Texas, and north to central Illinois (Page and Burr 1991). It is locally common in the southeastern United States, but uncommon in the Mississippi River basin (Page and Burr 1991).
Former Illinois Distribution: In Illinois, this species was first collected in a wetland in Massac County in 1987 (Burr *et al.* 1988). Searches for this species elsewhere in the state have been unsuccessful (Page and Retzer 2002).
Habitat: The taillight shiner occurs in swamps, ponds, backwaters, and pools of small to large rivers usually near vegetation (Page and Burr 1991).
Reason For Status: The taillight shiner has a very restricted range in Illinois and is known from only one location in the state.
Management Recommendations: Protection of the wetland area where this species occurs is necessary because searches for this species in other potential habitat have been unsuccessful.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

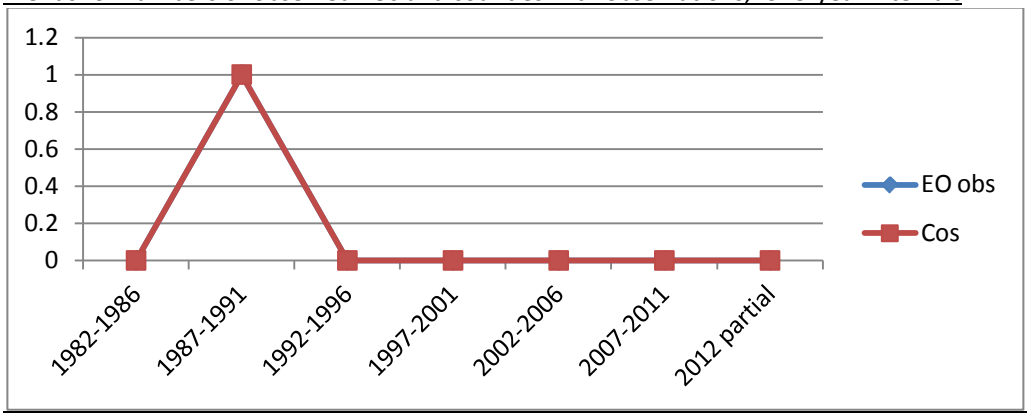
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
1988-07-19	1	0	0	1	1	0

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	0	1	0	0	0	0	0
Cos	0	1	0	0	0	0	0

Trends for numbers of observed EOs and counties with observations, for 5-year intervals



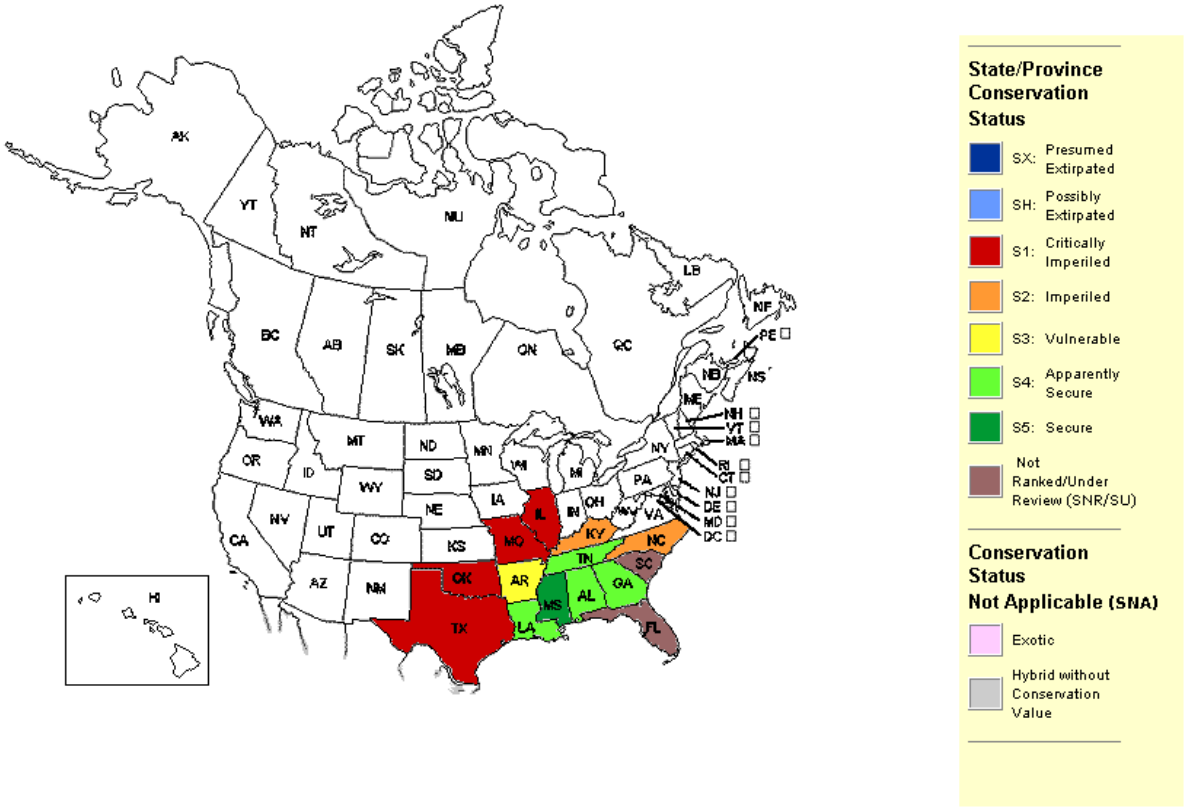
Reported vouchering
Year (# of voucher efforts) =

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
1	3	10	0	0	0	n/a

Mankowski notes and recommendation:
This species is known from only a single EO and has been observed only in 1987 and 1988. Notes to the element occurrence record indicate that the EO habitat was altered (proximate wetland drained) in 2000 and in 2005 habitat looked suitable again for the species. The EO was surveyed in 2005 with no observation. Additional years of surveys for this EO would be helpful in evaluating whether the species should be considered extirpated from Illinois.

Mankowski recommendation – no change in status.

Notropis maculatus



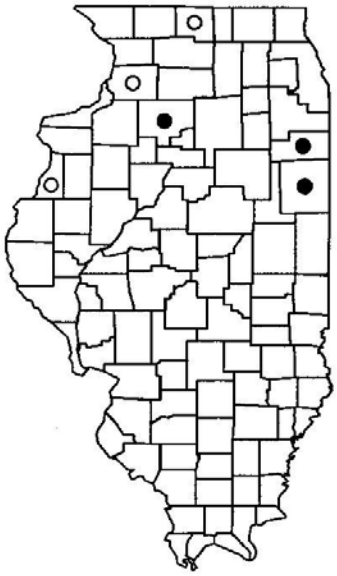
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Weed Shiner, Notropis texanus (Illinois endangered)

Listed as IL E, 3/17/1989
Reason for listing: restricted habitats or low pops in IL;

Notropis texanus (Girard)

WEED SHINER **CYPRINIDAE** **Status:** Endangered in Illinois



Present Distribution: The weed shiner is found in the Great Lakes, Hudson Bay and Mississippi River basins from Michigan, Wisconsin, and Minnesota south to the Gulf of Mexico; also in Gulf Coast drainages from Florida to Texas (Page and Burr 1991). In Illinois the weed shiner is presently restricted to the Kankakee and Green river systems (Page and Retzer 2002).
Former Illinois Distribution: The weed shiner was probably never an abundant species in Illinois but was once more widespread occurring in the Illinois, Wabash and Rock river systems (Smith 1979).
Habitat: In Illinois, the weed shiner occupies clear sand-bottom creeks with some submerged vegetation (Smith 1979). In other parts of its range it also occupies sloughs and large rivers (Smith 1979).
Reason For Status: The weed shiner occurs in very few locations in Illinois and its habitat is threatened due to deteriorating water and stream quality due to pollution and siltation.
Management Recommendations: Protection and maintenance of high quality, clear, clean streams are necessary to protect Illinois populations of this species.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

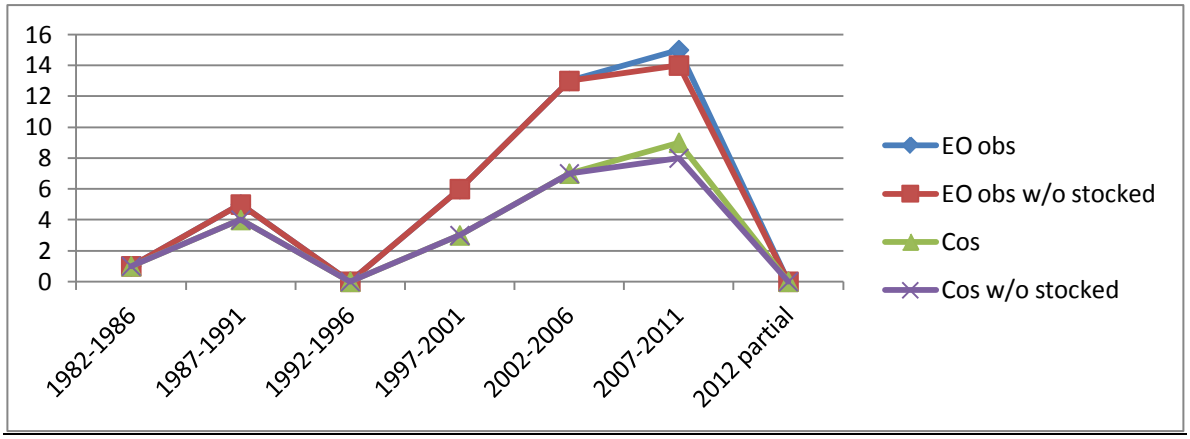
Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2010-08-03	35	24	1	30	12	9

Trends for numbers of observed EOs and counties with observations, for 5-year intervals

Table and graph have entries to exclude from "EO obs" relocated and stocked EOs with no subsequent obs

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	1	5	0	6	13	15 (1)	0
Cos	1	4	0	3	7	9 (1)	0

(#) = # of EOs established by stocking, no subsequent obs



Reported vouchering

Year (# of voucher efforts) = 1990 (1): 2000 (1); 2005 (1); 2007 (4)

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
35	98	1,537	7 (7%)	68 (4%)	6 (86%)	1 (86%) 1 (14%)

Mankowski notes and recommendation from 12/14/12 1st cut fish list review draft:
Increased search effort partly explains much of the increase in observations during the 2002-2006 and 2007-2011 windows for this species. During the 1997-2001 window, reports were submitted for seven EOs (six re-occurrence and one "surveyed with no observation"). During the next two windows, survey effort doubled with reports submitted for 16 EOs (3 re-occurrence; 10 new; and, 3 "surveyed with no observation") in the 2002-2006 window, and 14 EOs (9 re-occurrence and 5 new – not included is an EO established by stocking with no subsequent observations) in the 2007-2011 window.

Items that suggest an overall positive trend for the species:

1) Search effort aside, the discovery of 15 new EOs (and 3 counties) during the 1997-2001 and 2002-2006 windows is significant, especially with 6 having subsequent observations during the 2002-2006 window.
2) The 23 observations from the 10-year period represent 66% of the 35 EOs for the species.
3) The increase in observations has been sustained over two 5-year intervals.

Items of concern:

1) One of the new occurrences was located in Union County and while the Wabash system is noted as part of the species' historic range, this occurrence is quite disjunct from rest of Illinois occurrences. It is also a single observation of a single individual.
2) Of the total 35 EOs for the species, 16 (46%) are from single-year observations; 15 are based on single observations and 1 is based on 3 observations made during one year. Nine EOs (26%) have not been surveyed since 2001 or prior.
3) The intention and outcome of stocking efforts for the species are unclear – for the single reported effort, only 8 individuals were stocked to a new location in a new county and there was no follow-up. With the observed increase in natural occurrences, population augmentation may not be necessary and could interfere with accurate monitoring and reporting of whatever natural recovery may be taking place.

Mankowski recommendation – change from endangered to threatened.

ESPB TEC comments/evidence in response to Mankowski recommendation from 12/14/12 1st cut fish list review draft document and Mankowski response included in 01/25/13 1st cut fish list review final document:

ESPB TEC Trent Thomas comments received 12/28/12:
I consider this species similar in occurrence to the ironcolor shiner in the Iroquois River basin, but they are absent from the Sand Prairie streams of Mason County. I am not familiar with their distribution and abundance in the Green River basin. If the Green River basin population is weak, I would recommend maintaining the designation of endangered for this species. If the Green River population is more secure than their status in the Iroquois River basin, I am comfortable with the change in status from endangered to threatened.

Mankowski response 01/13/13:
Comment lacks adequate evidence/information to cross-check information in the ESPB staff 1st cut draft fish list review or establish an element occurrence (EO) in the IDNR Natural Heritage Database. Record information is noted and referred to the IDNR Natural Heritage Database for their consideration/investigation. As I believe you understand, the data needs to be in the Database for consideration by the ESPB in the List review. Despite the lack of evidence, I will include your comment and my response in the final draft ESPB staff fish list review document submitted to the Board for consideration at the February Board meeting. Occurrences from 2002-2011 include the Green River basin. I maintain my recommendation for a change in status from endangered to threatened and as additional reference material will add to the species review Database element occurrence (EO) dot maps for 5-year intervals from 1992-2011, for the 10-year window of 2002-2011 and for all EOs.

Observed element occurrence locations for respective time periods and all

No observations 1992-1996

1997-2001

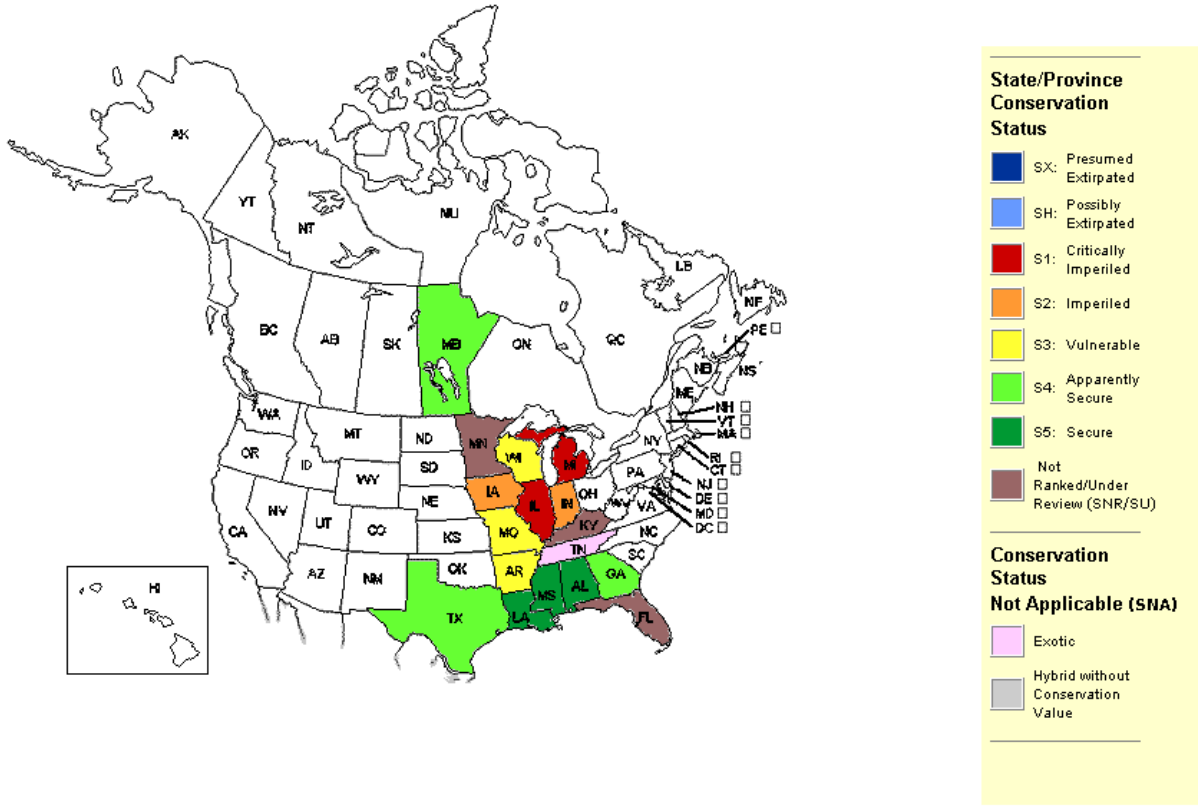
2002-2006

2007-2011

2002-2011

All

Notropis texanus



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Northern Madtom, Noturus stigmosus (Illinois endangered)

Listed as IL E, 3/17/1989
Reason for listing: restricted habitats or low pops in IL;

Noturus stigmosus Taylor

NORTHERN MADTOM **ICTALURIDAE** **Status:** Endangered in Illinois

Present Distribution: The northern madtom occurs in the Lake Erie and Ohio river basins from Pennsylvania, Michigan, and Kentucky, and in tributaries of the Mississippi River in Tennessee and Mississippi (Page and Burr 1991). This small catfish is sporadic and uncommon throughout its range and is disappearing from the edges of its range (Page and Burr 1991). In Illinois it is only known to occur in the Ohio River near Joppa, Massac County (Page and Retzer 2002).
Former Illinois Distribution: The northern madtom has only been collected at two locations in Illinois, the Vermilion River in Vermilion County and the Ohio River in Massac County. All collections were made since 1962 (Page and Retzer 2002).
Habitat: The northern madtom occurs in mixed sand and rock riffles and runs with debris in small to large, often swift rivers (Page and Burr 1991).
Reason For Status: The northern madtom has been collected from very few locations in Illinois and has limited distribution within the state. Populations of this species are threatened by declining water quality, habitat destruction, siltation, increased turbidity and pollution (Page and Retzer 2002).
Management Recommendations: Better soil conservation practices that allow less silt to enter streams and rivers would enhance the probability of survival for the northern madtom in Illinois.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

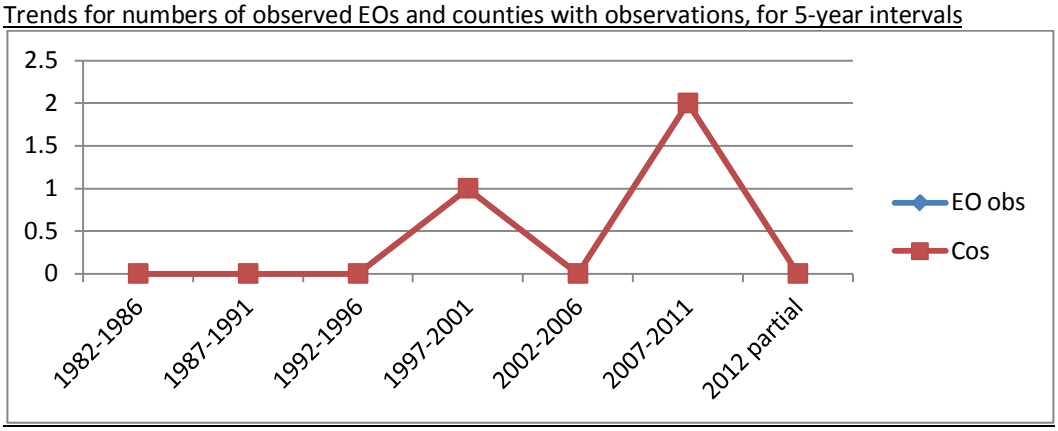
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2009-07	4	2	1	7	4	2

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	0	0	0	1	0	2	0
Cos	0	0	0	1	0	2	0

Trends for numbers of observed EOs and counties with observations, for 5-year intervals

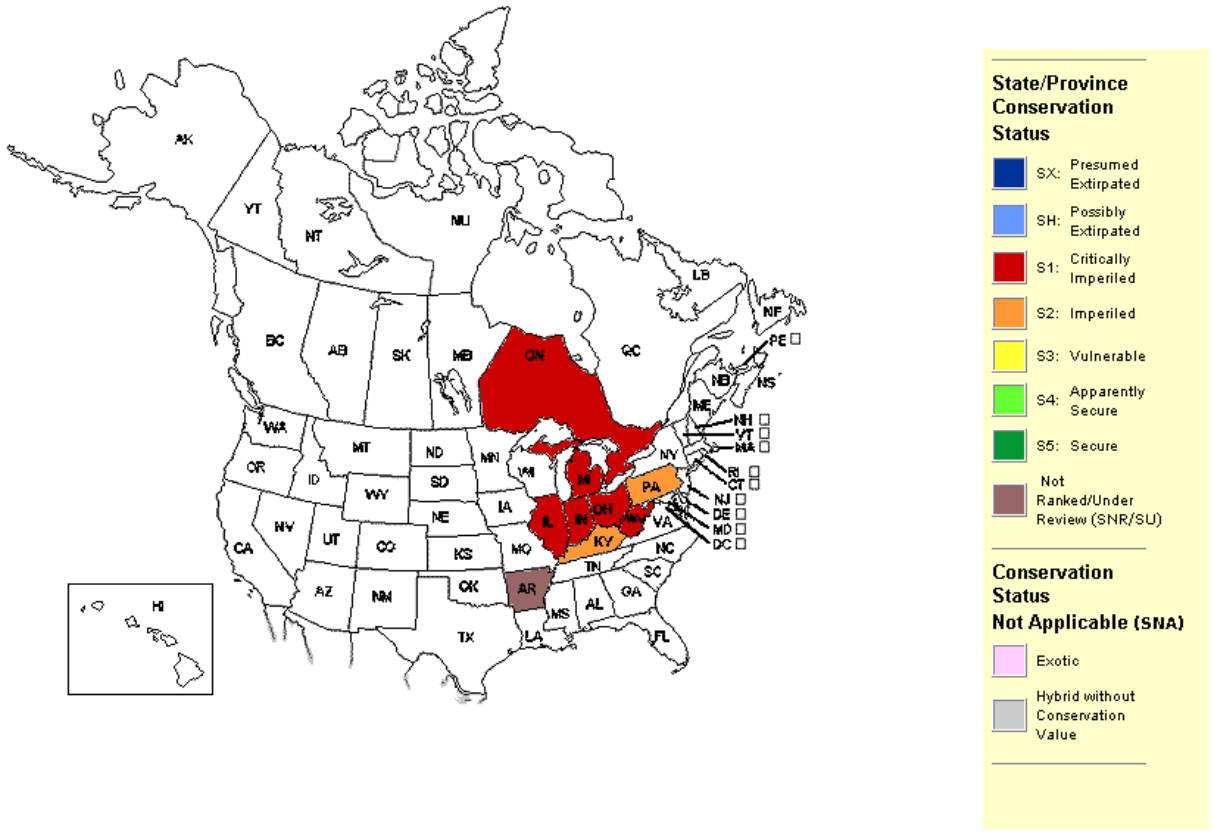


Reported vouchering

Year (# of voucher efforts) =

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
4	12	49	0	0	0	n/a

Noturus stigmosus



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Pallid Sturgeon, Scaphirhynchus albus (Illinois endangered, Federally endangered)

Listed as IL E, 12/20/1991; Listed as Fed E, 09/06/1990
Reason for listing: designated Fed E or T; restricted habitats or low pops in IL

Scaphirhynchus albus (Forbes & Richardson)

PALLID STURGEON **ACIPENSERIDAE** **Status:** Endangered in Illinois
Federally Endangered

Present Distribution: The pallid sturgeon is currently known only from the Missouri River, the lower Yellowstone River in Montana, and the Mississippi River downstream from the confluence of the Missouri River. There is one recent record for Illinois from the Mississippi River in Madison County.
Former Illinois Distribution: Forbes and Richardson (1905) reported several specimens from the Mississippi River near Alton. Since this time there have been very few records of this species in Illinois, all from the Mississippi River south of the St. Louis area.
Habitat: The pallid sturgeon occupies large, deep, turbid river channels, usually occurring in strong current over firm sand or gravel substrates (Page and Burr 1991).
Reason For Status: Populations of the pallid sturgeon are threatened by habitat modification, lack of reproduction, over harvesting, and hybridization with the shovelnose sturgeon.
Management Recommendations: Complete protection of this species and its habitat are necessary in order to avoid its extinction.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

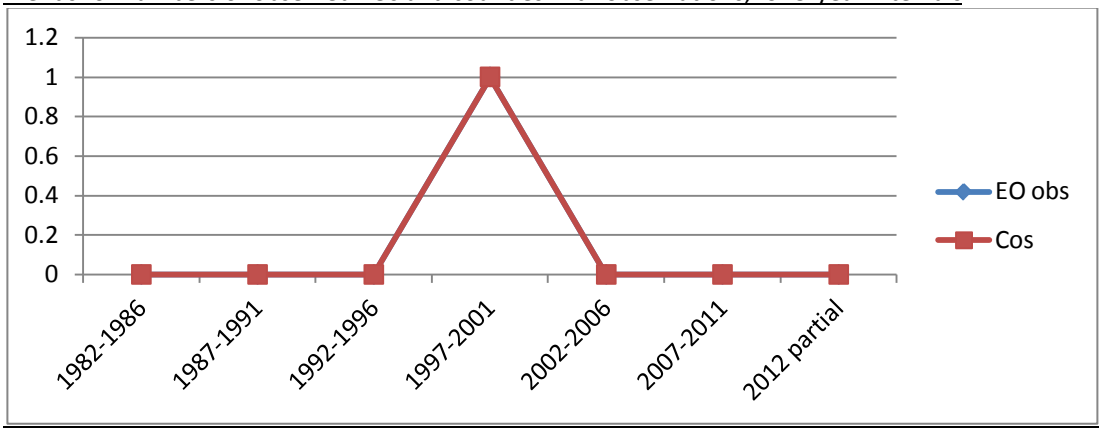
Illinois – Natural Heritage (Biotics 4) Database – last updated, October 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2000-01-27	2	0	0	2	2	1

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EO obs	0	0	0	1	0	0	0
Cos	0	0	0	1	0	0	0

Trends for numbers of observed EOs and counties with observations, for 5-year intervals

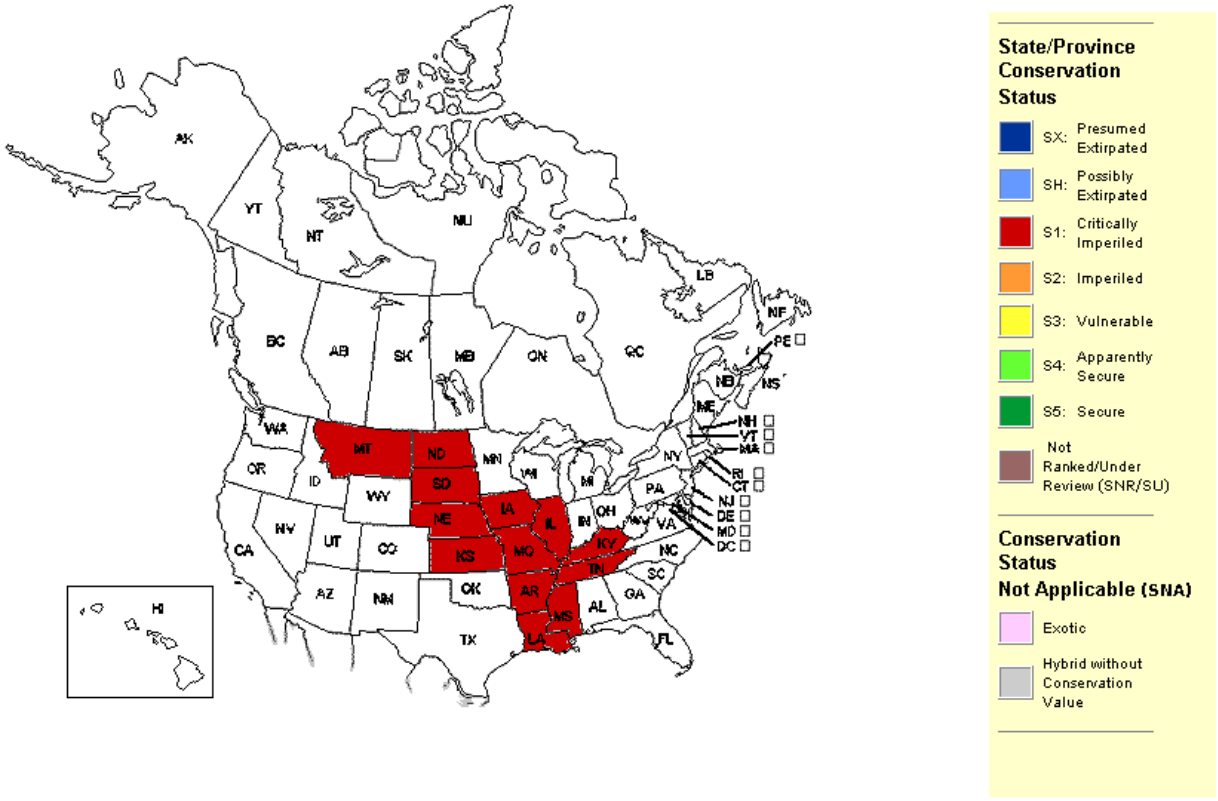


Reported vouchering

Year (# of voucher efforts) =

# of EOs	# of survey reports	total # fish reported	# voucher efforts (% of total reports)	total # fish vouchered (% of total fish reported)	# voucher efforts that take 100% of sample (% of total voucher efforts)	Number of institutions (% of voucher efforts)
2	4	4	0	0	0	n/a

Scaphirhynchus albus



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed February 29, 2012).

Illinois Endangered Species Protection Board (ESPB) required 5-year review of the Illinois List of Endangered and Threatened Species (Illinois List) ending in 2014:

Form for ESPB Technical Expert Consultant (ESPB TEC) recommendation for adding a species to the Illinois List of Endangered and Threatened Species

Prepared by:
Anne Mankowski, Director
Illinois Endangered Species Protection Board
One Natural Resources Way
Springfield, IL 62702-1271
Office phone: 271-785-8687
Email: anne.mankowski@illinois.gov
March 2012

Complete one form for each species nomination. Fill-in all sections to the best of your ability with available information. Return the form and copies of attachments to Anne Mankowski.

A.

Date: 30 November 2012

B. **Proposer Information**

Name: Leon C. Hinz Jr.

Address: One Natural Resources Way, Springfield, IL 62702-1271

Phone number: (217) 785-8297

Email address: leon.hinz@illinois.gov

Title: Stream Ecologist

Institution/Organization affiliation: University of Illinois/ Prairie Research Institute/ Illinois Natural History Survey

C. **The scientific and common name, including nomenclature citation, of any species involved (the ESPB may elect to use the common name identified by NatureServe).**

Scientific Name: *Anguilla rostrata* (Lesueur, 1821)

Common Name: American Eel

Nomenclature Citation:

D. **Identification of the specific listing status recommended – endangered or threatened – and reference to specific ESPB listing criteria that are affecting the species, including where these factors are acting upon the species, the magnitude and imminence of these factors, and whether, either singly or acting in combination, these factors may cause the species to be an endangered or threatened species (endangered = at risk of extinction in the wild in Illinois; threatened = likely to become endangered in the wild in Illinois within the foreseeable future).**

Recommend listing as endangered ____

Recommend listing as threatened __X__

Identify which ESPB listing criteria are affecting the species and for which your proposal provides supporting evidence: Statewide distribution of American Eel has declined greatly over the past decade. The American Eel is currently being evaluated for Federal listing.

1. Species or subspecies designated as federally endangered or threatened.
2. Species proposed for Federal Endangered or Threatened status that occurs in Illinois.
3. Species which formerly were more widespread in Illinois but have shown significant declines which may lead to extirpation from the State due to habitat destruction, collecting, or other pressures resulting from the development of Illinois. This includes species which:
    a. are experiencing reproductive impairment;
    b. have experienced a range reduction;
    c. occur in reduced numbers even though range or number of populations remains steady.
4. Species which are low in numbers and for which known or potential threats are likely to cause significant declines, including:
    a. species which exhibit very restricted geographic ranges, of which Illinois is a part;
    b. species which exhibit restricted habitats or low populations in Illinois;
    c. species which are significant disjuncts in Illinois, i.e., the Illinois population is far removed from the rest of the species' range.

E. **Biological information on the species (including habitat and life-history traits) that is relevant to determining whether a species may be endangered or threatened**.

American Eel (*Anguilla rostrata*) … American eel are associated with deep pools and backwater habitats with mud bottoms generally from large rivers and have a complex life history that includes a marine and freshwater phases and a long spawning migration to the Sargasso Sea in the western Atlantic Ocean. Some larvae develop in estuaries but others move into freshwaters where they reside for years prior to maturation and migration. In freshwaters eels associate with cover during daylight hours and are known to borrow into mud and silt making them difficult to collect using standard fisheries sampling techniques. The American Eel has a NatureServe Conservation Status ranking in Illinois of G4S2 indicating that their assessment ranks the species as Imperiled in the State of Illinois (Young 2011; NatureServe 2012, Jeannie Barnes personal communication).

F. **A detailed narrative justification for the recommended measure, describing, based on available information, past and present numbers and distribution of the species involved (location information should include lat/long coordinates and other information necessary to add a record to the Natural Heritage (Biotics 4) Database) and any threats faced by the species; it is most helpful if this narrative contains an analysis of the information presented.**

The State Wildlife Grant program recently funded a project to revise and update the Illinois list of fish species in greatest need of conservation. The study combined information on fish location from seven separate databases including collections data from INHS (Illinois Natural History Survey Fisheries Collection) and UMMZ (University of Michigan Museum of Zoology), and monitoring data from IDNR Fisheries Division (FAS Streams, FAS Lakes), LTEF (Long term Electrofishing), LTRMP (Long term Resource Monitoring Program), and the IDNR BIOTICs databases. This justification is based on the results of that study (Metzke et al. 2012).

Our analysis suggests that the distribution of the American Eel has declined greatly in the past ten years. Records from the Illinois Department of Natural Resources fisheries database (Illinois Fisheries Analysis System or FAS) contained only 5 locations where American Eel were collected during sampling efforts between 2000-2010 while the species was observed at 62 locations during 1977-1999 sampling efforts. Our analysis using statewide data found a >70% reduction in the number of HUC8 watersheds where the American Eel was found when comparing recent records (2000-2010, 7 HUC8 watersheds) and earlier records (1977-1999, 25 HUC8 watersheds). While it is still founds in parts of the major rivers bordering Illinois it has not been recorded in other parts of the Illinois River System (including tributaries), the Kaskaskia River, the Rock River, the Little Wabash River, or the Embarras River systems in the past 10+ years (Metzke et al. 2012).

The major threat to the American Eel in Illinois is barriers to migration. The American eel was petitioned for listing as a threatened species under the Endangered Species Act in 2010 (American_eel_petition_100430). The result of the 90 day review indicated that the "petition presents substantial scientific or commercial information indicating that listing this species may be warranted" initiating further review of the species status (American_eel_2011-25084). This process is ongoing. Before the conclusion of the project all available records were provided to Tara Kieninger (IDNR, Natural Heritage Biotics database manager) and added to the database.

G. **Information on regulatory protections and conservation activities initiated or currently in place that may or may not protect the species or its habitat**.

American Eel is a Species in greatest need of conservation in Illinois (IDNR 2005).

H. **Information regarding the status of the species over all or a significant portion of its range**.

NatureServe rank for American Eel in Illinois is G4S2 and similarly ranked in Wisconsin, Indiana, Ohio, West Virginia (NatureServe2012_American_Eel.pdf). The American Eel is state threatened in Ohio and threatened in Ontario, Canada.

I. **Supporting documentation in the form of copies of reprints of pertinent publications, data, reports or letters from authorities, and maps**.

The ESPB may consult information already in our files for a subject species, but will only conduct additional research as time and resources allow when evaluating whether a listing recommendation presents substantial information indicating listing may be warranted. Therefore, to ensure that we will consider any supporting documentation you reference, you should provide either electronic or hard copies of any supporting materials cited in the recommendation, or valid links to public websites where the cited materials can be accessed; these materials should be in English. If you do not, we may at our option contact you to obtain supporting documentation. However, if you do not provide the supporting documentation, and it is not otherwise readily available in our files, we will be unable to consider this information in making our finding. In addition, we request that you provide literature citations that are specific enough to allow us to easily locate within the documentation the particular information cited in the petition, including page numbers or chapters, as applicable.

Supporting documentation on American Eel has been provided to Anne Mankowski.

Provide specific citations here:

American_eel_petition_100430. Petition to list the American Eel (*Anguilla rostrata*) as a threatened species under the endangered species act. Submitted by: Council for Endangered Species Act Reliability, April 30, 2010.

American_eel_2011-25084. Endangered and Threatened Wildlife and Plants: 90-Day finding on a Petition to List the American Eel as Threatened. 50 CFR Part 17 [Docket No. FWS-R5_ES-2011-0067; 92210-0-0008-B2].

IDNR. 2005. The Illinois Comprehensive Wildlife Conservation Plan & Strategy. Version 1.0. Illinois Department of Natural Resources, Springfield, IL. 353pp.

Metzke, B.A. L. C. Hinz Jr, and A. C. Hulin. 2012. Status Revision and Update for Illinois' Fish Species in Greatest Need of Conservation. Final Report to the Illinois Department of Natural Resources. Illinois Natural History Survey Technical Report 2012/19.

Young, B. 2011. Patterns and Trends in State Designation of SGNC Species. Technical report prepared by NatureServe for the United States Geological Survey Biological Informatics Program. 25p.

General information concerning the life history and habitat is available here:

Hubbs, C.L. and K.F. Lagler. 2004. Fishes of the Great Lakes Region. Revised Edition. (Revised by G.R. Smith). The University of Michigan Press, Ann Arbor. 276pp., 32 color plates.

Scott, W.B. and E.J. Crossman. 1973. Freshwater Fishes of Canada. Bulletin 184, Fisheries Research Board of Canada, Ottawa. 966 pp.

Smith, P.W. 1979. The Fishes of Illinois. University of Illinois Press, Urbana and Chicago. 314pp.

Provide a list of attachments here:

American_eel_petition_100430. Petition to list the American Eel (*Anguilla rostrata*) as a threatened species under the endangered species act. Submitted by: Council for Endangered Species Act Reliability, April 30, 2010.

American_eel_2011-25084. Endangered and Threatened Wildlife and Plants: 90-Day finding on a Petition to List the American Eel as Threatened. 50 CFR Part 17 [Docket No. FWS-R5_ES-2011-0067; 92210-0-0008-B2].

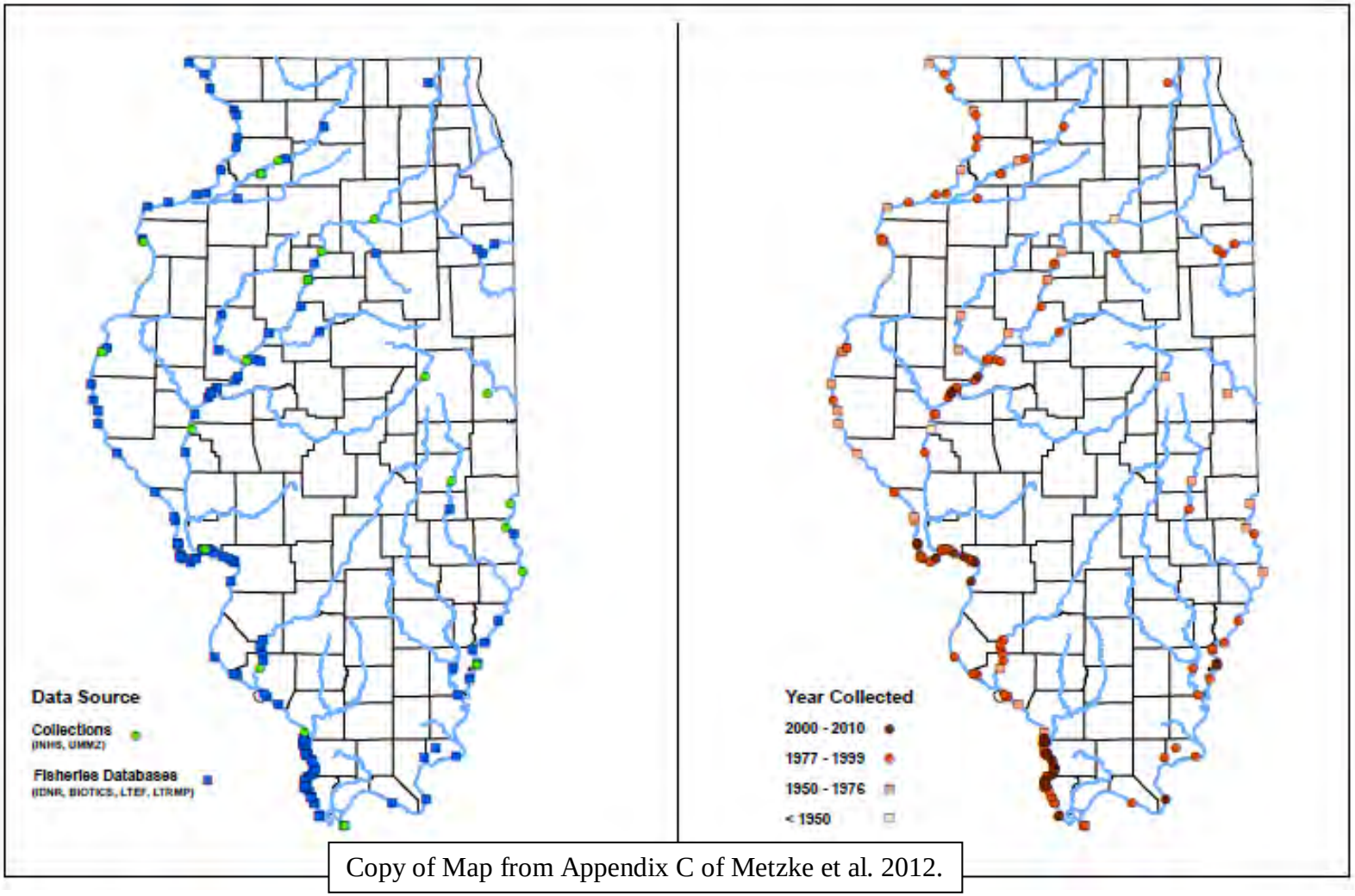
MAP_AmericanEel2012.pdf … Copy of Map from Appendix C of Metzke et al. 2012.

Metzke, B.A. L. C. Hinz Jr, and A. C. Hulin. 2012. Status Revision and Update for Illinois' Fish Species in Greatest Need of Conservation. Final Report to the Illinois Department of Natural Resources. Illinois Natural History Survey Technical Report 2012/19.

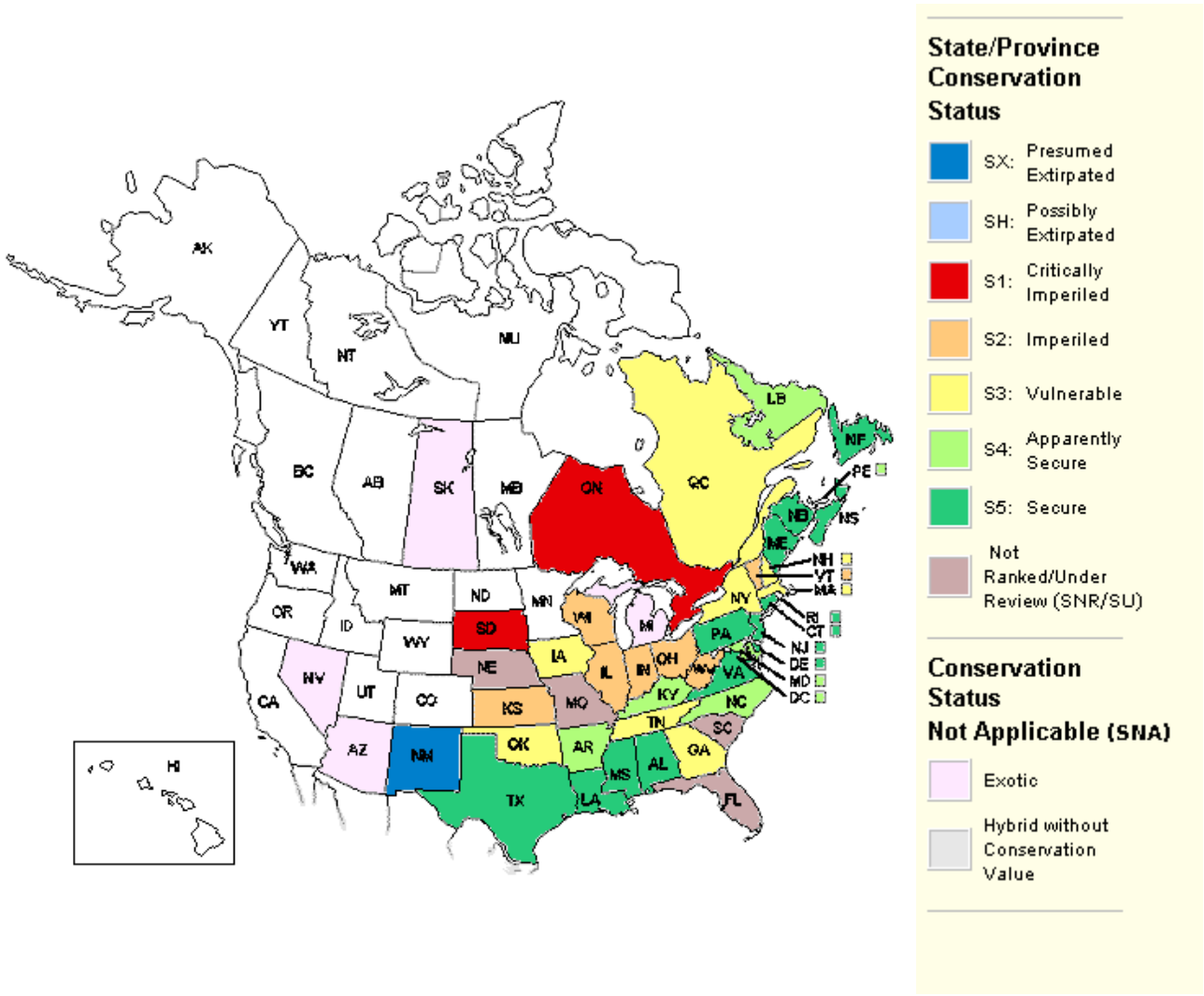
NatureServe 2012. NatureServe Explorer Summary Species Factsheet on Anguilla rostrata (DeKay, 1842).

Young, B. 2011. Patterns and Trends in State Designation of SGNC Species. Technical report prepared by NatureServe for the United States Geological Survey Biological Informatics Program. 25p.

American eel *(Anguilla rostrata)*



Copy of Map from Appendix C of Metzke et al. 2012.



NatureServe. 2012. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed date unknown, 2012).

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March 2012

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J.

Date: 30 November 2012

K. **Proposer Information**

Name: Leon C. Hinz Jr.

Address: One Natural Resources Way, Springfield, IL 62702-1271

Phone number: (217) 785-8297

Email address: leon.hinz@illinois.gov

Title: Stream Ecologist

Institution/Organization affiliation: University of Illinois/ Prairie Research Institute/ Illinois Natural History Survey

L. **The scientific and common name, including nomenclature citation, of any species involved (the ESPB may elect to use the common name identified by NatureServe).**

Scientific Name: *Hybognathus hankinsoni* (Hubbs, 1929)

Common Name: Brassy Minnow

Nomenclature Citation:

M. **Identification of the specific listing status recommended – endangered or threatened – and reference to specific ESPB listing criteria that are affecting the species, including where these factors are acting upon the species, the magnitude and imminence of these factors, and whether, either singly or acting in combination, these factors may cause the species to be an endangered or threatened species (endangered = at risk of extinction in the wild in Illinois; threatened = likely to become endangered in the wild in Illinois within the foreseeable future).**

Recommend listing as endangered ____

Recommend listing as threatened __X__

Identify which ESPB listing criteria are affecting the species and for which your proposal provides supporting evidence: Statewide distribution of Brassy Minnow has declined greatly over the past decade and the species has habitat requirements that are available in only a limited number of locations mainly in the northern portion of the state.

1. Species or subspecies designated as federally endangered or threatened.
2. Species proposed for Federal Endangered or Threatened status that occurs in Illinois.
3. Species which formerly were more widespread in Illinois but have shown significant declines which may lead to extirpation from the State due to habitat destruction, collecting, or other pressures resulting from the development of Illinois. This includes species which:
    a. are experiencing reproductive impairment;
    b. have experienced a range reduction;
    c. occur in reduced numbers even though range or number of populations remains steady.
4. Species which are low in numbers and for which known or potential threats are likely to cause significant declines, including:
    a. species which exhibit very restricted geographic ranges, of which Illinois is a part;
    b. species which exhibit restricted habitats or low populations in Illinois;
    c. species which are significant disjuncts in Illinois, i.e., the Illinois population is far removed from the rest of the species' range.

N. **Biological information on the species (including habitat and life-history traits) that is relevant to determining whether a species may be endangered or threatened**.

Brassy Minnow … Brassy Minnows are a demersal species associated with a wide variety of habitat conditions that generally include cool water temperatures, low current velocities, and aquatic vegetation. Coolwater habitats are rare in Illinois and restricted mainly to the northern tier of counties that includes most of the known locations of the Brassy Minnow (Hinz et al. 2011). I am unaware of any statewide assessment of aquatic vegetation in Illinois rivers but the conventional wisdom is that altered flow regimes and increased sedimentation have lead to a decline in aquatic vegetation in streams. In the western US, Brassy Minnows are associated with fluctuating prairie streams (Scheurer & Fausch 2002, Scheurer et al. 2003). In these Colorado streams Brassy Minnow were found to have poor adult survival in stream segments with the least stable flows but were able to rapidly recolonize when reaches were rewatered (Scheurer & Fausch 2002, Scheurer et al. 2003). The Brassy Minnow has a NatureServe Conservation Status ranking of G5S1S2 indicating that their assessment ranks the species as Imperiled in the State of Illinois (NatureServe2012; Young 2011; Jeannie Barnes personal communication).

O. **A detailed narrative justification for the recommended measure, describing, based on available information, past and present numbers and distribution of the species involved (location information should include lat/long coordinates and other information necessary to add a record to the Natural Heritage (Biotics 4) Database) and any threats faced by the species; it is most helpful if this narrative contains an analysis of the information presented.**

The State Wildlife Grant program recently funded a project to revise and update the Illinois list of fish species in greatest need of conservation. The study combined information on fish location from seven separate databases including collections data from INHS (Illinois Natural History Survey Fisheries Collection) and UMMZ (University of Michigan Museum of Zoology), and monitoring data from IDNR Fisheries Division (FAS Streams, FAS Lakes), LTEF (Long term Electrofishing), LTRMP (Long term Resource Monitoring Program), and the IDNR BIOTICs databases. This justification is based on the results of that study (Metzke et al. 2012).

Our analysis suggests that the distribution of the Brassy Minnow has declined greatly in the past ten years. Records from the Illinois Department of Natural Resources fisheries database (Illinois Fisheries Analysis System or FAS) data contained no collections of the Brassy Minnow during the 2000-2012 sampling period and only from 5 locations during 1977-1999 sampling. The species has been collected as part of other sampling programs during the recent period at 4 sites in two counties within the Pecatonica River system but not elsewhere in Illinois during the past 10+ years. Our records indicate the Brassy Minnow was collected in 8 counties during 1977-1999 and an additional 5 counties (13 total) from 1950-1976 (Metzke et al. 2012). Our recent look at available statewide data found a >85% reduction in the number of HUC8 watersheds where the Brassy Minnow was found when comparing recent records (2000-2010, 1 HUC8) and earlier records (1977-1999, 7 HUC8) (Metzke et al. 2012). Smith (1979) states that the Brassy Minnow was unknown prior to 1929 suggesting they may have always been rare within the state although information about its distribution and abundance prior to that time is unavailable.

Threats are briefly discussed in section E. (above) concerning the rarity of coolwater habitats and vulnerability to climate change. Information concerning distribution and connectivity of stream reaches containing critical habitat for all life stages of the Brassy Minnow is unknown to me at this time. Fragmentation of appropriate habitats and flow variability associated with altered riparian conditions are major threats to this species. Scheurer & Fausch (2002) suggest that persistence of Brassy Minnow in an intermittent stream showed aspects of metapopulation dynamics. If Illinois' populations respond similarly to intermittency then connectivity between stream reaches with appropriate habitats is essential for conserving this species. Before the conclusion of the project all available records were provided to Tara Kieninger (IDNR, Natural Heritage Biotics database manager) and added to the database.

P. **Information on regulatory protections and conservation activities initiated or currently in place that may or may not protect the species or its habitat**.

Brassy Minnow is not currently protected in Illinois.

Q. **Information regarding the status of the species over all or a significant portion of its range**.

NatureServe rank for Brassy Minnow in Illinois is G5S1S2 (see NatureServe2012 for adjacent States' ranks). The Brassy Minnow is state threatened in Colorado (S3), a species in need of conservation in Kansas (S1), and is considered vulnerable in Missouri (S3).

R. **Supporting documentation in the form of copies of reprints of pertinent publications, data, reports or letters from authorities, and maps**.

The ESPB may consult information already in our files for a subject species, but will only conduct additional research as time and resources allow when evaluating whether a listing recommendation presents substantial information indicating listing may be warranted. Therefore, to ensure that we will consider any supporting documentation you reference, you should provide either electronic or hard copies of any supporting materials cited in the recommendation, or valid links to public websites where the cited materials can be accessed; these materials should be in English. If you do not, we may at our option contact you to obtain supporting documentation. However, if you do not provide the supporting documentation, and it is not otherwise readily available in our files, we will be unable to consider this information in making our finding. In addition, we request that you provide literature citations that are specific enough to allow us to easily locate within the documentation the particular information cited in the petition, including page numbers or chapters, as applicable.

Supporting documentation on Brassy Minnow has been provided to Anne Mankowski.

Provide specific citations here:

Hinz Jr., L. C., B. A. Metzke, and A. M. Holtrop. 2011. Evaluating water temperature, habitat, and fish communities in candidate coolwater streams in Illinois. Final Report to the Illinois Department of Natural Resources. Illinois Natural History Survey Technical Report 2011/21.

IDNR. 2005. The Illinois Comprehensive Wildlife Conservation Plan & Strategy. Version 1.0. Illinois Department of Natural Resources, Springfield, IL. 353pp.

Metzke, B.A. L. C. Hinz Jr, and A. C. Hulin. 2012. Status Revision and Update for Illinois' Fish Species in Greatest Need of Conservation. Final Report to the Illinois Department of Natural Resources. Illinois Natural History Survey Technical Report 2012/19.

NatureServe 2005. NatureServe Explorer Comprehensive Report on Brassy Minnow (Hubbs, 1929).

Scheurer, J.A. & K.D. Fausch. 2002. Brassy Minnow in Colorado Plains Streams: Identification, Histroical Distribution, and Habitat Requirements at Multiple Scales. Colorado Water Resources, Research Institute, Completion Report No. 198. 148pp.

Scheurer, J.A., K.D. Fausch & K.R. Bestgen. 2003. Multiscale Processes Regulate Brassy Minnow Persistence in a Great Plains River. Transactions of the American Fisheries Society 132(5): 840-855.

Young, B. 2011. Patterns and Trends in State Designation of SGNC Species. Technical report prepared by NatureServe for the United States Geological Survey Biological Informatics Program. 25p.

General information concerning the life history and habitat is available here:

Hubbs, C.L. and K.F. Lagler. 2004. Fishes of the Great Lakes Region. Revised Edition. (Revised by G.R. Smith). The University of Michigan Press, Ann Arbor. 276pp., 32 color plates.

Scott, W.B. and E.J. Crossman. 1973. Freshwater Fishes of Canada. Bulletin 184, Fisheries Research Board of Canada, Ottawa. 966 pp.

Smith, P.W. 1979. The Fishes of Illinois. University of Illinois Press, Urbana and Chicago. 314pp.

Provide a list of attachments here:

Hinz Jr., L. C., B. A. Metzke, and A. M. Holtrop. 2011. Evaluating water temperature, habitat, and fish communities in candidate coolwater streams in Illinois. Final Report to the Illinois Department of Natural Resources. Illinois Natural History Survey Technical Report 2011/21.

MAP_BrassyMinnow2012.pdf … Copy of Map from Appendix C of Metzke et al. 2012.

Metzke, B.A. L. C. Hinz Jr, and A. C. Hulin. 2012. Status Revision and Update for Illinois' Fish Species in Greatest Need of Conservation. Final Report to the Illinois Department of Natural Resources. Illinois Natural History Survey Technical Report 2012/19.

NatureServe 2012. NatureServe Explorer Summary Species Factsheet on Lampetra appendix (DeKay, 1842).

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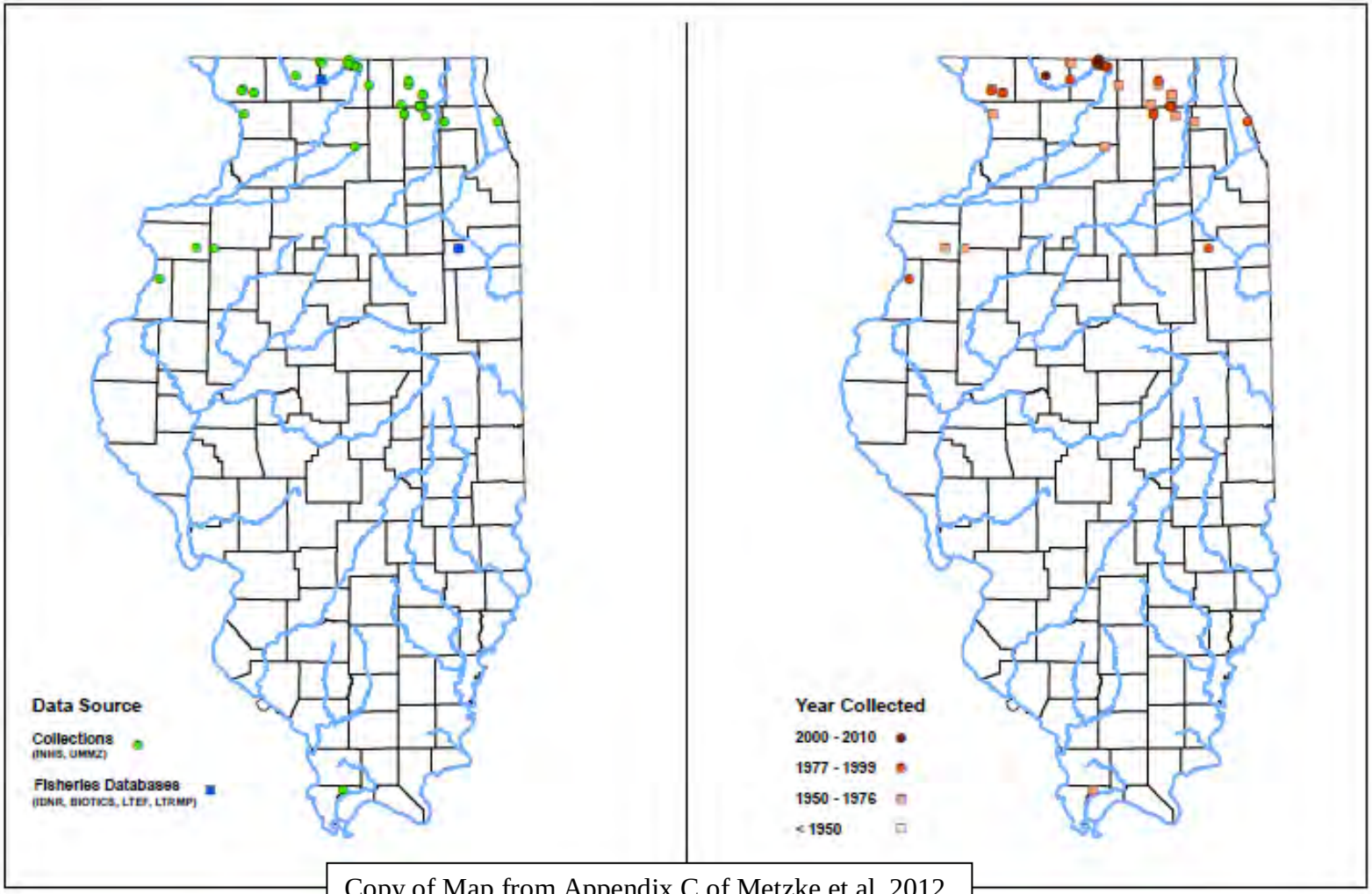
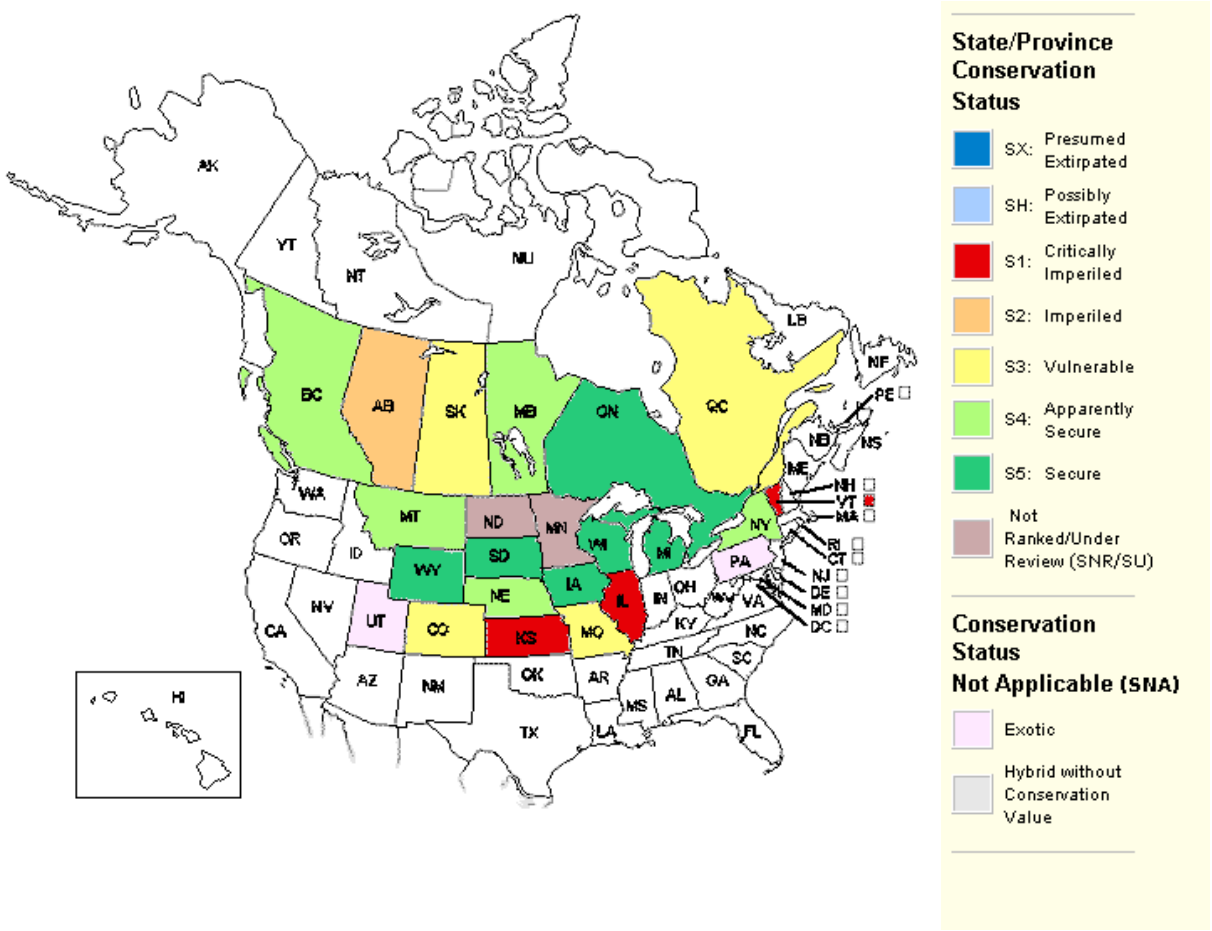
Young, B. 2011. Patterns and Trends in State Designation of SGNC Species. Technical report prepared by NatureServe for the United States Geological Survey Biological Informatics Program. 25p.

Brassy minnow *(Hybognathus hankinsoni)*

ILLINOIS NATURAL HISTORY SURVEY



Copy of Map from Appendix C of Metzke et al. 2012.



NatureServe. 2012. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed date unknown, 2012).

Illinois Endangered Species Protection Board (ESPB) required 5-year review of the Illinois List of Endangered and Threatened Species (Illinois List) ending in 2014:

Form for ESPB Technical Expert Consultant (ESPB TEC) recommendation for adding a species to the Illinois List of Endangered and Threatened Species

Prepared by:
Anne Mankowski, Director
Illinois Endangered Species Protection Board
One Natural Resources Way
Springfield, IL 62702-1271
Office phone: 271-785-8687
Email: anne.mankowski@illinois.gov
March 2012

Complete one form for each species nomination. Fill-in all sections to the best of your ability with available information. Return the form and copies of attachments to Anne Mankowski.

S.

Date: 30 November 2012

T. **Proposer Information**

Name: Leon C. Hinz Jr.

Address: One Natural Resources Way, Springfield, IL 62702-1271

Phone number: (217) 785-8297

Email address: leon.hinz@illinois.gov

Title: Stream Ecologist

Institution/Organization affiliation: University of Illinois/ Prairie Research Institute/ Illinois Natural History Survey

U. **The scientific and common name, including nomenclature citation, of any species involved (the ESPB may elect to use the common name identified by NatureServe).**

Scientific Name: *Lethenteron appendix* (DeKay, 1842) [Also listed as *Lampetra appendix*]

Common Name: American Brook Lamprey

Nomenclature Citation:

V. **Identification of the specific listing status recommended – endangered or threatened – and reference to specific ESPB listing criteria that are affecting the species, including where these factors are acting upon the species, the magnitude and imminence of these factors, and whether, either singly or acting in combination, these factors may cause the species to be an endangered or threatened species (endangered = at risk of extinction in the wild in Illinois; threatened = likely to become endangered in the wild in Illinois within the foreseeable future).**

Recommend listing as endangered ____

Recommend listing as threatened __X__

Identify which ESPB listing criteria are affecting the species and for which your proposal provides supporting evidence: Statewide distribution of American Brook Lamprey has declined greatly over the past decade and the species has habitat requirements that are available in only a limited number of locations mainly in the northern portions of the state.

1. Species or subspecies designated as federally endangered or threatened.
2. Species proposed for Federal Endangered or Threatened status that occurs in Illinois.
3. Species which formerly were more widespread in Illinois but have shown significant declines which may lead to extirpation from the State due to habitat destruction, collecting, or other pressures resulting from the development of Illinois. This includes species which:
    a. are experiencing reproductive impairment;
    b. have experienced a range reduction;
    c. occur in reduced numbers even though range or number of populations remains steady.
4. Species which are low in numbers and for which known or potential threats are likely to cause significant declines, including:
    a. species which exhibit very restricted geographic ranges, of which Illinois is a part;
    b. species which exhibit restricted habitats or low populations in Illinois;
    c. species which are significant disjuncts in Illinois, i.e., the Illinois population is far removed from the rest of the species' range.

W. **Biological information on the species (including habitat and life-history traits) that is relevant to determining whether a species may be endangered or threatened**.

American Brook Lamprey (*Lethenteron appendix*) … American Brook Lampreys are associated with stable, high quality cool water habitats (Renaud 2011). Due to their complex life history, which includes a metamorphosis to the adult stage and a semelparous spawning habit that may occur in aggregations, book lamprey require two distinctive types of habitat that are connected by free flowing stretches of stream. Adults are found in clear brooks with sand & gravel substrates while larvae occur in soft sediments in slightly larger stream sections. Non-parasitic lampreys do not disperse widely from where they hatch and are therefore vulnerable to habitat degradation. Coolwater habitats are rare in Illinois (Hinz et al. 2011) and Walk et al. (2011) found the American Brook Lamprey to be extremely vulnerable to Climate Change partly based on the habitat requirements of the species. The American Brook Lamprey has a NatureServe Conservation Status ranking of G4S2 indicating that their assessment ranks the species as Imperiled in the State of Illinois (NatureServe 2005, Young 2011; Jeannie Barnes personal communication).

X. **A detailed narrative justification for the recommended measure, describing, based on available information, past and present numbers and distribution of the species involved (location information should**

include lat/long coordinates and other information necessary to add a record to the Natural Heritage (Biotics 4) Database) and any threats faced by the species; it is most helpful if this narrative contains an analysis of the information presented.

The State Wildlife Grant program recently funded a project to revise and update the Illinois list of fish species in greatest need of conservation. The study combined information on fish location from seven separate databases including collections data from INHS (Illinois Natural History Survey Fisheries Collection) and UMMZ (University of Michigan Museum of Zoology), and monitoring data from IDNR Fisheries Division (FAS Streams, FAS Lakes), LTEF (Long term Electrofishing), LTRMP (Long term Resource Monitoring Program), and the IDNR BIOTICs databases. This justification is based on the results of that study (Metzke et al. 2012).

Our analysis suggests that the distribution of the American Brook Lamprey has declined greatly in the past ten years. Records from the Illinois Department of Natural Resources fisheries database (Illinois Fisheries Analysis System or FAS) contained only 4 locations where American Brook Lamprey were collected during sampling efforts between 2000-2010 while the species was observed at 14 locations during 1977-1999 sampling efforts. By including other records (non-FAS) we find that the species has had its range reduced from 32 sites in 13 counties (1977-1999) to 10 sites (31%) in 6 counties (46%) 2000-2010. Our analysis using statewide data found a >55% reduction in the number of HUC8 watersheds where this lamprey was found when comparing recent records (2000-2010, 3 HUC8 watersheds) and earlier records (1977-1999, 7 HUC8 watersheds). We have no records of this species in the Illinois River system (Fox River [0 recent sites/ 2 historic sites], Mackinaw River [0/2], Spoon River [0/2], Sangamon River [0/4]) outside of Kankakee County (Kankakee River [2/4]) in the past ten years. Similar declines appear to have occurred in the Embarras River where American Brook Lamprey has been found at only one of six historic locations in the past 10+ years (Metzke et al. 2012).

Threats are briefly discussed in section E. (above) concerning the rarity of coolwater habitats and vulnerability to climate change. Information concerning distribution and connectivity of stream reaches containing critical habitat for all life stages of the American Brook Lamprey is unknown to me at this time. Before the conclusion of the project all available records were provided to Tara Kieninger (IDNR, Natural Heritage Biotics database manager) and added to the database.

Y. **Information on regulatory protections and conservation activities initiated or currently in place that may or may not protect the species or its habitat**.

American Brook Lamprey is a Species in greatest need of conservation in Illinois (IDNR 2005).

Z. **Information regarding the status of the species over all or a significant portion of its range**.

NatureServe rank for American Brook Lamprey in Illinois is G4S2 (see NatureServe2005 for adjacent States' ranks). American Brook Lamprey is state endangered in New Hampshire and Connecticut, state threatened in Iowa, Kentucky, Massachusetts, Maryland, North Carolina, and Vermont. The American Brook Lamprey is a candidate species in Pennsylvania and a species of special concern in Arkansas.

AA. **Supporting documentation in the form of copies of reprints of pertinent publications, data, reports or letters from authorities, and maps**.

The ESPB may consult information already in our files for a subject species, but will only conduct additional research as time and resources allow when evaluating whether a listing recommendation presents substantial information indicating listing may be warranted. Therefore, to ensure that we will consider any supporting documentation you reference, you should provide either electronic or hard copies of any supporting materials

cited in the recommendation, or valid links to public websites where the cited materials can be accessed; these materials should be in English. If you do not, we may at our option contact you to obtain supporting documentation. However, if you do not provide the supporting documentation, and it is not otherwise readily available in our files, we will be unable to consider this information in making our finding. In addition, we request that you provide literature citations that are specific enough to allow us to easily locate within the documentation the particular information cited in the petition, including page numbers or chapters, as applicable.

Supporting documentation on American Brook Lamprey has been provided to Anne Mankowski.

Provide specific citations here:

Hinz Jr., L. C., B. A. Metzke, and A. M. Holtrop. 2011. Evaluating water temperature, habitat, and fish communities in candidate coolwater streams in Illinois. Final Report to the Illinois Department of Natural Resources. Illinois Natural History Survey Technical Report 2011/21.

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Walk, J., S. Hagen, and A. Lange. 2011. Adapting Conservation to a Changing Climate: An Update to the Illinois Wildlife Action Plan. Report to the Illinois Department of Natural Resources. Illinois Chapter of the Nature Conservancy, Peoria, IL. 120 pp.

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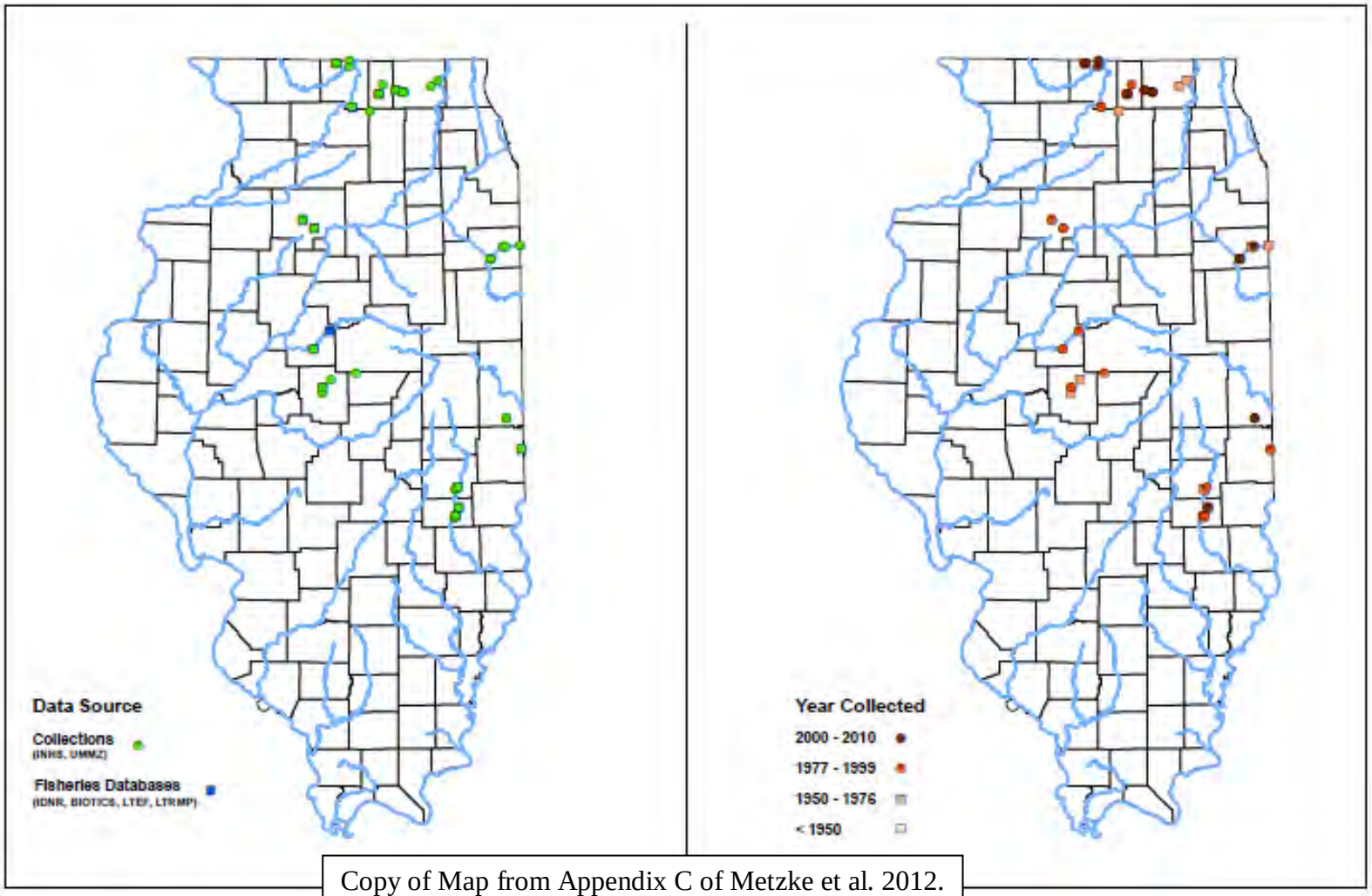
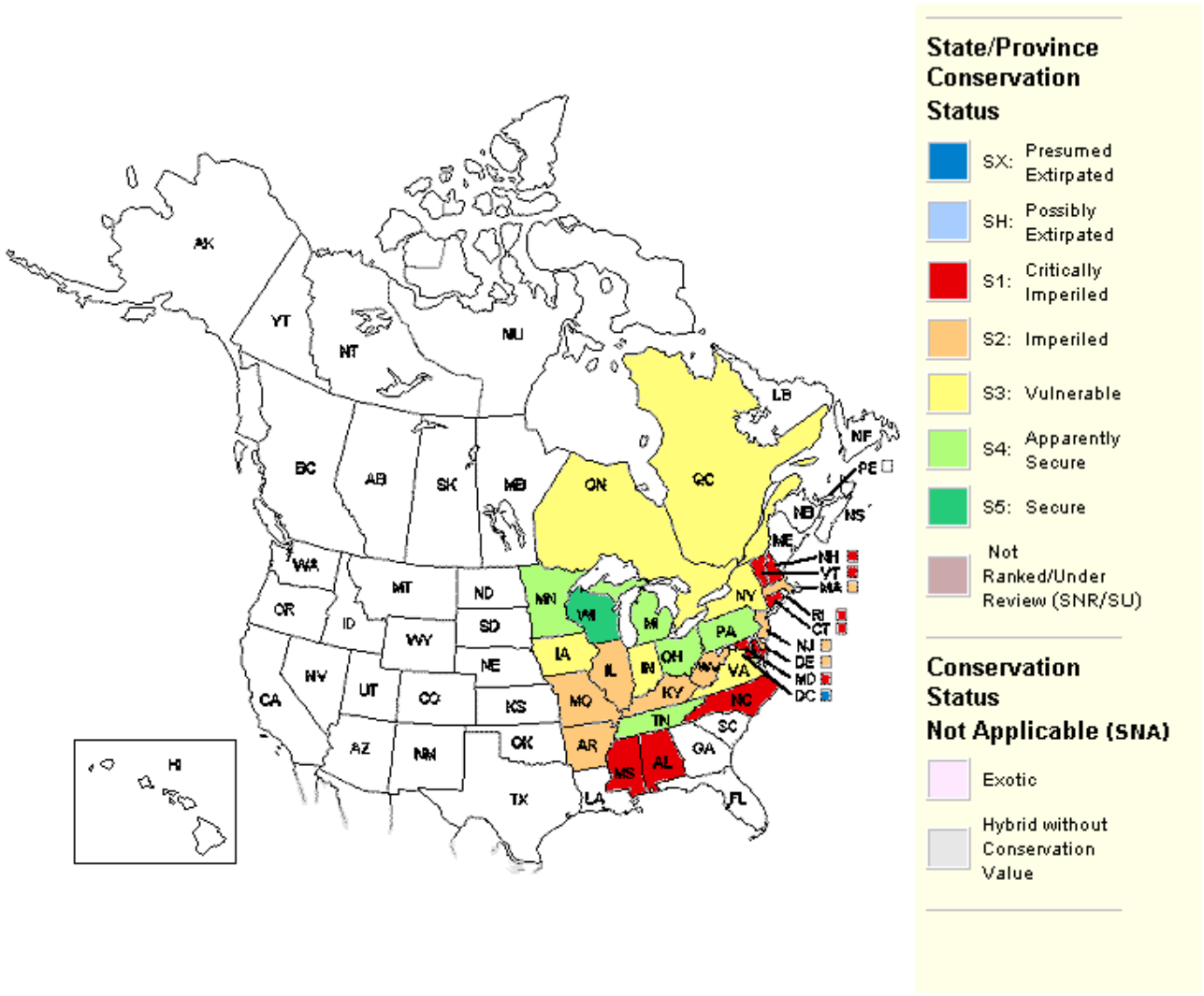
American brook lamprey *(Lampetra appendix)*



Copy of Map from Appendix C of Metzke et al. 2012.



NatureServe. 2012. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed date unknown, 2012).

Attachment G

Re: Agenda Items 157-11: Copy of the 2014 Illinois List Review: Staff recommendation for changes to the list of Illinois endangered and threatened mussels

ILLINOIS ENDANGERED SPECIES PROTECTION BOARD

One Natural Resources Way, Springfield, Illinois 62702 - 1271, (217) 785-8687; FAX (217) 785-2438

Illinois Endangered Species Protection Board (ESPB) required 5-year review of the Illinois List of Endangered and Threatened Species (Illinois List) ending in 2014:

ESPB staff 1st cut final recommendations for Mussels

Prepared by Anne Mankowski

1st cut draft dated 12/12/2012, updated as 1st cut final 01/25/2013

This is the 1st cut final recommendations that will be presented to the Board at the 02/08/2013 meeting.

Contents:

(This is a compilation of otherwise stand-alone documents; I didn't spend a lot of time crafting, so it isn't pretty)

(1) = List of pre-1st cut draft recommendations and evidence received from ESPB TECs and IDNR by 11/30/12 deadline for species listing status change or additions to the Illinois List and Mankowski response/notes; and, (2, 3, and 4) = List of post-1st cut draft recommendations and evidence received from ESPB TECs and IDNR by 12/31/12 deadline for species listing status change or additions to the Illinois List and Mankowski response/notes.

1**.** There were no recommendations or evidence for species listing status changes or additions to the Illinois List received from ESPB TECs by the 11/30/12 deadline.

2. ESPB TEC Jeremy Tiemann sent question on 12/17/12 asking if it was too late to submit a nomination for adding a species (Monkeyface mussel, Theliderma metanevra) to the List.

Mankowski response 12/18/12:
The deadline was 11/30/2012. If you want to complete a recommendation for listing form and submit it, as I have noted previously, I will review and consider it for inclusion as time and resources allow. If you can meet the deadline for comments/evidence on this 1st cut draft, then I will review and consider for possible inclusion in the 1st cut final. The 1st cut final will include my response to TEC comments and evidence – whether I include the actual recommendation or not – and if I don't include your actual recommendation in that iteration, I will provide you direction on whether I will include it later in the process or if you should consider addressing it individually, either as a separate agenda item that you present to the Board or during the public comment period that will be held following the Board's confirming preliminary approval of a revised list.

Mr. Tiemann submitted on 12/19/12 a nomination letter recommending addition of the Monkeyface mussel (Theliderma metanevra) as threatened.

Ms. Mankowski response 01/16/13:
I will not be including in my 1st cut mussel list review final document a nomination to add the Monkeyface for the following reasons: Your submittal was late, it was not prepared using the previously distributed ESPB nomination form, and it lacks sufficient information and evidence for me to review and consider making a recommendation for the Board's consideration.

For your reference, attached again here is a copy of the ESPB nomination form. If you wish to prepare a nomination using this form, when it is complete you can contact me again if you would like my review and to discuss whether I would be able to present it to the Board for consideration at a later point during the current List review process.

If you wish to present it to the Board yourself at a later date, you can request to present to the Board as an agenda item at any Board meeting – I need to receive your request and all supporting documentation at least 30 days prior to the meeting. If you wish to present it to the Board as a public comment at any meeting, you may do so simply by attending a meeting and addressing the Board during the 3-minute public comment period offered at each meeting. If you wish to present it to the Board during the public hearing period that will be held after the Board confirms all preliminary listing decisions and before the Board finalizes it's listing decisions – that public hearing period is expected for sometime at the end of 2013 or beginning of 2014 and notice of it will be posted to the Board's website.

3. ESPB TEC Jeremy Tiemann comments received 12/18/12 for Salamander mussel (Simpsonaias ambigua):
I disagree with the recommendation of removing the salamander mussel because of the following:

1) The salamander mussel is the quintessential "needle in a haystack." We typically don't sample its habitat when conducting mussel surveys. As your probably know, this is the only species of freshwater mussel

that does not use a fish for its host. It uses the mudpuppy, which often occurs under boulders and slab rocks. When we (INHS and several IDNR biologists) conduct our surveys, we seldom flip rocks.

2) The species is small and thin shelled. So not only do we under-sample for it, we have one that will disintegrate quickly. Because of this, we typically don't find dead shell.

Mr. Tiemann made reference to the following citation, but did not provide copy of the report.

Cummings, K.S., C.A. Phillips, C.A. Mayer, and J.E. Petzing. 2002. Status survey for the mudpuppy Necturus maculosus (Amphibia: Protiidae) and salamander mussel Simpsonaias ambigua (Mollusca: Unionidae) in Illinois. Illinois Natural History Survey, Center for Biodiversity, Technical Report 2002(2):1-20.

Mankowski response 01/16/13:

Ms. Mankowski thanked Mr. Tiemann for the input. Comment lacks adequate evidence/information to cross-check information in the ESPB staff 1st cut draft mussel list review and did not explain whether the commenter is asserting that "surveyed with no observation" records in the database were incorrect because surveys were not conducted properly for the subject species. Despite the lack of evidence and explanation, Ms. Mankowski investigated the "surveyed with no observation" records from 1997-2012 and found them to be based on surveys which did look specifically for the species and legitimate.

Regarding note about dead shells not typically being found, the explanation was not qualified with respect to how it supports the Mr. Tiemann's recommendation or with respect to multiple dead records reported to the Database and reflected in Mankowski species review from 12/14/12.

Regarding citation to the Cummings et al, 2002 report, Mr. Tiemann did not provide copy of the report or indicate how the report and data within provided evidence supporting your comments and recommendation. Please submit to the IDNR Natural Heritage Database any occurrence evidence that you have for the species.

Comment otherwise noted.

4. ESPB TEC Kevin Cummings comments received 12/18/12 for Salamander mussel (Simpsonaias ambigua):

I totally agree with Jeremy in this. It would be a mistake to remove the salamander mussel from the list. It is way too premature to say it has been extirpated. As he mentioned this is a very small and thin-shelled species and it is extremely hard to find given it's habitat preference. We have found shells at 6 locations (which in my mind equates to presence to a live population) in the Sangamon, Vermilion and Fox drainages since 2000. As stated it is a very thin-shelled species and the finding of shells is highly indicative of an extant population. I see no valid reason to remove it from the list.

Mankowski response 01/16/13:

Ms. Mankowski thanked Mr. Cummings for his input. Comment lacks adequate evidence/information to cross-check element occurrence (EO) information in the ESPB staff 1st cut draft mussel list review or establish EOs in the IDNR Natural Heritage Database. The data needs to be in the Database for consideration by the ESPB in the List review. Please submit to the IDNR Natural Heritage Database any occurrence evidence that you have for the species.

Mr. Cummings' explanation that he believes finding shells at several locations since 2000 equates to presence of a live population prompted Ms. Mankowski to investigate further the terminology/criteria for different categories of "dead" mussels reported to the Database - EOs are qualified variously as "fresh dead", "recent dead", "dead", "dead with flesh intact", "dead with slight weathering", "weathered", "relict", "prehistoric", "historic", and "ancient". That investigation identified that there are inconsistencies in terminology use and direction for EO reporting for mussels and while several experts have fairly recently come to agree on "accepted" terminology, not all are using it and since the "accepted" terminology is not dictated in the EO reporting form, any individual

submitting data may use any variety of terms. To correct this problem going forward, Ms. Mankowski is working with IDNR Natural Heritage Database staff to draft new EO reporting forms that will require the reporter to identify observations as "live", "dead" (dead animals with at least some flesh still present and/or nacre still lustrous), and "relict" (dead animals that lack any flesh still present and/or nacre still lustrous). Using this definition of "dead", she agrees that for this species, most "dead" observations equate to at least recent presence of a live population.

Based on what is explained above, when Ms. Mankowski prepared her 12/14/12 1st cut mussel list review, it appears that she attributed a more distant timeframe than appropriate to occurrence records with a variety of "dead" designations and so considered "dead" observations as more historic and not representative of at least recent presence of a live population.

Mankowski recommendation for 1st cut final mussel list review
No change in status - data do not warrant change.

ESPB staff listing status recommendations

Endangered to threatened:	None	
Threatened to endangered:	Elliptio crassidens	Elephant-ear
	Fusconaia ebena	Ebonyshell
Remove from endangered:	None	
Remove from threatened:	None	
Add as endangered:	None	
Add as threatened:	None	

No listing status change recommended: (data do not warrant change)

Alasmidonta viridis	Slippershell
Cumberlandia monodonta	Spectaclecase
Cyclonaias tuberculata	Purple Wartyback
Cyprogenia stegaria	Fanshell
Ellipsaria lineolata	Butterfly
Elliptio dilatata	Spike
Epioblasma rangiana	Northern Riffleshell
Epioblasma triquetra	Snuffbox
Lampsilis abrupta	Pink Mucket
Lampsilis fasciola	Wavy-rayed Lampmussel
Lampsilis higginsii	Higgens Eye
Ligumia recta	Black Sandshell
Plethobasus cooperianus	Orangefoot Pimpleback
Plethobasus cyphyus	Sheepnose
Pleurobema clava	Clubshell
Pleurobema cordatum	Ohio Pigtoe
Potamilus capax	Fat Pocketbook
Ptychobranchus fasciolaris	Kidneyshell
Quadrula cylindrica	Rabbitsfoot
Simpsonaias ambigua	Salamander Mussel
Toxosalma lividus	Purple Lilliput
Villosa iris	Rainbow
Villosa lienosa	Little Spectaclecase

Species under Federal review – implications to the Illinois List:

Quadrula cylindrica cylindrica. Rabbitsfoot. USFWS action - Proposed listing as threatened/Critical Habitat designation rule published 10/16/12, comment period closed 12/17/12. If the USFWS decides to list, the species will be added to the Federal List 60 days following the announcement of such decision. I don't have a date for when their decision is expected. Under listing criteria in Title 17, IL ADMIN CODE, CH. 1, SEC 1010 (Illinois List of Endangered and Threatened Fauna), as a species proposed for federal listing, it should be added to the IL List. It is already on the Illinois List as Illinois endangered.

Pleurobema rubrum. Pyramid Pigtoe. USFWS action - 12-month finding (warranted or not warranted for listing); part of 404 SE aquatic species - 12-month finding work after MDL work plan (probably after FFY2016 – Sep 2016). If USFWS lists the species and includes Illinois in its range, it will automatically be added to the IL List. Formerly Illinois endangered; delisted in 2004 as extirpated.

Simpsonaias ambigua. Salamander Mussel. USFWS action - 12-month finding (warranted or not warranted for listing); part of 404 SE aquatic species - 12-month finding work after MDL work plan (probably after FFY2016 – Sep 2016).
Illinois endangered.

Obovaria subrotunda. Round Hickorynut. USFWS action - 12-month finding (warranted or not warranted for listing); part of 404 SE aquatic species - 12-month finding work after MDL work plan (probably after FFY2016 – Sep 2016). If USFWS lists the species and includes Illinois in its range, it will automatically be added to the IL List. Formerly Illinois endangered; delisted in 2004 as extirpated.

Toxolasma lividus. Purple Lilliput. USFWS action - 12-month finding (warranted or not warranted for listing); part of 404 SE aquatic species - 12-month finding work after MDL work plan (probably after FFY2016 – Sep 2016). Illinois endangered.

Fusconaia subrotunda. Longsolid. USFWS action - 12-month finding (warranted or not warranted for listing); part of 404 SE aquatic species - 12-month finding work after MDL work plan (probably after FFY2016 – Sep 2016). Not listed in Illinois. INHS database shows 12 Wabash River records from 1985 - 2010

Table1. Currently listed species – last observed, total occurrences, total seen since Jan 2002, # of protected occurrences, # of topographic quads with occurrences (Illinois Natural Heritage Biotics 4 Database, November 2012).

SCIENTIFIC_NAME	S_PRIMARY_COMMON_NAME	Current Status	Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
Alasmidonta viridis	Slippershell	IL T	2012-08-28	74	53	4	57	22	22
Cumberlandia monodonta	Spectaclecase	IL E, Fed E	2011-10-27	16	4	1	17	9	5
Cyclonaias tuberculata	Purple Wartyback	IL T	2012-08-28	38	29	2	27	14	9
Cyprogenia stegaria	Fanshell	IL E, Fed E	1984-08-22	1	0	0	1	1	0
Ellipsaria lineolata	Butterfly	IL T	2012-09-29	47	33	1	46	14	14
Elliptio crassidens	Elephant-ear	IL T	2012-08-23	12	5	1	11	8	4
Elliptio dilatata	Spike	IL T	2012-08-22	53	37	1	41	24	19
Epioblasma rangiana	Northern Riffleshell	IL E, Fed E	2012-08-08	2 (reintro)	2	1	2	2	2
Epioblasma triquetra	Snuffbox	IL E, Fed E	2012-07-09	4	2	1	3	2	2
Fusconaia ebena	Ebonyshell	IL T	2012-08-15	33	13	1	33	18	12
Lampsilis abrupta	Pink Mucket	IL E, Fed E	no records						
Lampsilis fasciola	Wavy-rayed Lampmussel	IL E	2012-08-08	20	17	1	13	3	3
Lampsilis higginsii	Higgins Eye	IL E, Fed E	2009-09-22	18	9	0	14	5	3
Ligumia recta	Black Sandshell	IL T	2012-09-29	101	86	4	86	28	27
Plethobasus cooperianus	Orangefoot Pimpleback	IL E, Fed E	1999-09-07	2	0	0	2	1	0
Plethobasus cyphyus	Sheepnose	IL E, Fed E	2010-08-18	21	7	2	21	11	5
Pleurobema clava	Clubshell	IL E, Fed E	2002-09-19	2	1	0	3	2	2
Pleurobema cordatum	Ohio Pigtoe	IL E	2006-06-28	3	1	0	3	2	1
Potamilus capax	Fat Pocketbook	IL E, Fed E	2012-08-18	30	24	1	22	7	6
Ptychobranchus fasciolaris	Kidneyshell	IL E	2012-07-19	9	6	0	7	3	3
Quadrula cylindrica	Rabbitsfoot	IL E, Fed E	2011-09-20	7	4	1	5	3	3
Simpsonaias ambigua	Salamander Mussel	IL E	2007-06-30	9	2	0	8	4	2
Toxolasma lividus	Purple Lilliput	IL E	2012-09-10	12	11	1	8	4	4
Villosa iris	Rainbow	IL E	2011-10-04	9	6	1	7	2	2
Villosa lienosa	Little Spectaclecase	IL T	2012-08-15	50	44	3	33	12	10

Table 2. Currently listed species -element occurrences and counties with occurrences for respective 5-year intervals ending in 2011 (some 2012 also) (Illinois Natural Heritage Biotics 4 Database, October 2012).

SCIENTIFIC_NAME	COMMON_NAME	Live & dead obs 1982-1986	Live & dead obs 1987-1991	Live & dead obs 1992-1996	Live & dead obs 1997-2001	Live & dead obs 2002-2006	Live & dead obs 2007-2011	Live & dead obs 2012	Live & dead obs # Cos 1982-1986	Live & dead obs # Cos 1987-1991	Live & dead obs # Cos 1992-1996	Live & dead obs # Cos 1997-2001	Live & dead obs # Cos 2002-2006	Live & dead obs # Cos 2007-2011	Live & dead obs # Cos 2012
Alasmidonta viridis	Slippershell	0	6	4	30 (2)	16 (10)	43 (6)	5 (1)	0	3	2	11	11	13	4
Cumberlandia monodonta	Spectaclecase	3	7	3	4	2	2 (1)	0	3	6	2	3	2	2	0
Cyclonaias tuberculata	Purple Wartyback	5	6	5	14	12 (2)	27 (4)	6	5	6	4	5	4 (1)	6	5
Cyprogenia stegaria	Fanshell	0	1	0	0	0	0	0	0	1	0	0	0	0	0
Ellipsaria lineolata	Butterfly	4	8	10	16	18 (3)	18 (3)	1	4	5	5	10	9 (1)	9	1
Elliptio crassidens	Elephant-ear	4	8	2	2	1	2	3	3	6	2	2	1	2	1
Elliptio dilatata	Spike	3	12	4	9	14 (2)	26 (2)	4	3	8	3	4	11 (1)	14	4
Epioblasma rangiana	Northern Riffleshell						2	2						2	2
Epioblasma triquetra	Snuffbox	1	2	2	2	1	2	1	1	2	2	2	2	2	2
Fusconaia ebena	Ebonyshell	3	8	10	7	8 (1)	8 (1)	4	3	6	6	5	7	5	3
Lampsilis abrupta	Pink Mucket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lampsilis fasciola	Wavy-rayed Lampmussel	2	7	6	10	11	11 (3)	3	1	1	1	3	2	1	1
Lampsilis higginsii	Higgins Eye	2	8	5	6	5 (1)	5 (1)	0	2	3	2	3	2 (1)	2	0
Ligumia recta	Black Sandshell	11	17	12	23 (2)	29 (7)	63 (5)	9 (1)	7	12	8	14	15 (3)	21 (2)	8 [1]
Plethobasus cooperianus	Orangefoot Pimpleback	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Plethobasus cyphyus	Sheepnose	5	7 (1)	5	4	4 (1)	4 (2)	0	4	6	5	3	3 (1)	3 (1)	0
Pleurobema clava	Clubshell	0	0	0	2	1	0	0	0	0	0	2	1	0	0
Pleurobema cordatum	Ohio Pigtoe	1	0	2	0	1	0	0	1	0	2	0	1	0	0
Potamilus capax	Fat Pocketbook	0	7	11	5	3	21 (2)	7	0	2	3	2	2	6 (3)	4
Ptychobranchus fasciolaris	Kidneyshell	2	2	1	4	2	5	2	2	2	2	3	2	3	2
Quadrula cylindrica	Rabbitsfoot	1	2	3	4	3	2 (1)	0	1	2	2	2	2	1	0
Simpsonaias ambigua	Salamander Mussel	0	5	3	3	1	1	0	0	3	2	2	1	1	0
Toxolasma lividus	Purple Lilliput	0	1	1	3	4	7 (1)	1	0	1	1	2	2	3	1
Villosa iris	Rainbow	0	1	3	7	3	4 (1)	0	0	1	1	1	2	1	0
Villosa lienosa	Little Spectaclecase	1	6	6	13	17 (2)	34 (3)	2	1	4	3	4	7	9	2

(#) = # of EOs where live animals were relocated and there were no subsequent obs - see individual species reviews

Currently listed species individual reviews – each review includes:
(Note – In the reviews, I provide "notes and recommendations" for those species for which I am recommending listing status change and for those where I felt it necessary to explain my recommendation for no change in listing status. If a species review does not include "notes and recommendations", it means that I am not recommending any change in listing status.)

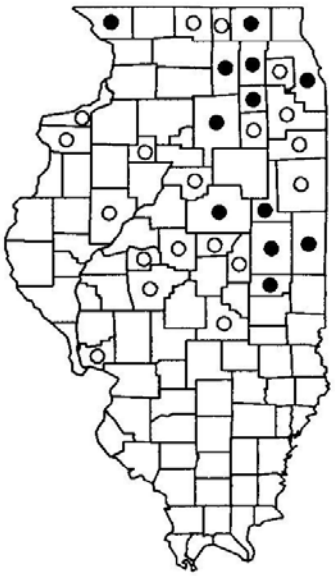
a. Date of listing, reason for listing;
b. ESPB status and distribution publication species acct;
c. species data from Tables 1 and 2;
d. 1982-2011 5-year element occurrence trend graph;
e. summary data for potential impacts to EOs from incidental take authorizations;
f. status review triggers (if any) and listing status change recommendation (if any); and
g. NatureServe conservation status, lower 48.

Slippershell, Alasmidonta viridis (Illinois threatened)

Listed as IL E, 3/17/1989; Listed as IL T 4/26/1999
Reason for listing: formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures;

Alasmidonta viridis (Rafinesque)

SLIPPERSHELL **UNIONIDAE** **Status:** Threatened in Illinois



Present Distribution: The slippershell is known from the upper Mississippi, Ohio, Cumberland, and Tennessee river drainages, and lower and middle sections of the St. Lawrence River system (Parmalee 1967). In Illinois, it is known from the Sangamon, Kankakee, Vermilion, Mackinaw, Rock, and Fox river systems (IDNR Natural Heritage database, INHS Mollusk Collection).
Former Illinois Distribution: Parmalee (1967) reported that this species occurred only in central and northern Illinois where it could be locally common.
Habitat: The slippershell inhabits small to medium sized streams where it is usually found buried in sandy substrates in shallow water (Baker 1928, Parmalee 1967). In Missouri, this species is most frequently found in headwaters of streams where the water is clear and cool (Oesch 1984).
Reason for Status: The slippershell now has a restricted distribution in Illinois, and its numbers have been reduced most likely as a result of increased siltation and channelization in small to medium sized streams throughout the state.
Management recommendations: Better soil conservation measures are needed in order to reduce and preferably reverse declining water quality due to agricultural runoff and pollution. Improved protection from herbicides, pesticides, industrial-related pollution, and dredging in small streams is also needed.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-08-28	74	53	4	57	22	22

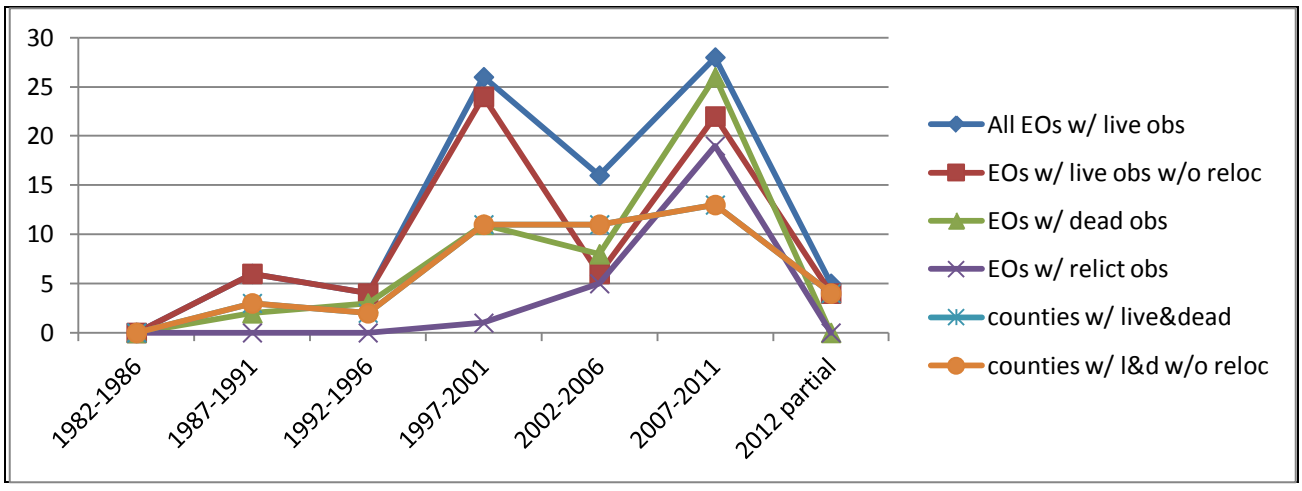
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	0	6	4	26 (2)	16 [10]	28 [6]	5 (1)
EOs w/ dead obs	0	2	3	11	8	26	0
EOs w/ relict obs	0	0	0	1	5	19	0
Total EOs w/ live&dead	0	6	4	30 (2)	19 [10]	43 [6]	5 (1)
counties w/ live&dead	0	3	2	11	11	13	4

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
07/2011	13 (9)	16	15	27%	34%



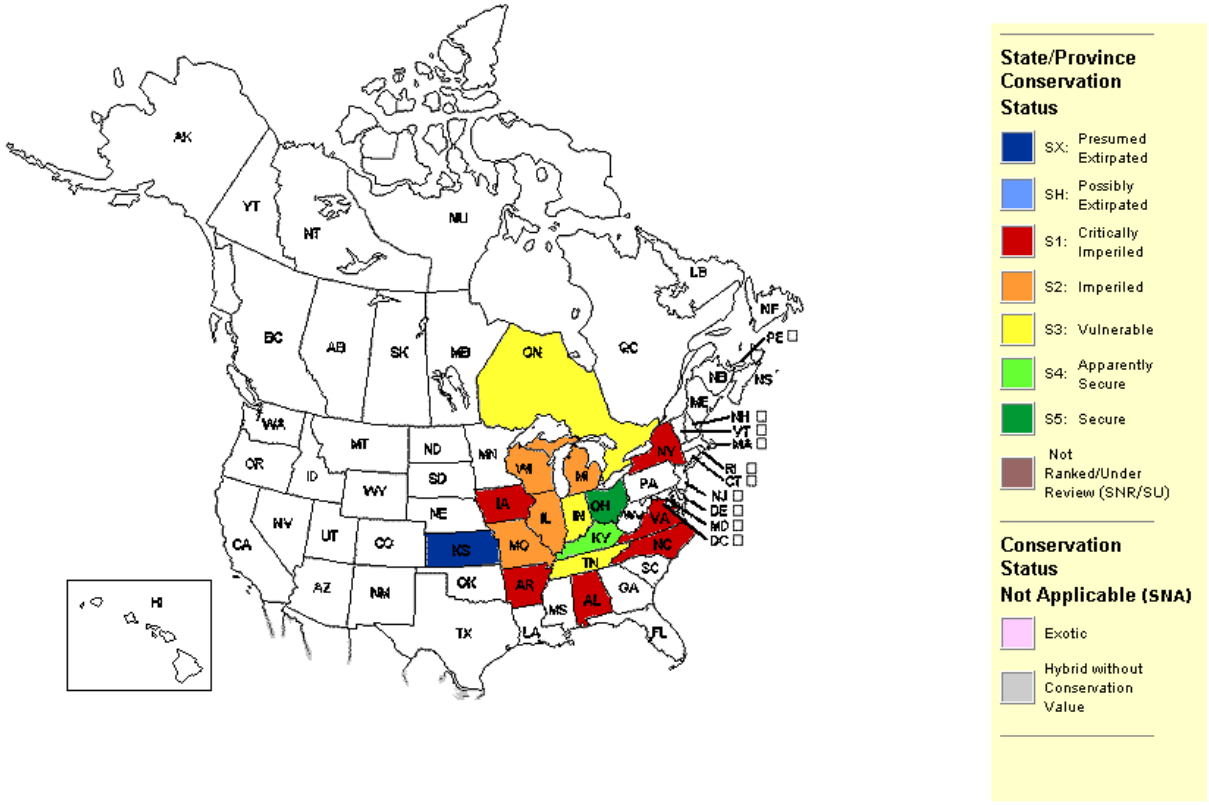
Mankowski notes and recommendation:

Survey effort for this species has been pretty thorough in recent years, with 81% of all EOs surveyed since 2002. Live animals were observed at 67% of the EOs surveyed during the last two 5-year intervals, however, the percentage drops to 39% when the number of EOs where animals were prescribed for or relocated per incidental take authorization and with no subsequent observations, are subtracted. Since 2002, there have been

observations of live animal in 17 of the 31 Illinois counties with historic records. While live observation numbers have continued to increase since the species was upgraded to threatened in 1999, it would be good to see the positive trend sustained into another 5-year interval.

Mankowski recommendation: - no change in status

Alasmidonta viridis



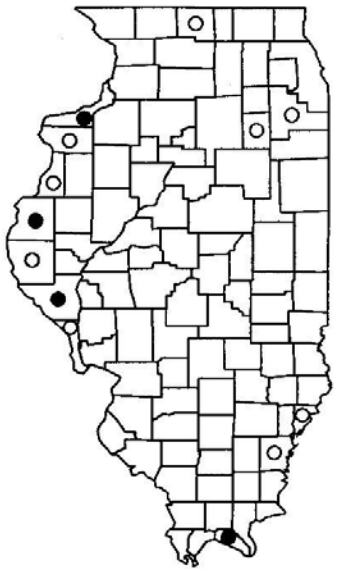
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Spectaclecase, Cumberlandia monodonta (Illinois endangered; Federally endangered)

Listed as IL E, 3/17/1989; Listed as Fed E 4/12/2012
Reason for listing: restricted habitats or low pops in IL;

Cumberlandia monodonta (Say)

SPECTACLECASE **UNIONIDAE** **Status:** Endangered in Illinois



Present Distribution: The spectaclecase has been found in the Ohio, Mississippi, Cumberland, and Tennessee river systems (Parmalee 1967). In Illinois, it is currently restricted to the Mississippi and Ohio river systems (IDNR Natural Heritage database, INHS Mollusk Collection).
Former Illinois Distribution: This species also occurred in the Illinois, Kankakee, Rock and Wabash rivers, but was extirpated from these river by 1970 (Parmalee 1967, Starrett 1971, K.S. Cummings unpublished data).
Habitat: The spectaclecase is usually found buried deeply in gravel or sand bottoms, in medium to large sized river with fairly good current (Parmalee 1967). In Missouri, this species apparently requires stable bottoms of large rocks or boulders (Oesch 1984).
Reason for Status: Populations of this mussel have declined within Illinois, and it is now restricted to only two rivers in the state. Increased siltation, domestic, industrial, and agricultural pollution, and competition from exotic mussel species are all potential threats to this species in Illinois.
Management recommendations: Populations of this species in the Mississippi River need to be protected from dredging, and sand and gravel mining. Additionally, efforts to reduce siltation and pollution in the Mississippi River would also benefit this species.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2011-10-27	16	4	1	17	9	5

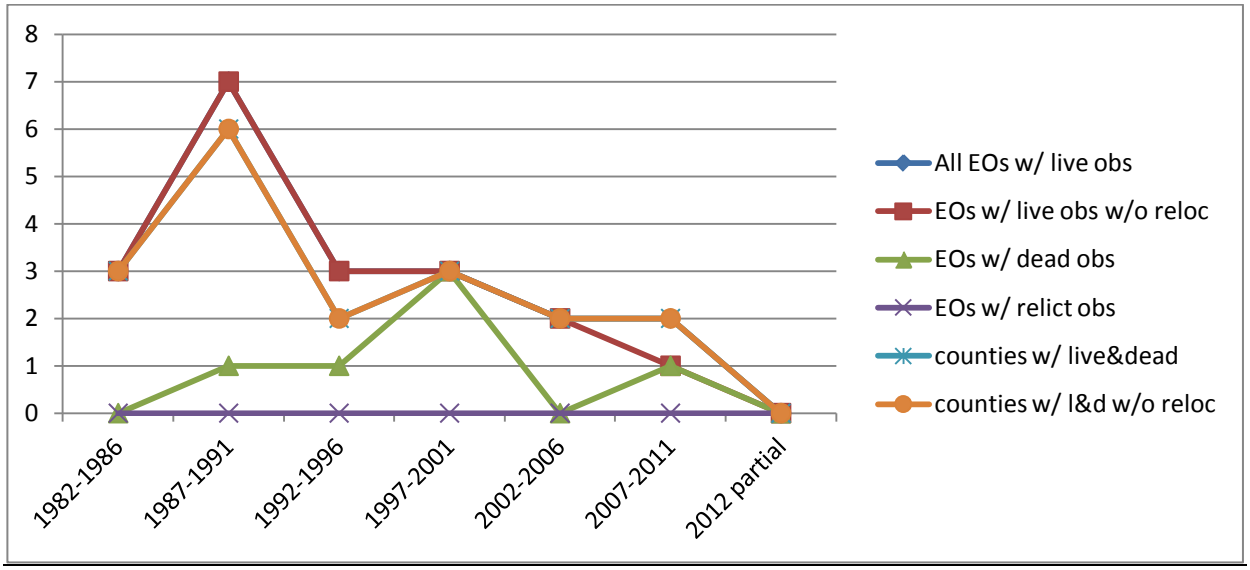
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

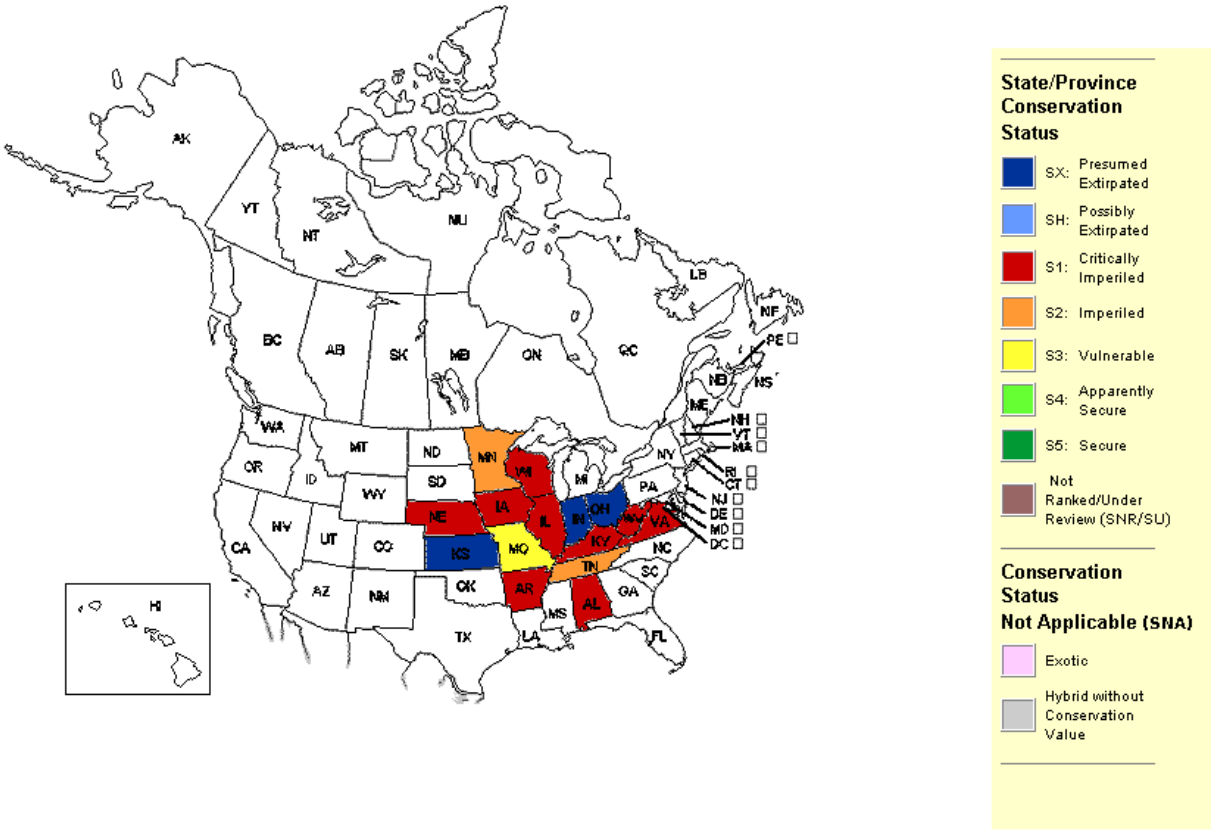
	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	3	7	3	3	2	2 [1]	0
EOs w/ dead obs	0	1	1	3	0	1	0
EOs w/ relict obs	0	0	0	0	0	0	0
Total EOs w/ live&dead	3	7	3	4	2	2 [1]	0
counties w/ live&dead	3	6	2	3	2	2	0

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
07/2011	1 (1)	1	0	6%	0



Cumberlandia monodonta



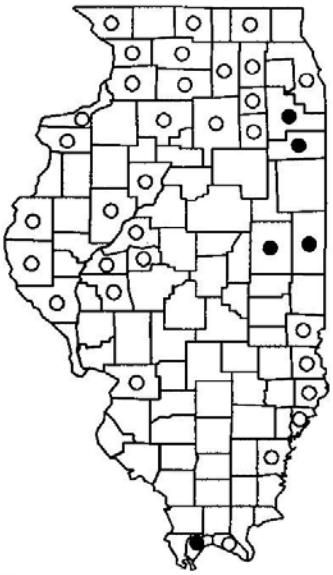
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Purple Wartyback, Cyclonaias tuberculata (Illinois threatened)

Listed as IL T, 4/26/1999
Reason for listing: formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures;

Cyclonaias tuberculata (Rafinesque)

PURPLE WARTYBACK **UNIONIDAE** **Status:** Threatened in Illinois



Present Distribution: The purple wartyback is known from the Mississippi River drainage including the Ohio, Cumberland, and Tennessee river systems (Parmalee 1967).
Former Illinois Distribution: This species is fairly widely distributed in Illinois, occurring in 37 counties (INHS Mollusk Collection). It is presently restricted to the Ohio, Kankakee, and Vermilion river drainages in Illinois (Cummings and Mayer 1992).
Habitat: Medium to large rivers in gravel or mixed sand and gravel, or gravel and mud, usually in areas of current (Parmalee 1967, Cummings and Mayer 1992).
Reason for Status: Widespread but uncommon in the Midwest (Cummings and Mayer 1992), this species has experienced a dramatic decline in Illinois, being known from just 8% of the Illinois counties with historic records.
Management recommendations: Management needs for this species include identification and protection of essential habitat, population monitoring and enhanced conservation measures designed to reduce siltation, agricultural runoff, and pollution in water courses in which it occurs.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-08-28	38	29	2	27	14	9

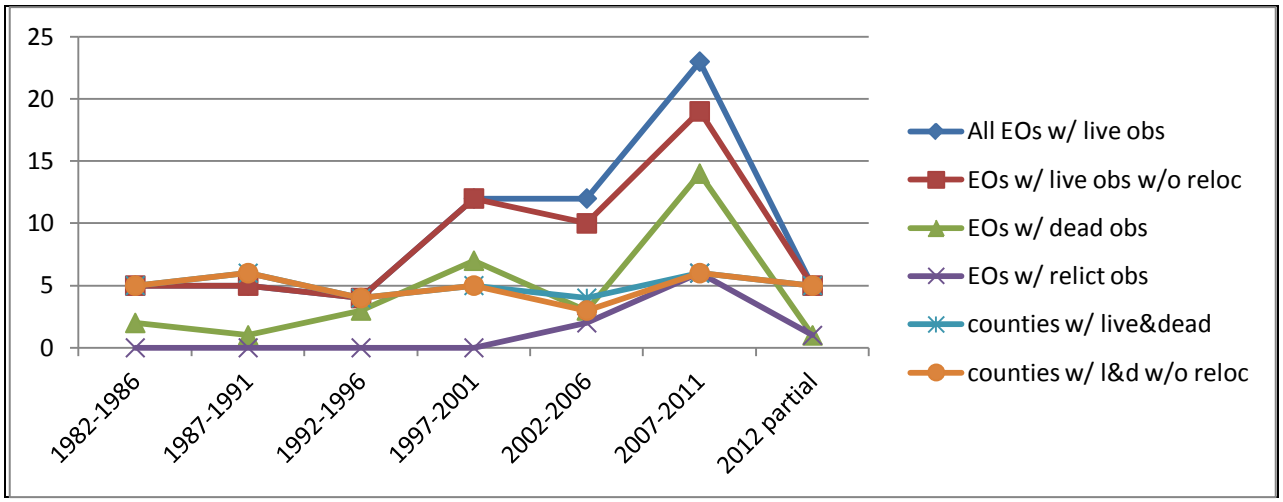
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	5	5	4	12	12 [2]	23 [4]	5
EOs w/ dead obs	2	1	3	7	3	14	1
EOs w/ relict obs	0	0	0	0	2	6	1
Total EOs w/ live&dead	5	6	5	14	12 [2]	27 [4]	6
counties w/ live&dead	5	6	4	5	4 [1]	6	5

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
07/2011	6 (2)	6	6	16%	25%



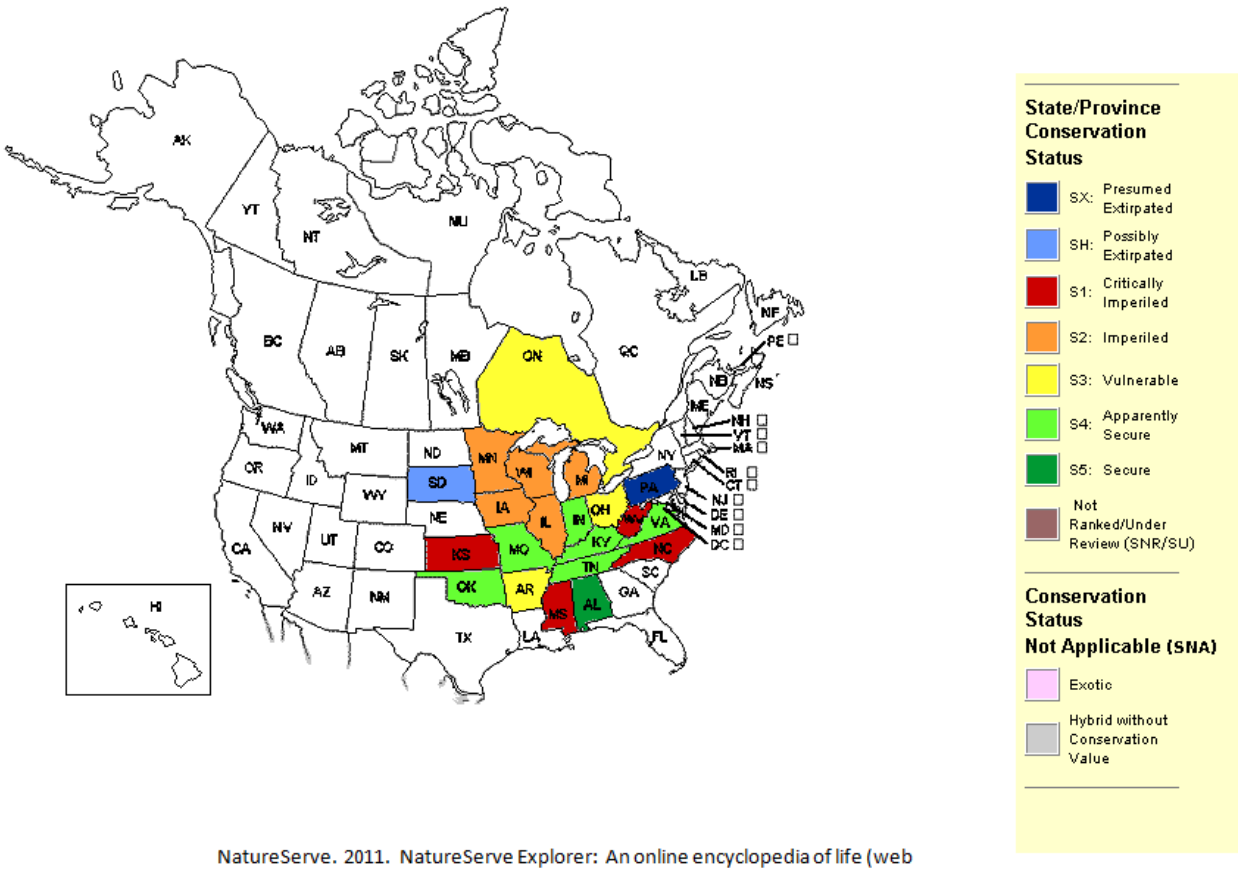
Mankowski notes and recommendation:

Survey effort for this species has been pretty thorough, with 84% of all EOs surveyed since 2002. The survey effort also correlates to the increase in observations from 1999-2011; there were 14 EOs, 13 EOs, and 28 EOs surveyed during the 1997-2001, 2002-2006, and 2007-2011 windows, respectively. It is significant that live animals were observed at 85% of the EOs surveyed during the last two 5-year intervals, however, the percentage drops to 70% when the number of EOs where animals were prescribed for or relocated per incidental take

authorization and with no subsequent observations , are subtracted. Since 2002, there have been observations of live animal in only 6 of the 37 Illinois counties with historic records. While live observation numbers have increased since the species was listed in 1999, it would be good to see the positive trend sustained into another 5-year interval.

Mankowski recommendation: - no change in status

Cyclonaias tuberculata



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Fanshell, Cyprogenia stegaria (Illinois endangered; Federally endangered)

Listed as IL E, 3/17/1989; Listed as Fed E, 6/21/1990
Reason for listing: proposed Fed E or T; restricted habitats or low pops in IL;

Cyprogenia stegaria (Rafinesque)

FANSHELL **UNIONIDAE** **Status:** Endangered in Illinois
Federally Endangered

Present Distribution: Presently reproducing populations of the fanshell are known only from three rivers in Kentucky, Tennessee, and Virginia (Federal Register 1990). Additional non-reproducing populations are believed to occur in Ohio, West Virginia, Indiana, Kentucky, Tennessee, and Illinois (Wabash River) (Federal Register 1990).
Former Illinois Distribution: In Illinois, the fanshell is known to have occurred only in the Embarras, Ohio, and Wabash rivers. It was once widespread and common in the Wabash River, and has now been extirpated from the Embarras and Ohio rivers in Illinois.
Habitat: The fanshell occurs in current at depths of a few cm to approximately 1 m over coarse sand and gravel substrates (Parmalee 1967).
Reason for Status: The distribution and reproductive capacity of this species have been greatly diminished due to construction of impoundments and navigation facilities, dredging, sand and gravel mining, and water pollution (Federal Register 1990).
Management Recommendations: Efforts should be made to restrict dredging, impoundments, and navigational improvements in the Wabash River. As is the case for other mussels species, the fanshell would benefit from increased efforts to reduce excessive siltation and domestic, industrial, and agricultural pollution.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
1984-08-22	1	0	0	1	1	0

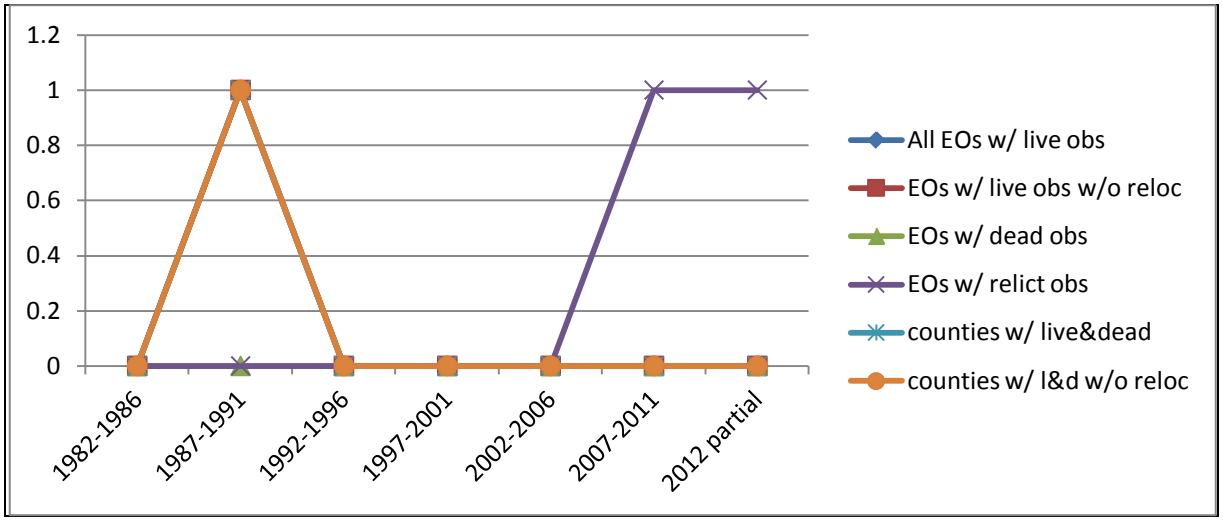
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

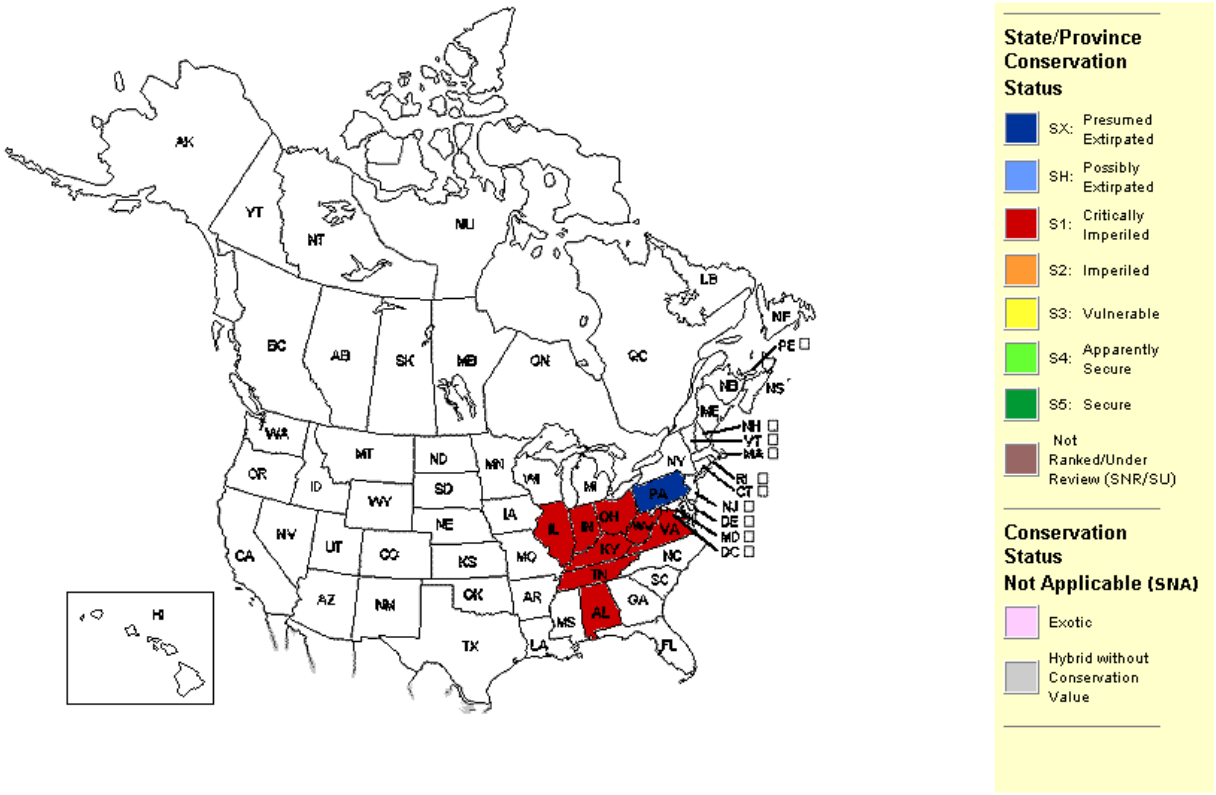
	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	0	1	0	0	0	0	0
EOs w/ dead obs	0	0	0	0	0	0	0
EOs w/ relict obs	0	0	0	0	0	1	1
Total EOs w/ live&dead	0	1	0	0	0	0	0
counties w/ live&dead	0	1	0	0	0	0	0

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
11/2012	0	0	0	0	0



Cyprogenia stegaria



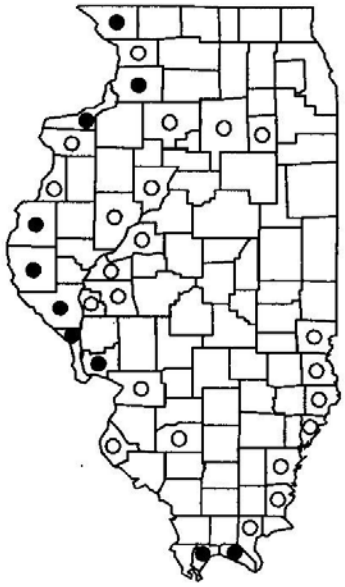
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Butterfly, Ellipsaria lineolata (Illinois threatened)

Listed as IL T, 1/18/1994
Reason for listing: formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures;

Ellipsaria lineolata (Rafinesque)

BUTTERFLY **UNIONIDAE** **Status:** Threatened in Illinois



Present Distribution: This freshwater mussel is known from the Mississippi River drainage from western Pennsylvania to Iowa and Kansas, north to Minnesota, southwest to Oklahoma, and southeast to Alabama (Parmalee 1967).
Former Illinois Distribution: In Illinois, the butterfly mussel has been recorded from the Kaskaskia, Illinois, Rock, Wabash, Ohio and Mississippi rivers (Parmalee 1967, Cummings and Mayer 1992). This species has been extirpated from all Illinois rivers except the Ohio and Mississippi rivers.
Habitat: Large rivers in sand or gravel substrates especially in bars in current at a depth of 1-2 m or more (Parmalee 1967, Cummings and Mayer 1992).
Reason For Status: The butterfly mussel is fairly widespread in the Midwest but only locally abundant and is disappearing from many areas where it formerly occurred (Cummings and Mayer 1992). It is listed as endangered in Ohio and Wisconsin, and threatened in Iowa (Cummings and Mayer 1992).
Management Recommendations: Better soil conservation measures are needed in order to reduce, and preferably improve, declining water quality due to agricultural runoff and pollution. Increased protection from herbicides, pesticides and industrial related pollution is also needed.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-09-29	47	33	1	46	14	14

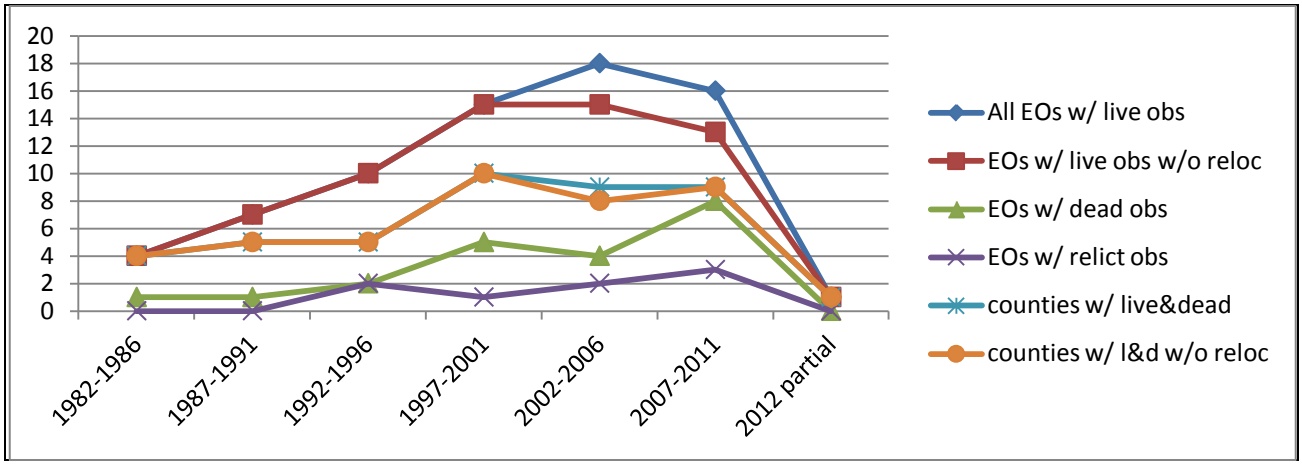
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

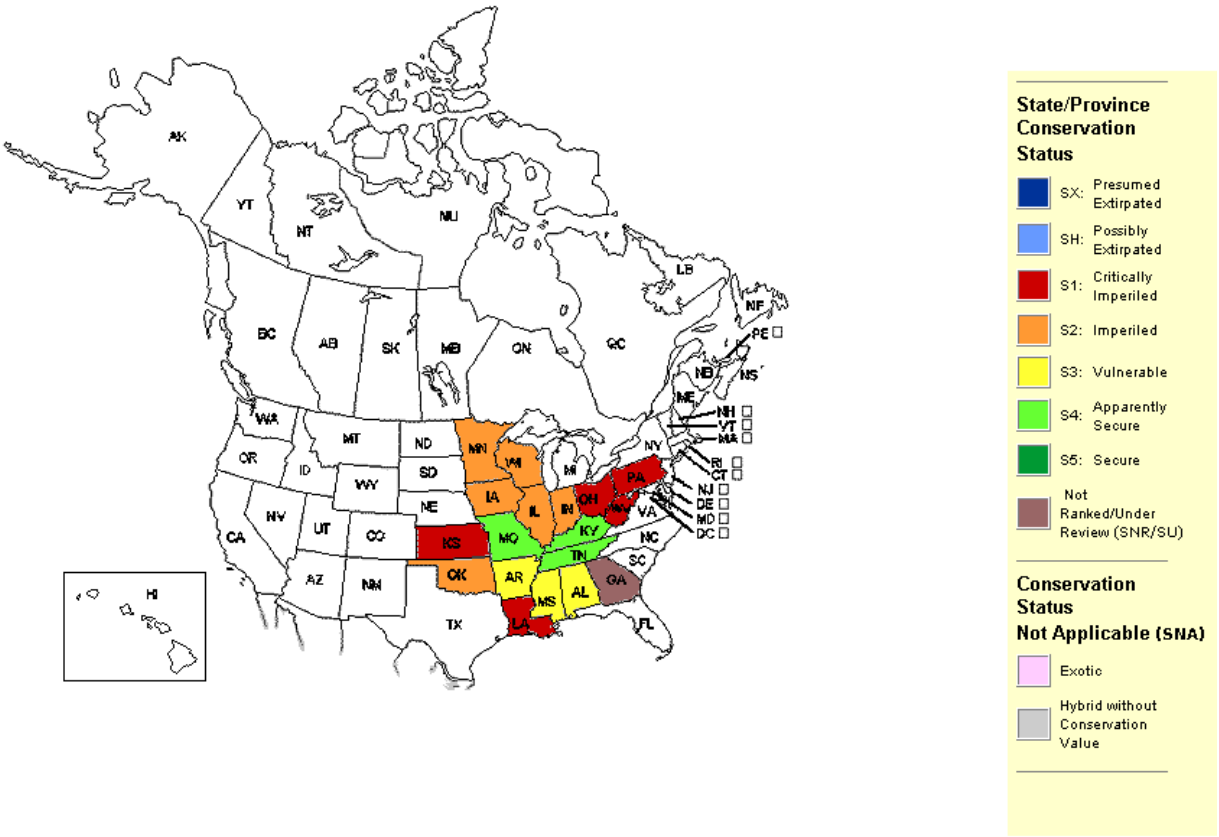
	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	4	7	10	15	18 (1)[2]	16 (1)[2]	1
EOs w/ dead obs	1	1	2	5	4	8	0
EOs w/ relict obs	0	0	2	1	2	3	0
Total EOs w/ live&dead	4	8	10	16	18 (1)[2]	18 (1)[2]	1
counties w/ live&dead	4	5	5	10	9 [1]	9	1

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
07/2011	4 (3)	4	4	9%	14%



Ellipsaria lineolata



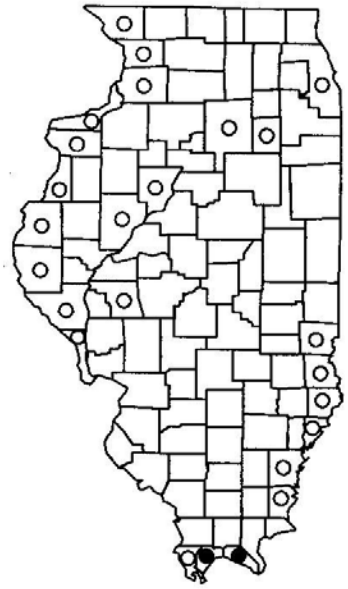
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Elephant-ear, Elliptio crassidens (Illinois threatened)

Listed as IL T, 3/17/1989
Reason for listing: formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures;

Elliptio crassidens (Lamarck)

ELEPHANT-EAR **UNIONIDAE** **Status:** Threatened in Illinois



Present Distribution: The elephant-ear is known from the Mississippi River drainage, south and east in the Alabama, Tombigee, and Chattahoochee river systems (Parmalee 1967). In Illinois, it is presently restricted to the Ohio and Wabash rivers (IDNR Natural Heritage database, INHS Mollusk Collection).
Former Illinois Distribution: The elephant-ear formerly had a much larger range in Illinois with historic records from the Illinois, Mississippi, Ohio and Wabash rivers (Starrett 1971, Cummings and Mayer 1992). It was extirpated from the Illinois River by 1930.
Habitat: The elephant-ear inhabits rivers with swift-flowing currents, and a bottom composed of stones and coarse gravel usually at a depth of at least 2 m (Parmalee 1967).
Reason for Status: Populations of the elephant-ear have declined in Illinois, and it has been eliminated from the Illinois and upper Mississippi river systems. Since this species is presently restricted to the Ohio and Wabash Rivers in Illinois, it is threatened by dredging, impoundments, sand and gravel mining, siltation, and domestic, industrial, and agricultural pollution.
Management Recommendations: This mussel would benefit from efforts to restrict dredging, impoundments, and navigational improvements in the Wabash and Ohio Rivers. Additionally, there is a need for increased efforts to reduce undue siltation and pollution in the Wabash and Ohio Rivers.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-08-23	12	5	1	11	8	4

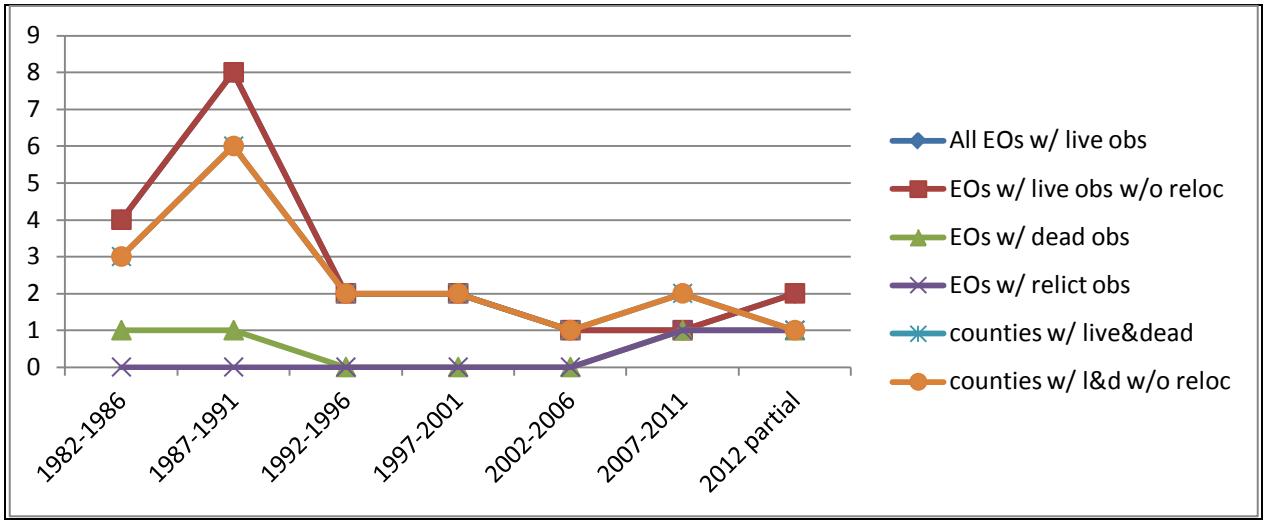
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	4	8	2	2	1	1	2
EOs w/ dead obs	1	1	0	0	0	1	1
EOs w/ relict obs	0	0	0	0	0	1	1
Total EOs w/ live&dead	4	8	2	2	1	2	3
counties w/ live&dead	3	6	2	2	1	2	1

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
11/2012	0	0	0	0	0



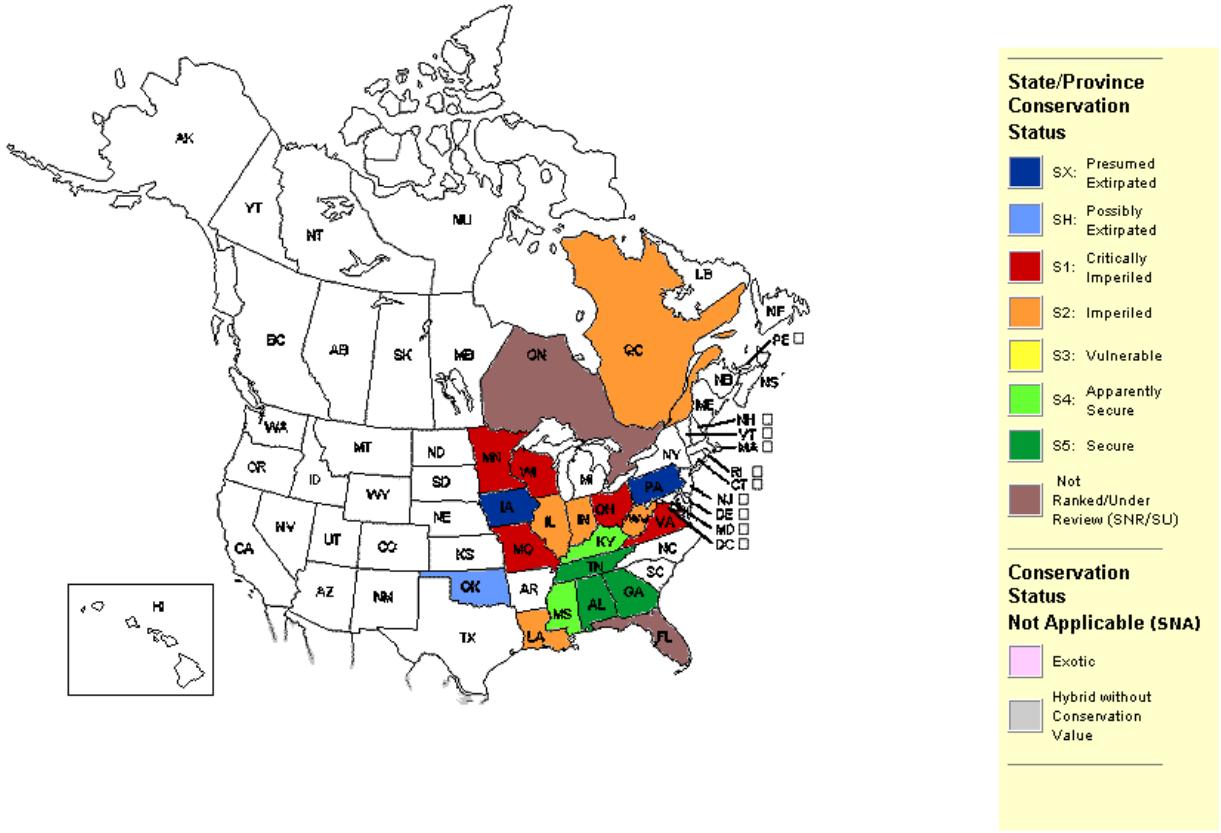
Mankowski notes and recommendation:

The number of observation of live and/or dead animals has decreased and remained depressed since the time the species was listed as threatened in 1989, despite good search effort. Ten EOs (83% of total) have been surveyed since 2002, but only 4 (33% of total) had live observations, while 5 (42% of total) had "surveyed with no

observation" (4) or "relict" (1) reports. Additionally, live or dead animals have only been observed in 5 of 25 counties with historic occurrences.

Mankowski recommendation: - change status from threatened to endangered

Elliptio crassidens



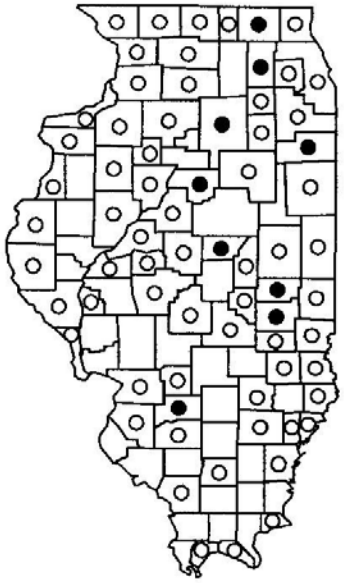
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Spike, Elliptio dilatata (Illinois threatened)

Listed as IL T, 1/18/1994
Reason for listing: formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures;

Elliptio dilatata (Rafinesque)

SPIKE **UNIONIDAE** **Status:** Threatened in Illinois



Present Distribution: The spike formerly occurred throughout the entire Mississippi River drainage from the St. Lawrence River south to Florida and west to the Guadelupe River in Texas (Parmalee 1967). It is presently still fairly widespread but sporadic in the Midwest (Cummings and Mayer 1992).
Former Illinois Distribution: Parmalee (1967) listed this species as occurring in most of Illinois' small streams with suitable habitat, and as locally common in a few large rivers such as the Wabash, Ohio, Rock, and Mississippi rivers. This species was formerly locally abundant in the Illinois River but had been nearly or completely eliminated by 1967 as a result of pollution and siltation (Parmalee 1967).
Habitat: Small to large streams and lakes in mud or gravel substrates (Cummings and Mayer 1992).
Reason For Status: Populations of this formerly widespread species have been greatly reduced in Illinois, presumably as a result of widespread siltation and pollution of Illinois streams.
Management Recommendations: Pollution and siltation have greatly diminished populations of this species in Illinois. Increased efforts to reduce siltation and improve water quality in Illinois streams and rivers would benefit this and other species of imperilled freshwater mussels in the state.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-08-22	53	37	1	41	24	19

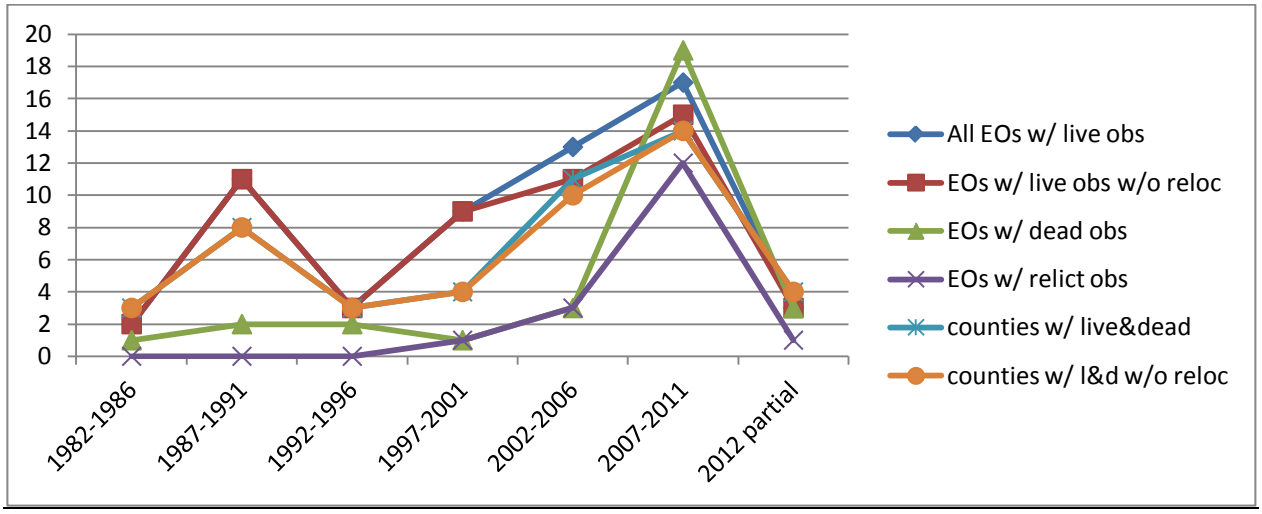
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	2	11	3	9	13 [2]	17 [2]	3
EOs w/ dead obs	1	2	2	1	3	19	3
EOs w/ relict obs	0	0	0	1	3	12	1
Total EOs w/ live&dead	3	12	4	9	14 [2]	26 [2]	4
counties w/ live&dead	3	8	3	4	11 [1]	14	4

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
07/2011	4 (5)	7	4	23%	13%



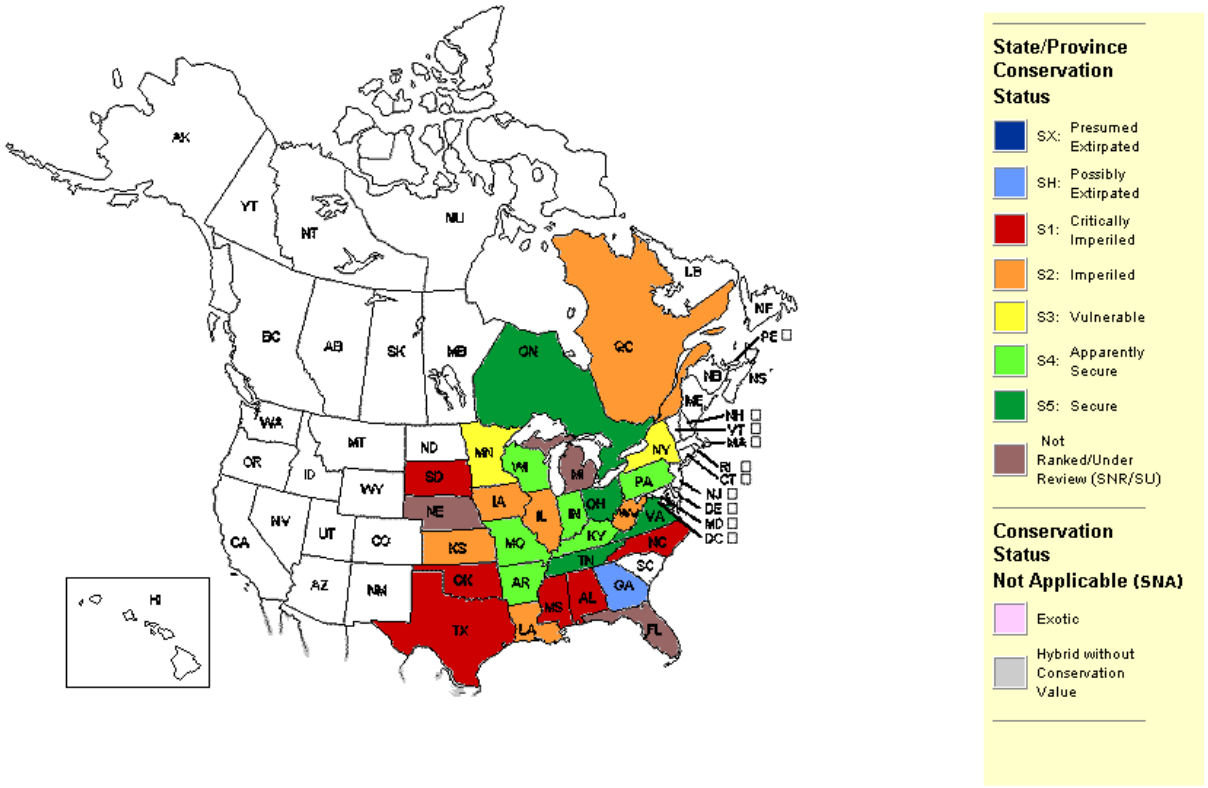
Mankowski notes and recommendation:

Survey effort for this species has been pretty thorough, with 85% of all EOs surveyed since 2002. The survey effort also correlates to the increase in observations from 1999-2011; there were 11 EOs, 16 EOs, and 31 EOs surveyed during the 1997-2001, 2002-2006, and 2007-2011 windows, respectively. Despite survey effort at 31 EOs in the most recent 5-year interval, live individuals were recorded at only 17 EOs (32% of total); the number is

reduced to 15 EOs (28% of total) when the number of EOs where animals were prescribed for or relocated per incidental take authorization and with no subsequent observations, are subtracted. Since 2002, there have been observations of live animal in only 17 of the 73 Illinois counties with historic records. While live observation numbers have increased since the species was listed in 2004, it would be good to see the positive trend sustained into another 5-year interval.

Mankowski recommendation: - no change in status

Elliptio dilatata



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Northern Riffleshell, Epioblasma rangiana (Illinois endangered, Federally endangered)

Listed as IL E, 9/16/2010; Listed as Fed E, 6/22/1993
Reason for listing: designated Fed E or T – formerly deemed extirpated in Illinois, reintroduced as part of a federally-led salvage project and the federal recovery plan for the species.

Epioblasma rangiana (Lea, 1839)
Northern Riffleshell **UNIONIDAE**

Illinois Status: Endangered
Federal Status: Endangered
Present Distribution: Extant populations are found in Fish Creek in Ohio and Indiana; Green River in Kentucky; Big Darby Creek in Ohio; Elk River in West Virginia; and Allegheny River, French Creek and LeBoeuf Creek in Pennsylvania (USFWS 1994). In Illinois, the species is currently known from two reintroduction locations within the Vermilion drainage in Champaign and Vermilion counties.
Former Illinois Distribution: Historic Illinois records for this species indicate that it had previously been known from the North Fork of the Vermilion River, Vermilion River, and Wabash River (INHS 2010c).
Habitat: Gravel riffles in medium to large rivers.
Reason for Status: Prior to being listed as Federally Endangered in 1993, the Northern Riffleshell had been considered extirpated from Illinois, with no live records recorded for nearly 70 years (USFWS 2008). As part of ongoing federal recovery activities for this species, on September 15 and 16, 2010, Illinois reintroduced animals to two sites within the Vermilion drainage in Illinois. Upon that reintroduction, the Northern Riffleshell was added to the Illinois list of endangered species because all federally designated endangered and threatened species that occur in the state are automatically listed as Illinois endangered or threatened and added to the Illinois list without notice or public hearing.
Management Recommendations: Improvements to water quality, protection of habitat from degradation, and continued reintroduction efforts and surveys will help in the recovery of this species in Illinois.

KEY
The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Mankowski, A., editor. 2010. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 4 - 2009 and 2010 Changes to the Illinois List of Endangered and Threatened Species. Illinois Endangered Species Protection Board, Springfield, Illinois. iii + 38 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-08-08	2 (reintro)	2	1	2	2	2

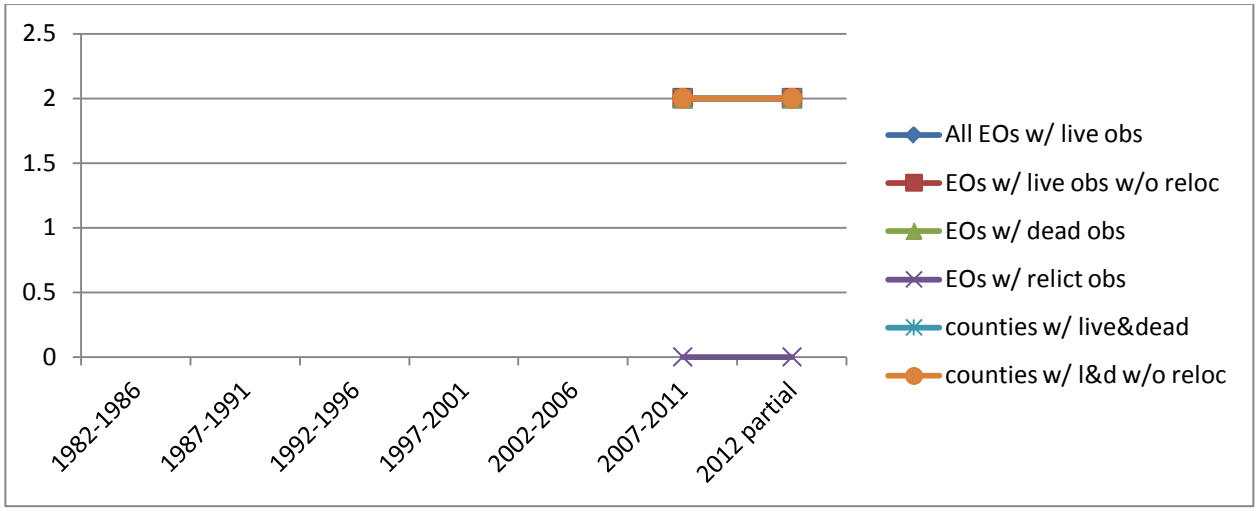
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

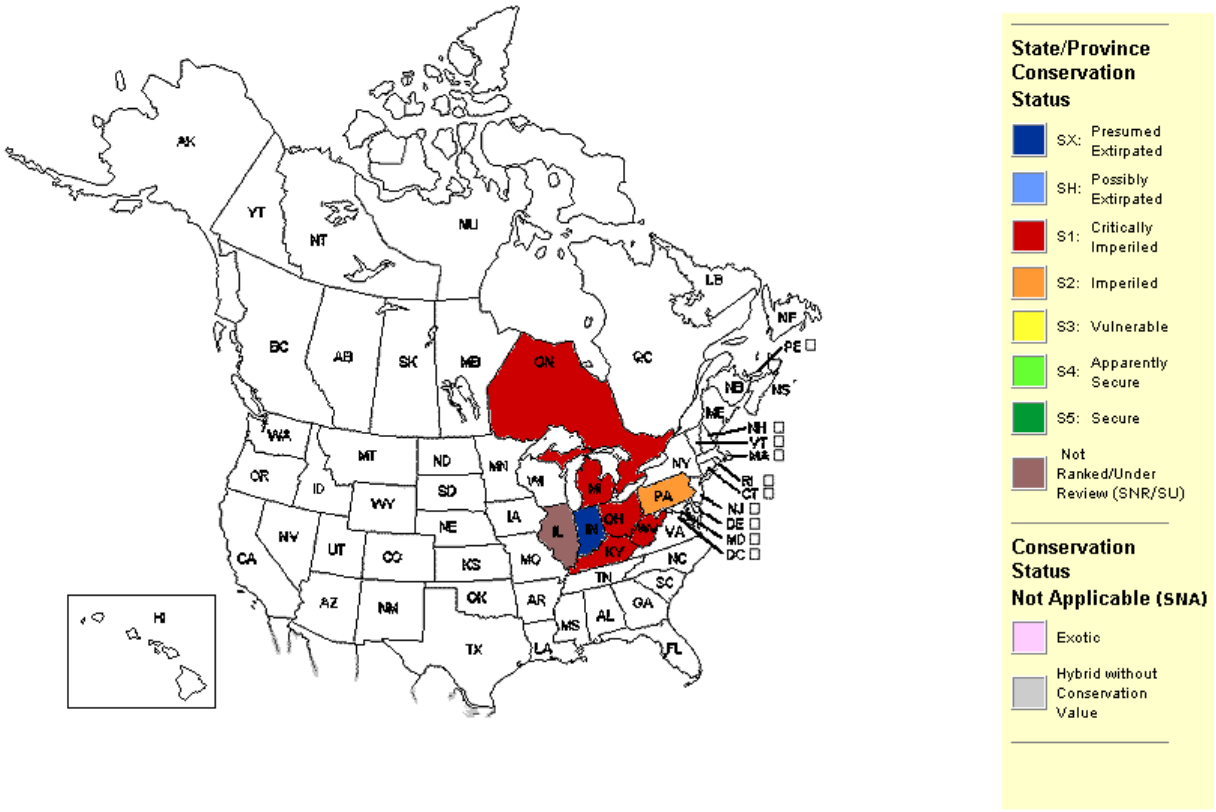
	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs						2	2
EOs w/ dead obs						2	2
EOs w/ relict obs						0	0
Total EOs w/ live&dead						2	2
counties w/ live&dead						2	2

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
11/2012	0	0	0	0	0



Epioblasma torulosa rangiana



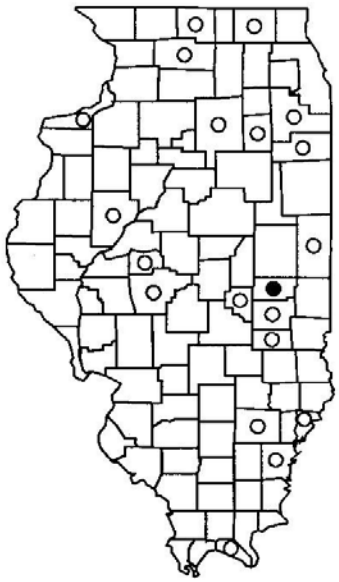
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Snuffbox, Epioblasma triquetra (Illinois endangered; Federally endangered)

Listed as IL E, 3/17/1989; Listed as Fed E, 2/14/2012
Reason for listing: formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures;

Epioblasma triquetra (Rafinesque)

SNUFFBOX **UNIONIDAE** **Status:** Endangered in Illinois



Present Distribution: The snuffbox is known from the Mississippi River drainage, from New York and Minnesota south to northern Alabama (Parmalee 1967). In Illinois it is presently known to occur only in the Embarras River (IDNR Natural Heritage database, INHS Mollusk Collection).

Former Illinois Distribution: Historically, the snuffbox was known to occur in the Illinois, Kankakee, Kaskaskia, Embarras, Sangamon, Rock, Fox, Little Wabash, Vermilion, Mississippi, Wabash, and Ohio rivers in Illinois (Cummings and Mayer 1992). Parmalee (1967) wrote that the snuffbox was apparently restricted to the northern third of Illinois, although there are a few early records from the southern part of the state.

Habitat: The snuffbox inhabits medium to large rivers where it usually inhabits bottoms composed of sand and coarse gravel, often in riffles in running water (Parmalee 1967). Individuals frequently bury themselves deeply in sand.

Reason for Status: This species has been extirpated from all of its former range in Illinois except for the Embarras River. Remaining populations of this species are threatened by increased siltation and domestic, industrial, and agricultural pollution.

Management Recommendations: Improved soil conservation measures are needed to reduce declining water quality due to agricultural runoff and pollution. Improved protection from herbicides, pesticides, and industrial-related pollution is also needed. Protection of portions of the Embarras River as a Natural Area could help protect this species.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-07-09	4	2	1	3	2	2

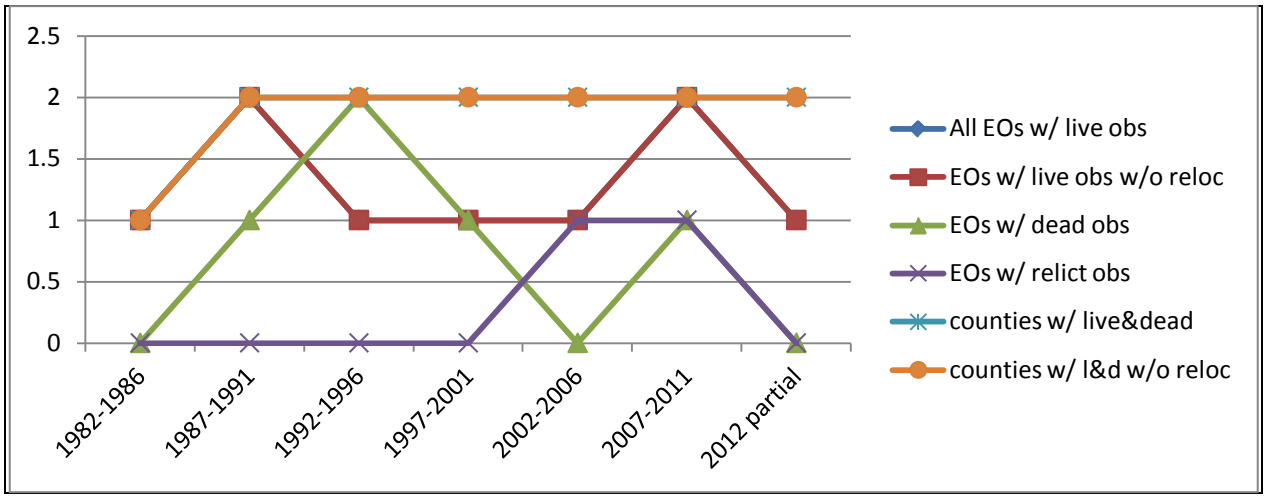
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

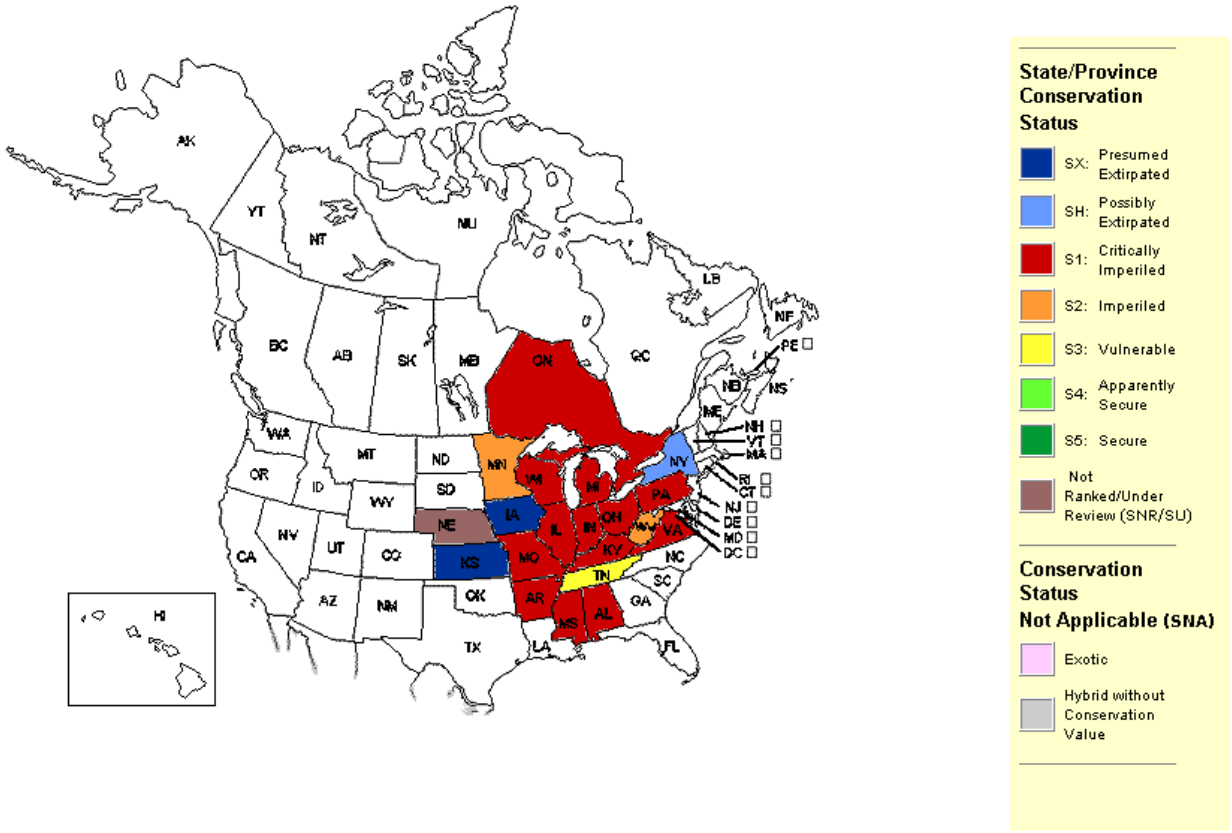
	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	1	2	1	1	1	2	1
EOs w/ dead obs	0	1	2	1	0	1	0
EOs w/ relict obs	0	0	0	0	1	1	0
Total EOs w/ live&dead	1	2	2	2	1	2	1
counties w/ live&dead	1	2	2	2	2	2	2

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
11/2012	0	0	0	0	0



Epioblasma triquetra



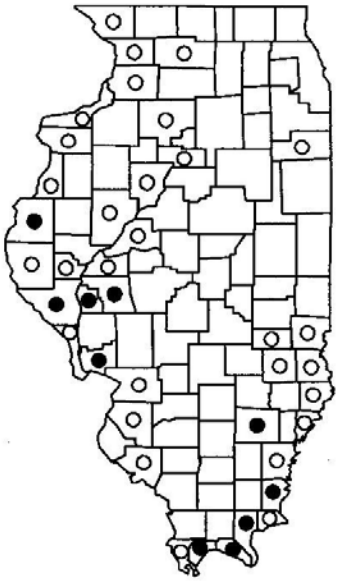
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Ebonyshell, Fusconaia ebena (Illinois threatened)

Listed as IL T, 1/18/1994
Reason for listing: formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures;

Fusconaia ebena (Lea)

EBONYSHELL **UNIONIDAE** **Status:** Threatened in Illinois



Present Distribution: The ebonyshell is known from the Mississippi River drainage south in the Alabama and Tombigbee rivers (Parmalee 1967).
Former Illinois Distribution: This species was formerly common throughout the large rivers in the state, but by 1967 was restricted to portions of the Mississippi, lower Wabash and Ohio rivers (Parmalee 1967).
Habitat: The ebonyshell is found in large rivers in sand and gravel substrates with swift currents (Parmalee 1967, Cummings and Mayer 1992).
Reason For Status: This species was formerly abundant in Illinois but has been greatly reduced due to pollution and siltation. This species is listed as endangered in Missouri and Wisconsin, threatened in Ohio, and special concern in Minnesota (Cummings and Mayer 1992).
Management Recommendations: This mussel would benefit from efforts to restrict dredging, impoundments, and navigational improvements on the large rivers of the state. Additionally, there is a need for increased efforts to reduce undue siltation and pollution in the Wabash, Ohio and Mississippi rivers.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-08-15	33	13	1	33	18	12

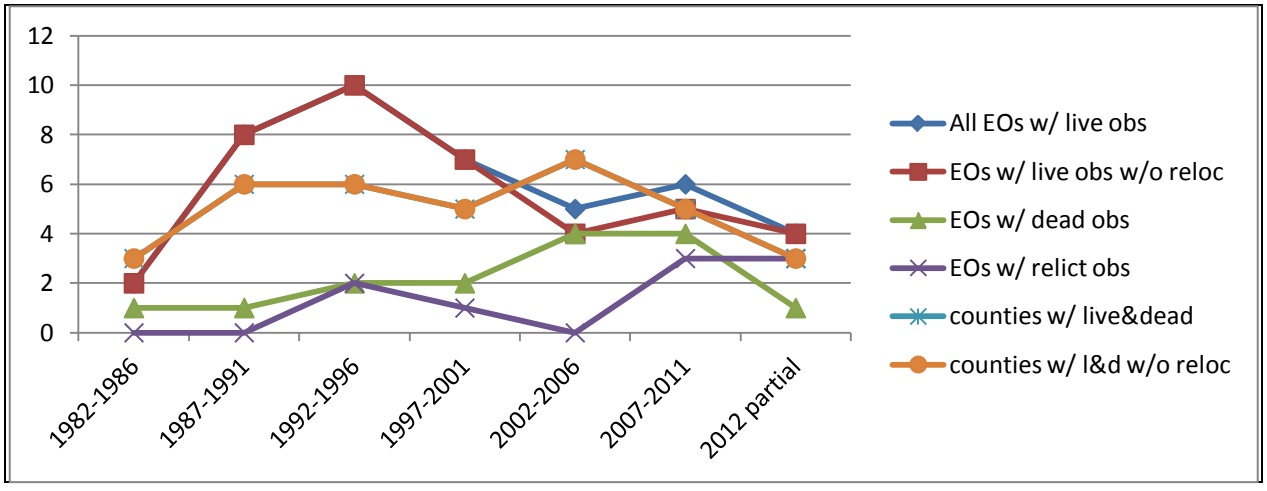
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	2	8	10	7	5 (1)	6 [1]	4
EOs w/ dead obs	1	1	2	2	4	4	1
EOs w/ relict obs	0	0	2	1	0	3	3
Total EOs w/ live&dead	3	8	10	7	8 (1)	8 [1]	4
counties w/ live&dead	3	6	6	5	7	5	3

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
07/2011	1 (3)	3	1	10%	9%



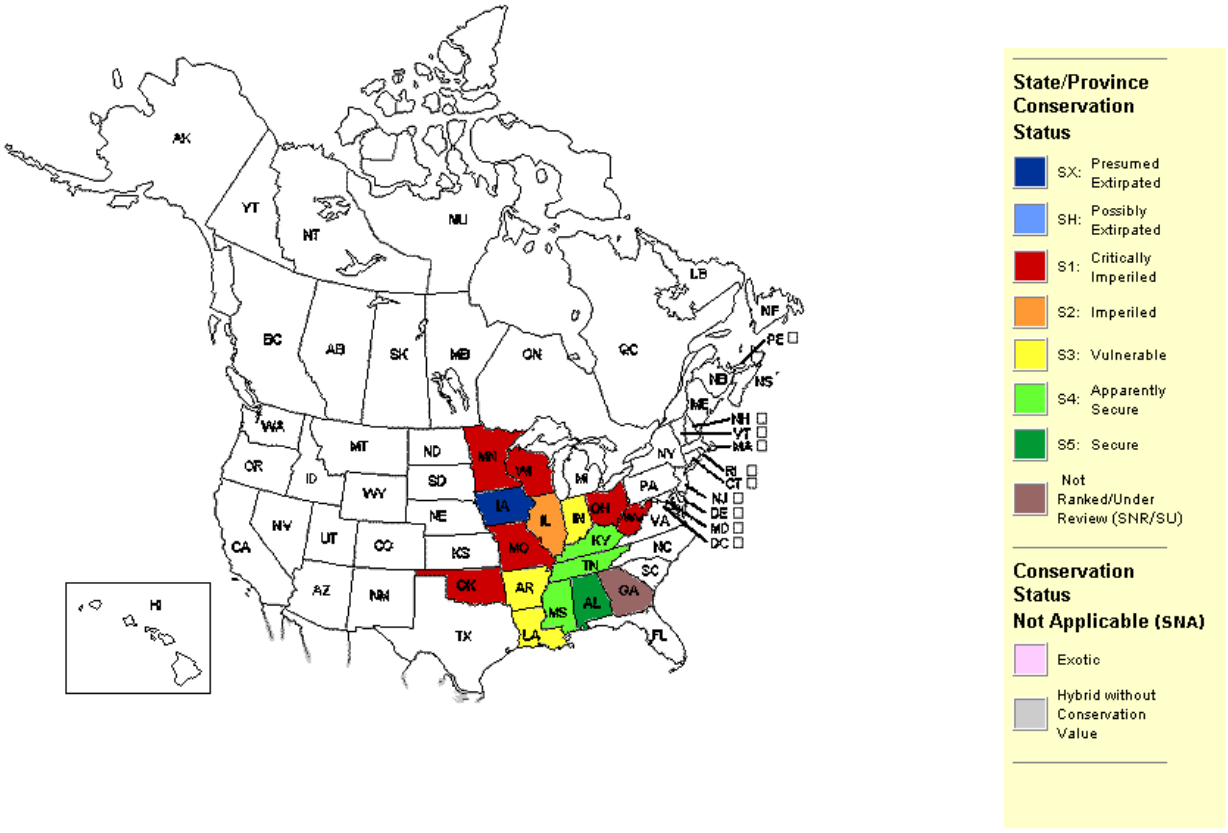
Mankowski notes and recommendation:

The number of observation of live and/or dead animals has decreased and remained depressed since the time the species was listed as threatened in 1994, despite fairly good search effort. Twenty-one EOs (64% of total) have been surveyed since 2002, but only 10 (30% of total) had live observations, while 7 (21% of total) had "surveyed

with no observation" (4) or "relict" (3) reports. Additionally, since 2002, live or dead animals have been observed in only 13 of 39 counties with historic occurrences.

Mankowski recommendation: - change status from threatened to endangered

Fusconaia ebena



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Pink Mucket, Lampsilis abrupta (Illinois endangered, Federally endangered)

Listed as IL E, 4/26/1999 – *L orbiculata Listed as IL E 7/25/1984* - ; Listed as Fed E, 6/14/1976
Reason for listing: designated Fed E or T; restricted habitats or low pops in IL;

Lampsilis abrupta (Say)

PINK MUCKET **UNIONIDAE** **Status:** Endangered in Illinois
Federally Endangered

Present Distribution: The pink mucket is currently known primarily from the Tennessee, Cumberland, Black, Orange, and Merimac river systems in Alabama, Arkansas, Kentucky, Missouri, and Tennessee (Ahlstedt 1985a). It was formerly considered to be extirpated in Illinois (Cummings 1991), but was discovered in the Ohio River in Illinois (Cummings and Mayer 1992).
Former Illinois Distribution: In Illinois, this species was restricted to the lower Wabash and Ohio rivers (Cummings and Mayer 1991).
Habitat: Usually in large rivers where it occurs in moderate to fast flowing current in rubble, gravel, sand, and silt, in water depths from 0.5 to 8 m (Ahlstedt 1985a).
Reason For Status: The pink mucket was apparently always an uncommon or rare mussel. Recently, populations of this species have been reduced or eliminated as a result of impoundments, siltation, and municipal, agricultural, and industrial pollution (Ahlstedt 1985a).
Management Recommendations: Management needs for this species include habitat preservation and protection, and population and habitat research.

KEY
The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
	no records					

Observed EOs and counties with observations, for 5-year intervals, and any for 2012

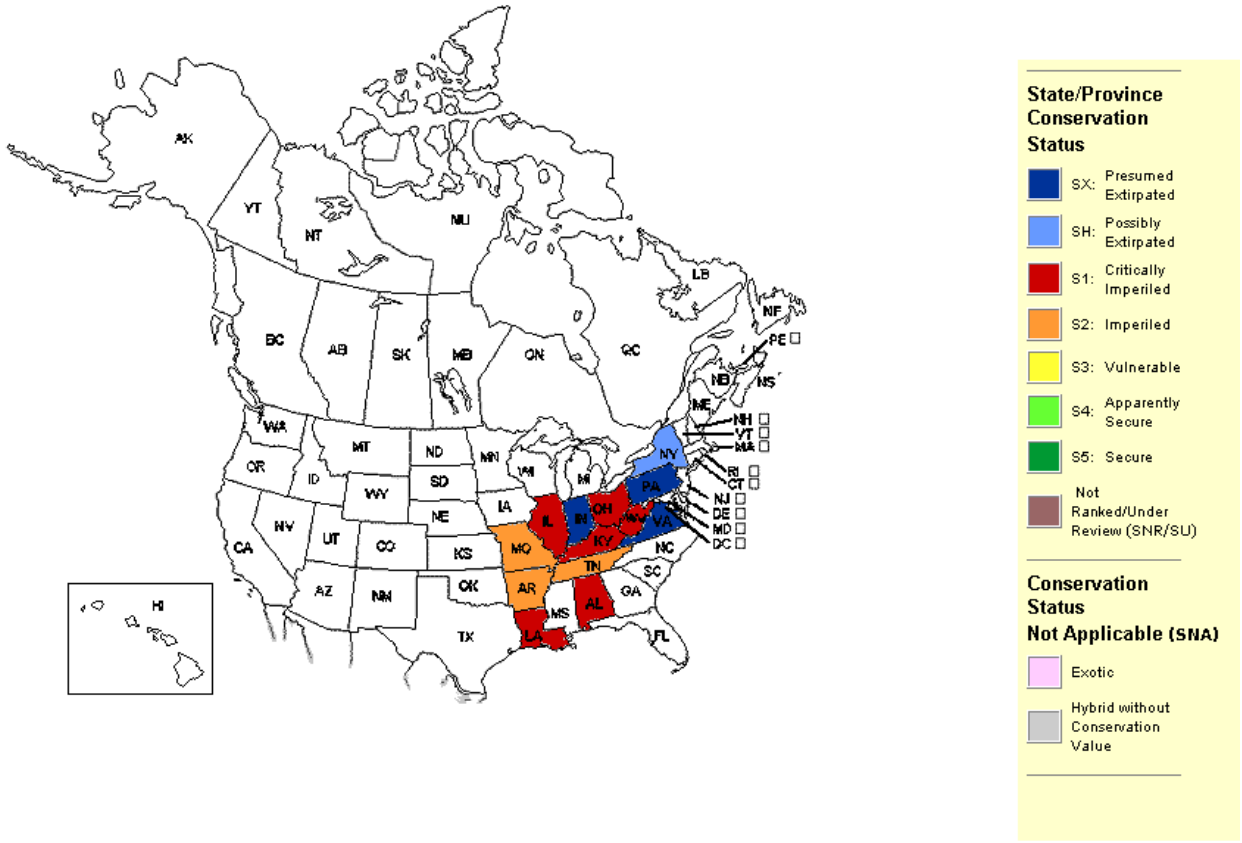
The table and graph below have entries to indicate and separate the number of EOs that were relocated with no subsequent observations (as part of either IDNR Incidental Take Authorizations or activities intended to help recover the species) relative to the number of EOs with live observations.

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	0	0	0	0	0	0	0
EOs w/ dead obs	0	0	0	0	0	0	0
EOs w/ relict obs	0	0	0	0	0	0	0
Total EOs w/ live&dead	0	0	0	0	0	0	0
counties w/ live&dead	0	0	0	0	0	0	0

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where individuals were relocated to another location - not part of IDNR ITA, no subsequent observations
[#] = # of EOs where individuals were relocated as part of IDNR ITA, no subsequent observations

There are no EOs for this species.

Lampsilis abrupta



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Wavy-rayed lampmussel, Lampsilis fasciola (Illinois endangered)

Listed as IL E, 3/17/1989
Reason for listing: restricted habitats or low pops in IL;

Lampsilis fasciola Rafinesque

WAVY-RAYED LAMPMUSSEL **UNIONIDAE** **Status:** Endangered in Illinois

Present Distribution: The wavy-rayed lampmussel is known from the Ohio River drainage and southern Michigan (Parmalee 1967). In Illinois it is presently restricted to the Vermilion River drainage.
Former Illinois Distribution: Baker (1906) reported this species as occurring from Cook County to southern Illinois in the eastern part of the state. By 1967, however, it was considered fairly uncommon in Illinois, and was apparently restricted to the Vermilion River system in east central Illinois (Parmalee 1967).
Habitat: The wavy-rayed lampmussel is usually found on a coarse sand and gravel bottom with little mud, in current, and at depths of less than 1 m (Parmalee 1967).
Reason for Status: This mussel is restricted to one river system in Illinois where it is threatened by increased siltation and domestic, industrial, and agricultural pollution.
Management Recommendations: This species would benefit from better soil conservation measures designed to reduce siltation, agricultural runoff, and pollution.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-08-08	20	17	1	13	3	3

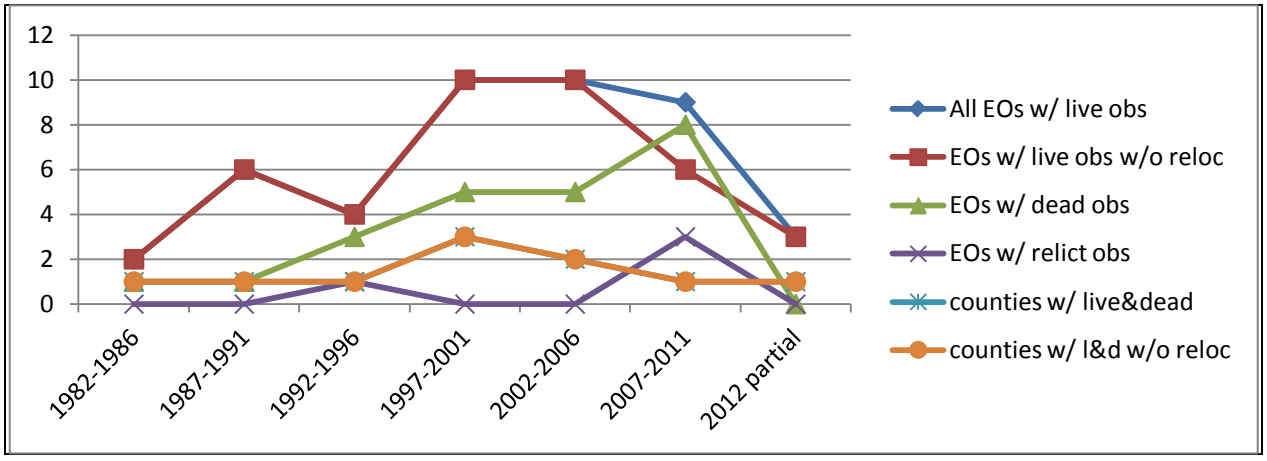
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	2	6	4	10	10	9 [3]	3
EOs w/ dead obs	1	1	3	5	5	8	0
EOs w/ relict obs	0	0	1	0	0	3	0
Total EOs w/ live&dead	2	7	6	10	11	11 [3]	3
counties w/ live&dead	1	1	1	3	2	1	1

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
07/2011	3 (1)	3	3	18%	23%



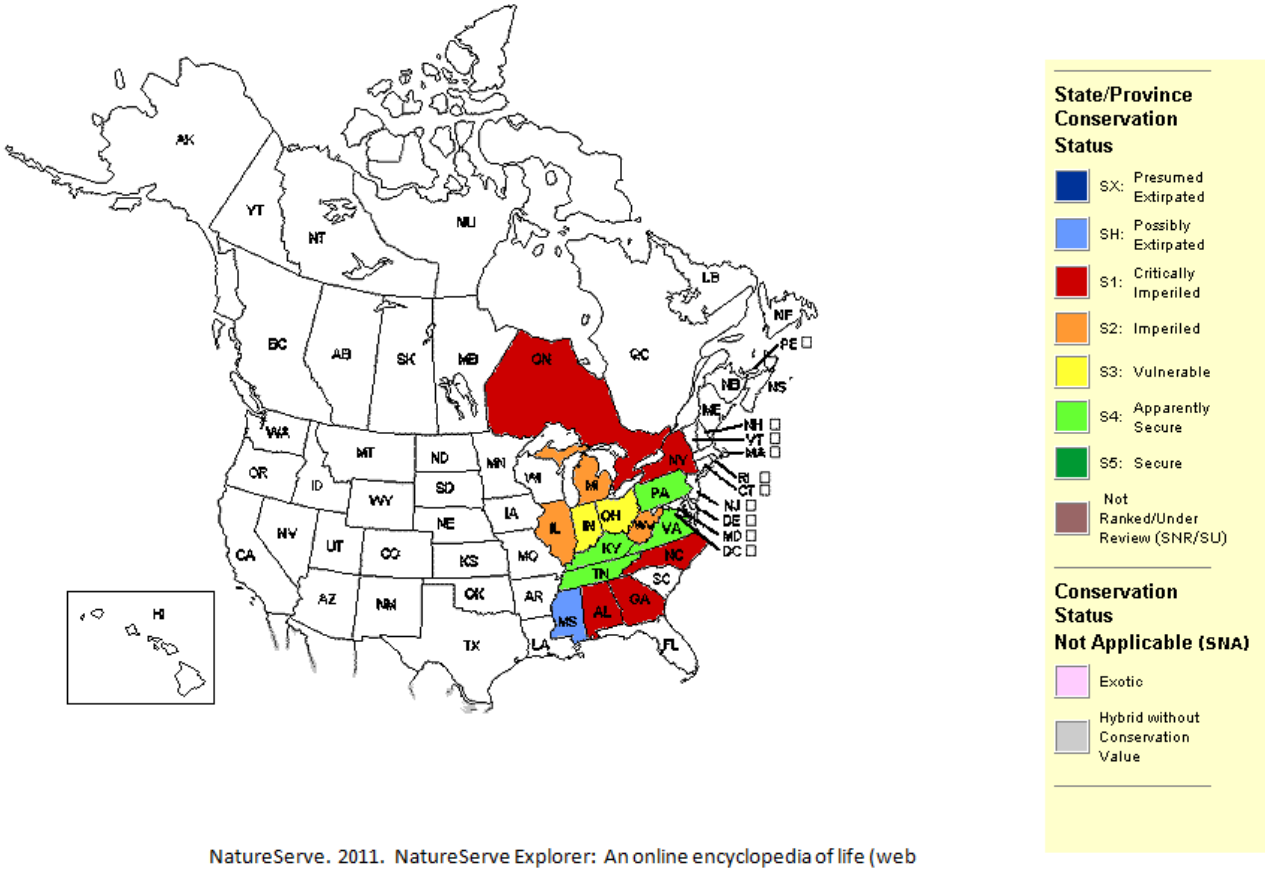
Mankowski notes and recommendation:

Survey effort has been thorough for this species, with all 20 EOs having been surveyed since 2002. There was an increase in effort over the period of 1992-2001, with 8 EOs surveyed during the 1992-2006 window, 11 EOs surveyed during each of the 1997-2001 and 2002-2006 windows, and 15 EOs surveyed during the 2007-2011 window. Despite the increased effort in the 2007-2011 window, there was not a net gain in live animal observations. The increase in observations of live animals during the 1997-2001 and 2002-2006 windows reflect

the addition of 5 new EOs and two new counties. However, from 2001-2011, a total of six existing EOs with observations of live animals were found to have no live animals in subsequent surveys. Seven EOs (35%) are based on single observations of live animals. In addition, relocation of live animals from three EOs was prescribed in IDNR Incidental Take Authorizations, with no subsequent observations.

Mankowski recommendation: - no change in status

Lampsilis fasciola



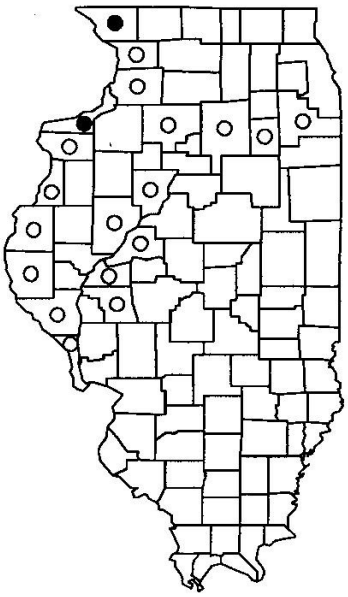
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Higgens Eye, Lampsilis higginsii (Illinois endangered, Federally endangered)

Listed as IL E, 7/25/1984; Listed as Fed E, 6/14/1976
Reason for listing: designated Fed E or T; formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures;

Lampsilis higginsii (Lea)

HIGGINS EYE **UNIONIDAE** **Status:** Endangered in Illinois
Federally Endangered



Present Distribution: The Higgins eye is presently found only in the upper Mississippi River from Minnesota and Wisconsin to Iowa and Illinois, and the St. Croix River in Minnesota and Wisconsin (Stern 1982). Formerly this species occurred in the Mississippi River drainage from Louisiana to Wisconsin (Havlik 1981). In Illinois it is presently restricted to the Mississippi River.
Former Illinois Distribution: The Higgins eye formerly occurred in the Mississippi River from its confluence with the Illinois River north; there are also records of this species from the Illinois, Spoon, and Kankakee rivers (Cummings and Mayer 1992).
Habitat: This mussel is primarily a large river species that apparently prefers mud-gravel substrates in fairly deep (3-5 m) water (Stern 1982).
Reason for Status: This species initially may have declined due to commercial harvesting; however, impoundments, decreasing water quality and channel dredging are the primary factors responsible for recent declines (Stern 1982).
Management Recommendations: The primary management needs for this species include identification and protection of essential habitat, population monitoring, and possibly the development of fish runways to facilitate the movement of glochidial host fish species through/around locks and dams (Stern 1982). Populations of this species also need to be protected from dredging and other detrimental navigational improvements in the Mississippi River.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2009-09-22	18	9	0	14	5	3

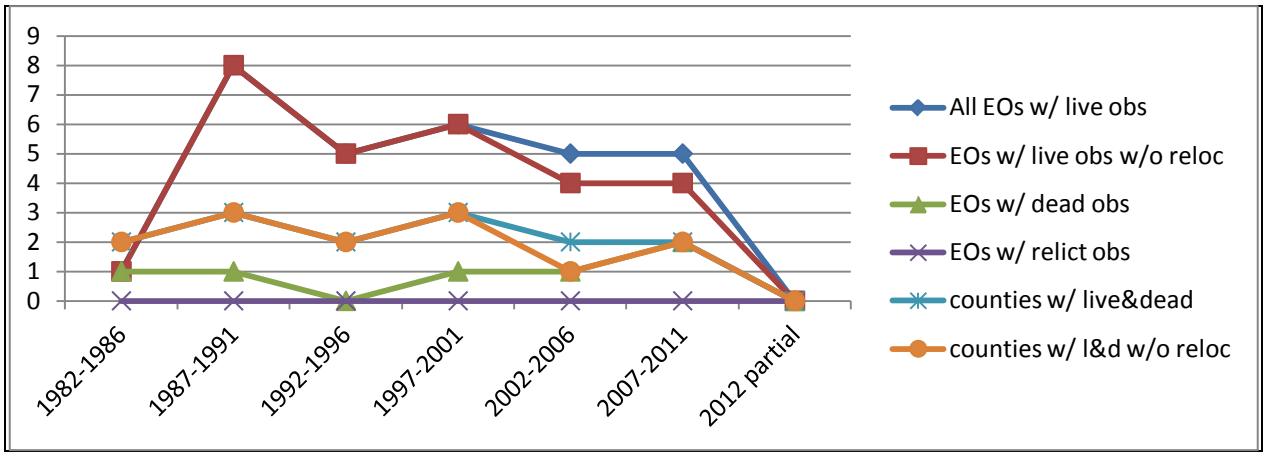
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

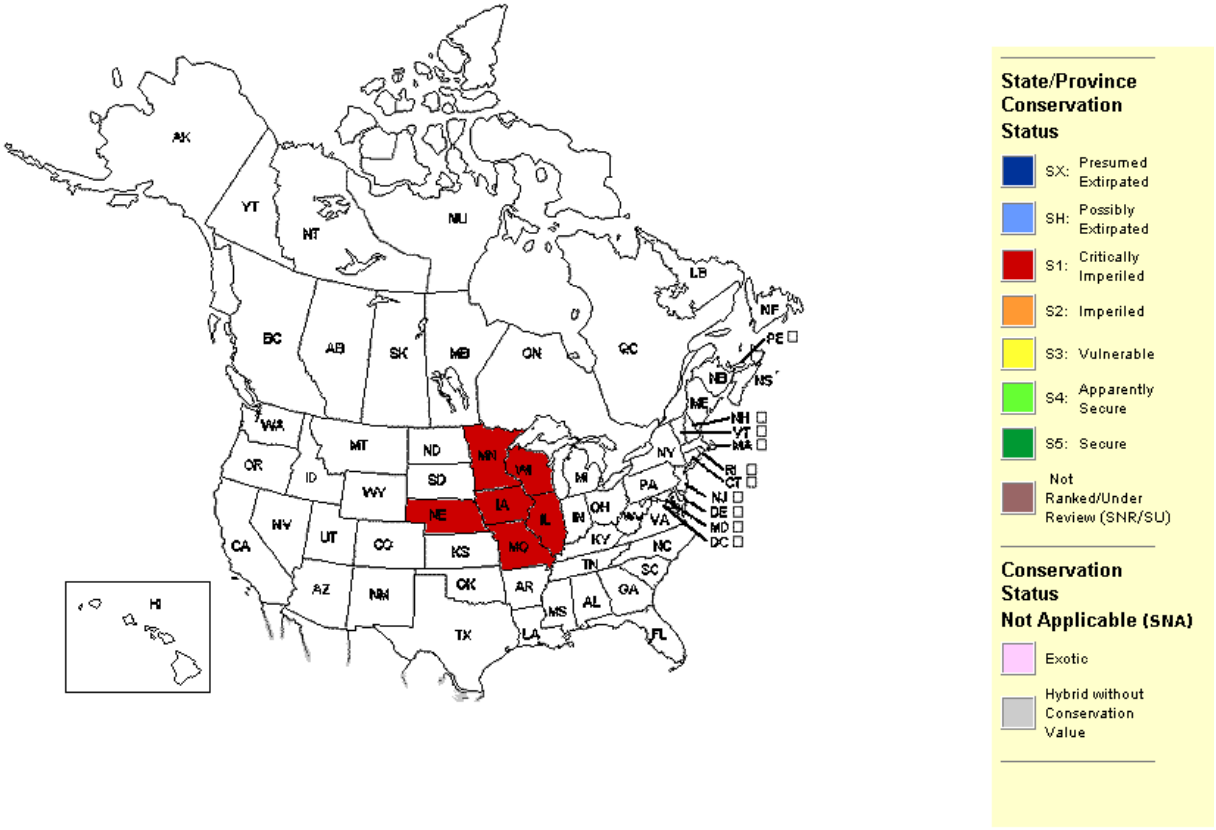
	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	1	8	5	6	5 [1]	5 [1]	0
EOs w/ dead obs	1	1	0	1	1	2	0
EOs w/ relict obs	0	0	0	0	0	0	0
Total EOs w/ live&dead	2	8	5	6	5 [1]	5 [1]	0
counties w/ live&dead	2	3	2	3	2 [1]	2	0

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
07/2011	2 (2)	2	2	11%	29%



Lampsilis higginsii



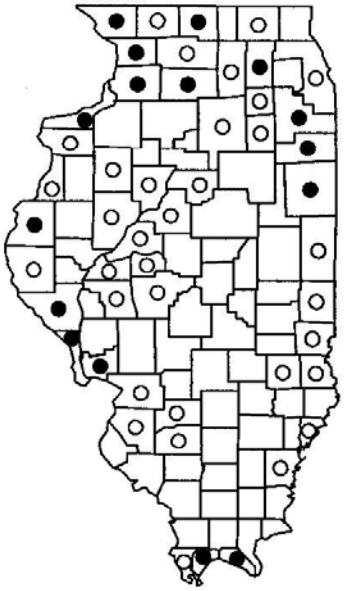
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Black Sandshell, Ligumia recta (Illinois threatened)

Listed as IL T, 4/26/1999
Reason for listing: formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures;

Ligumia recta (Lamarck)

BLACK SANDSHELL **UNIONIDAE** **Status:** Threatened in Illinois



Present Distribution: The black sandshell is known from the Mississippi River drainage from western New York, west to South Dakota and Kansas, north to Manitoba, Ontario, and Quebec, Canada, and south to Louisiana, Alabama, and Georgia (Parmalee 1967).
Former Illinois Distribution: The black sandshell was fairly widespread in the state where it was found in most of the major river systems (Cummings and Mayer 1992, INHS Mollusk Collection).
Habitat: This species is usually found in medium to large rivers where it occurs in riffles or raceways in gravel or firm sand (Cummings and Mayer 1992).
Reason For Status: This species is widespread but uncommon throughout much of the Midwest. The black sandshell has experienced a tremendous population decline in Illinois, and is now known from less than 25% of the counties with historic records (INHS Mollusk Collection).
Management Recommendations: Areas where this species occurs should be protected from dredging, and sand and gravel mining. Additionally, efforts to reduce siltation and pollution in water ways in which this species occurs would be beneficial.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-09-29	101	86	4	86	28	27

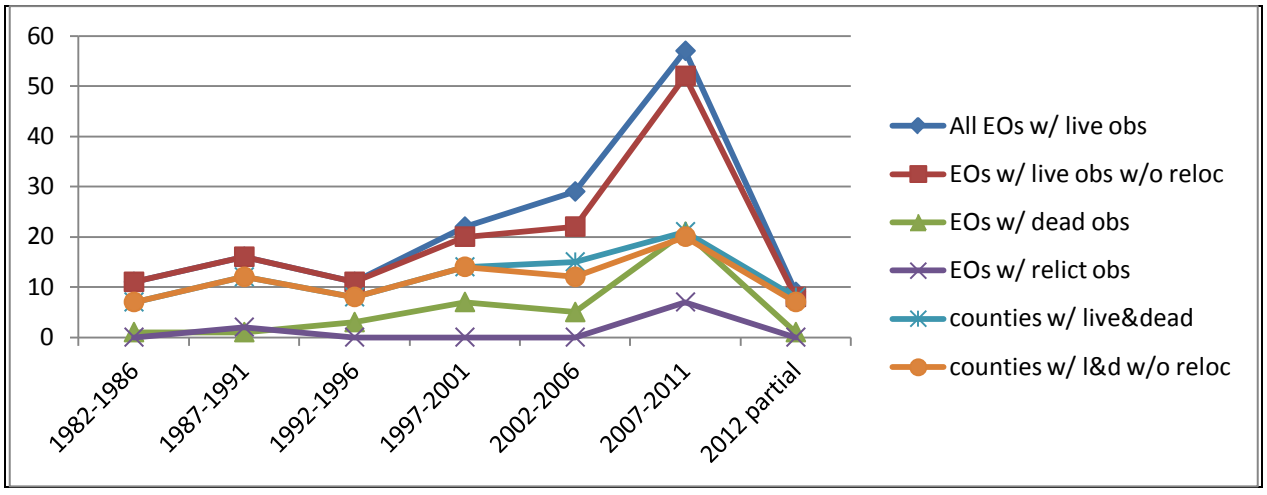
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	11	16	11	22 (2)	29 (3)[4]	57 (1)[4]	9 [1]
EOs w/ dead obs	1	1	3	7	5	21	1
EOs w/ relict obs	0	2	0	0	0	7	0
Total EOs w/ live&dead	11	17	12	23 (2)	29 (3)[4]	63 (1)[4]	9 [1]
counties w/ live&dead	7	12	8	14	15 (1)[2]	21 (1)[1]	8 [1]

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
11/2012	9 (7)	9	9	9%	10%

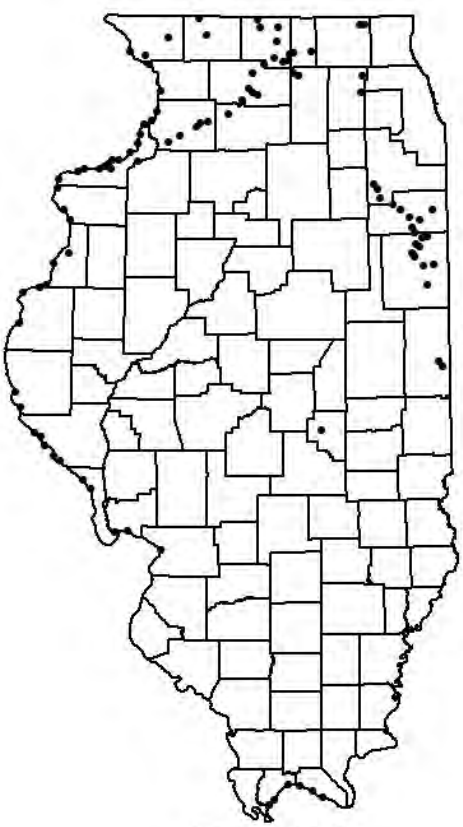


Mankowski notes and recommendation:

Since the species was listed in 1999, the number of live observations has nearly tripled over the last three 5-year intervals. Survey effort for this species has been thorough, with 90% of all EOs surveyed since 2002. The survey effort correlates to the increase in observations from 1992-2011; there were 12 EOs, 26 EOs, 34 EOs, and 66 EOS surveyed during the 1992-1996, 1997-2001, 2002-2006, and 2007-2011 windows, respectively. The additional

surveys during the 2007-2011 window added a total of 28 (28% of total) new EOs and 2 new counties with live animals.

Despite the increase discussed above, 30% of total EOs may no longer support live animals: Five EOs (5% of total) with previous live observations had no live animals reported during the 2007-2011 window; for the period of 1997-2012, live animals at 15 EOs (15% of total) were prescribed for or relocated during the same period with no subsequent observations; and, 10 EOs (10% of total) have not been surveyed since 2001 or prior. Additionally, 48 EOs (48% of total) are based on single observations, recent (since 2002) live observations are known from only about 50% (26) of the 49 counties with historic records and no EOs are found in several basins with historic records (see map below with all EOs as compared to the map at the beginning of this species review that illustrates historic distribution).



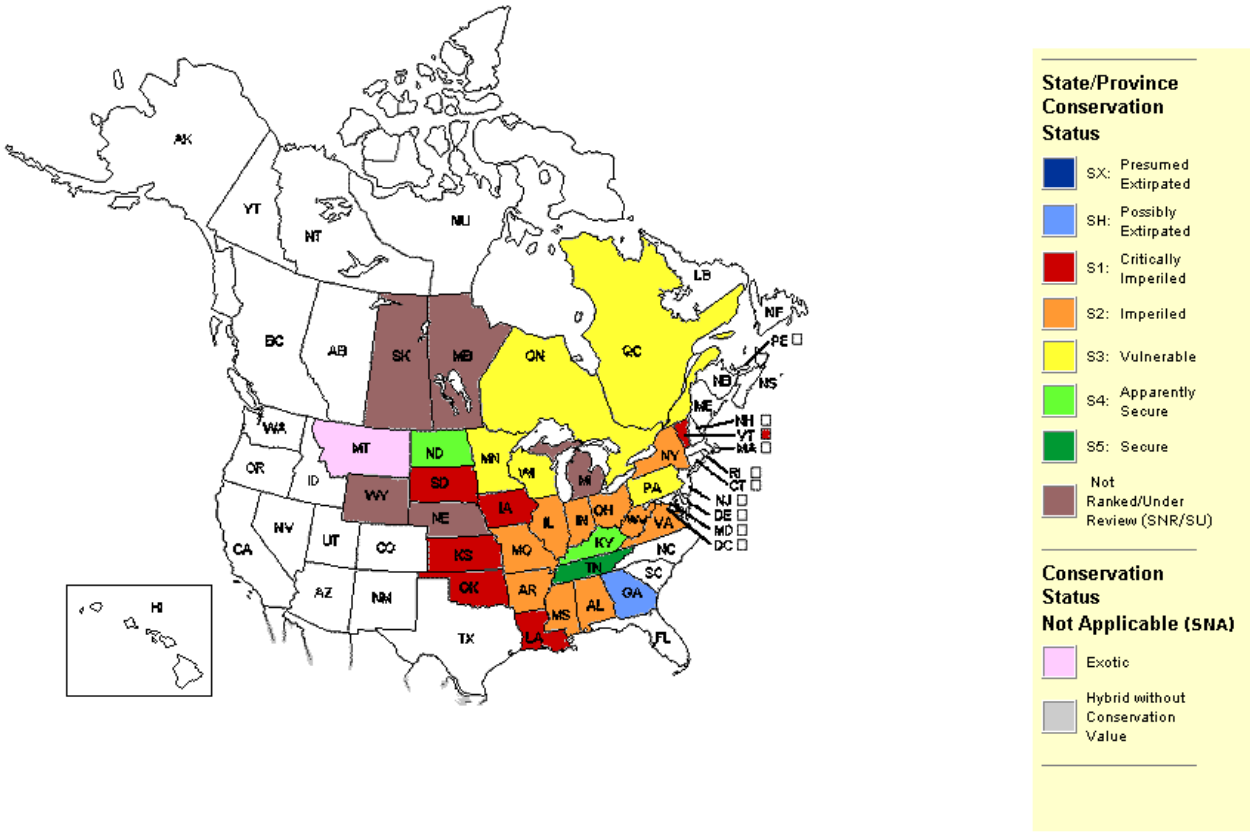
Ligumia recta - All

There have been six translocation/relocation activities intended to help recover the species, none of which have had subsequent observations to demonstrate survival of the "donor" population or the relocated animals. The data suggest that these activities may not be necessary for this species and they could interfere with whatever natural recovery may be taking place. In the absence of adequate follow-up monitoring and reporting, they may also interfere with evaluating the species' status.

There was much less survey effort prior to and at the time of listing, so it is unclear whether the species was more common that thought when it was listed or if it has undergone some recovery – maybe both. While the species is clearly not recovered to near its historic status and distribution, it may no longer meet the definition of threatened in Illinois. Since a listing status change recommendation in this case would be for delisting, it would be good to see the trend sustained into another 5-year interval before making that recommendation.

Mankowski recommendation: - no change in status.

Ligumia recta



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Orange-foot Pimpleback, Plethobasus cooperianus (Illinois endangered, Federally endangered)

Listed as IL E, 7/25/1984; Listed as Fed E, 6/14/1976
Reason for listing: designated Fed E or T; restricted habitats or low pops in IL;

Plethobasus cooperianus (Lea)

ORANGE-FOOT PIMPLEBACK **UNIONIDAE** **Status:** Endangered in Illinois
Federally Endangered

Present Distribution: The orange-foot pimpleback is presently restricted to the Tennessee, Cumberland, and lower Ohio rivers in Illinois, Kentucky, Tennessee, and Alabama (Ahlstedt 1984a).
Former Illinois Distribution: This species has probably always been restricted to the Ohio River in Illinois. It is now apparently much less abundant than it was formerly (Cummings and Mayer 1992).
Habitat: This mussel inhabits medium to large rivers, where it is found on sand and gravel substrates (Ahlstedt 1984a).
Reason for Status: The decline of this species is primarily due to impoundments, increased siltation, and agricultural, municipal, and industrial pollution (Ahlstedt 1984a).
Management Recommendations: The protection of existing populations and presently used habitat, research examining the feasibility of reintroductions into its historic range, and life history research are the primary management needs for this species (Ahlstedt 1984a).

KEY
The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
1999-09-07	2	0	0	2	1	0

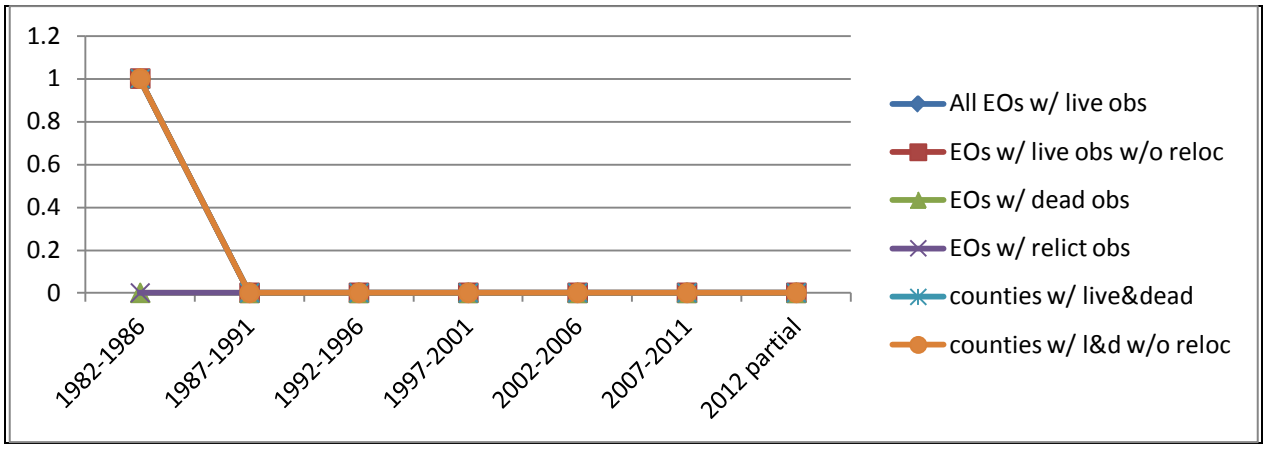
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

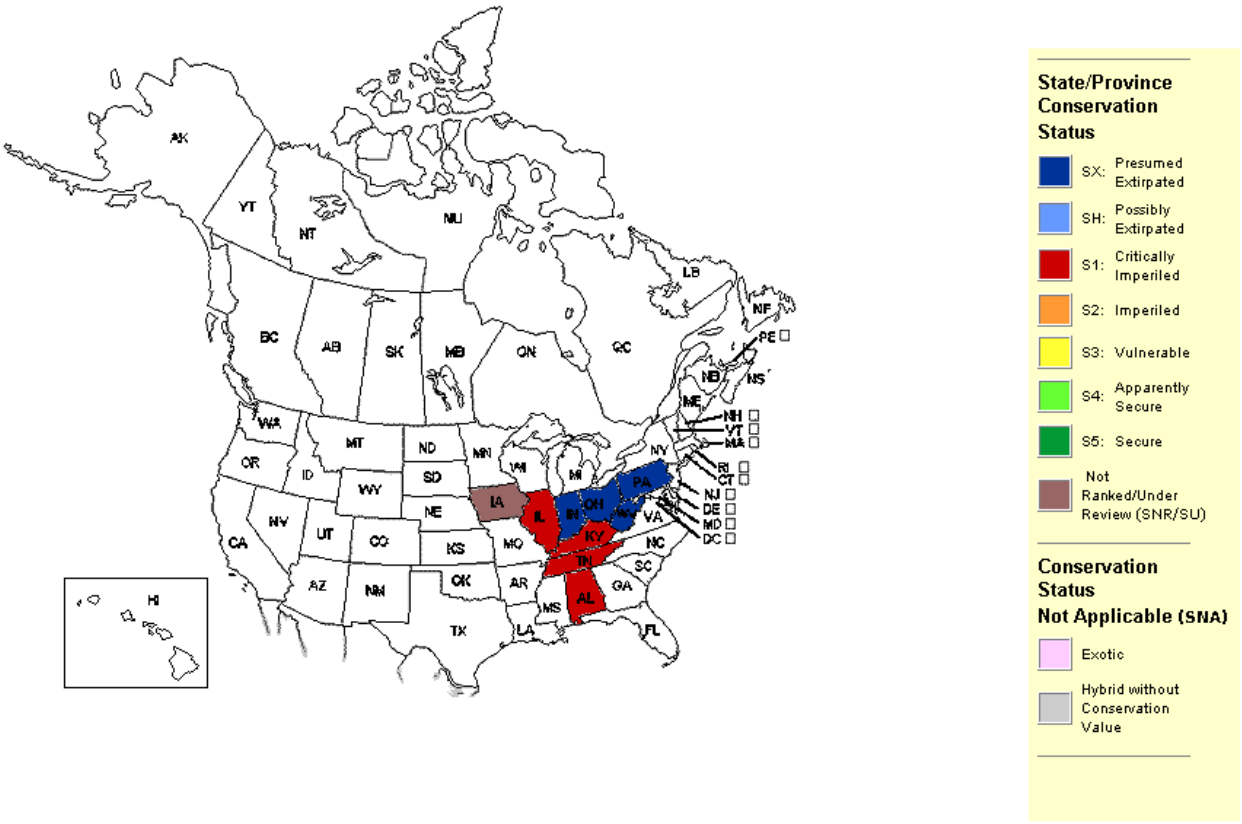
	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	1	0	0	0	0	0	0
EOs w/ dead obs	0	0	0	0	0	0	0
EOs w/ relict obs	0	0	0	0	0	0	0
Total EOs w/ live&dead	1	0	0	0	0	0	0
counties w/ live&dead	1	0	0	0	0	0	0

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
11/2012	0	0	0	0	0



Plethobasus cooperianus



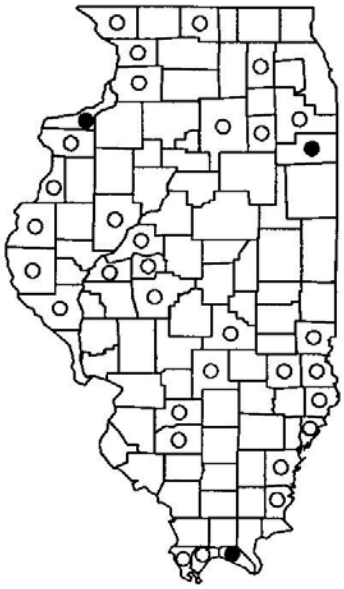
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Sheepnose, Plethobasus cyphyus (Illinois endangered; Federally endangered)

Listed as IL T, 3/17/1989; Listed as IL E 1/18/1994; Listed as Fed E 4/12/2012
Reason for listing: formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures;

Plethobasus cyphyus (Rafinesque)

SHEEPNOSE **UNIONIDAE** **Status:** Endangered in Illinois



Present Distribution: The sheepnose is known from the Ohio, Cumberland, and Tennessee river systems; and the Mississippi River system from Iowa and Kansas north to Minnesota (Parmalee 1967). In Illinois this species is currently known from the Kankakee and Mississippi rivers (IDNR Natural Heritage database, INHS Mollusk Collection).
Former Illinois Distribution: Parmalee (1967) wrote that this mussel was uncommon or rare in Illinois, and that it was restricted to the Mississippi (north of St. Louis), lower Wabash and Ohio Rivers. There are historical records from the Rock, Kaskaskia, Embarras, Sangamon, and Fox rivers.
Habitat: The sheepnose is usually found in current, on mud or gravel bottoms at water depths of a few cm to 2 m; however, this mussel may occasionally be found at much greater depths (Parmalee 1967).
Reason for Status: Historically this species was relatively abundant in the state, but is presently known from few localities. Most populations are apparently small and isolated. Increased siltation and domestic, industrial, and agricultural pollution are the primary threats to this species in Illinois.
Management Recommendations: Areas where this species occurs should receive improved protection from herbicides, pesticides and industrial, agricultural, and domestic pollution.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2010-08-18	21	7	2	21	11	5

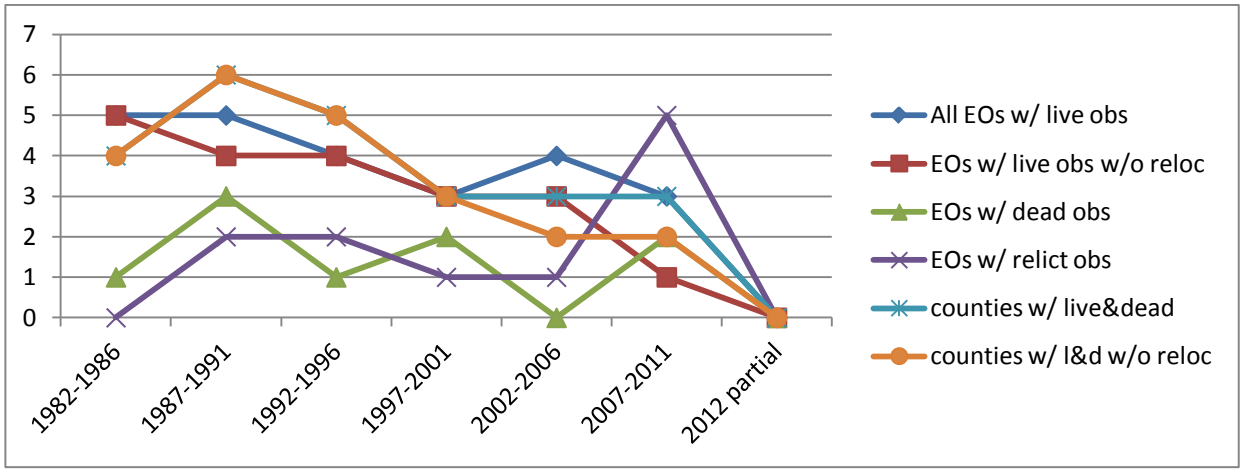
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

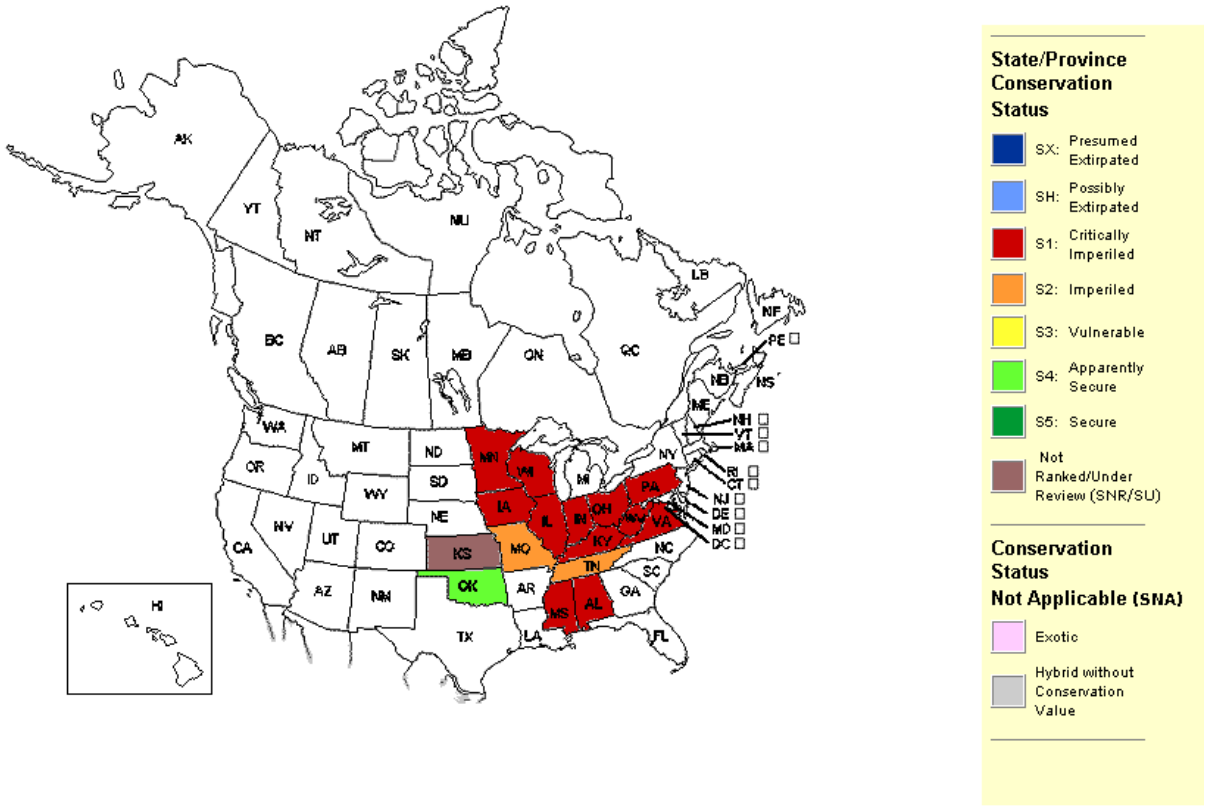
	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	5	5 (1)	4	3	4 [1]	3 [2]	0
EOs w/ dead obs	1	3	1	2	0	2	0
EOs w/ relict obs	0	2	2	1	1	5	0
Total EOs w/ live&dead	5	7 (1)	5	4	4 [1]	4 [2]	0
counties w/ live&dead	4	6	5	3	3 [1]	3 [1]	0

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
07/2011	3 (2)	3	3	14%	43%



Plethobasus cyphyus



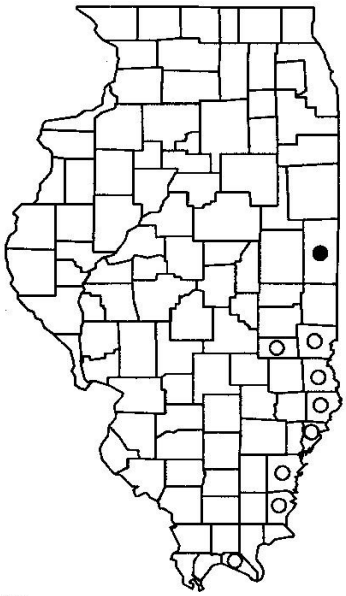
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Clubshell, Pleurobema clava (Illinois endangered, Federally endangered)

Listed as IL E, 3/17/1989; Listed as Fed E, 1/22/1993
Reason for listing: proposed Fed E or T; restricted habitats or low pops in IL;

Pleurobema clava (Lamarck)

CLUBSHELL **UNIONIDAE** **Status:** Endangered in Illinois
Federally Endangered



Present Distribution: Historically this species occupied the Wabash, Ohio, Kanawha, Kentucky, Green, Monongahela, and Allegheny rivers and their tributaries. Presently it is extirpated from most of its range, and now is restricted primarily to the headwaters of its former range (Watters 1987a). In Illinois, this species still occurs in the North Fork of the Vermilion River (IDNR Natural Heritage database, INHS Mollusk Collection).
Former Illinois Distribution: This species has apparently always had a restricted range in Illinois. Baker (1906) and Parmalee (1967) both listed this species as occurring only in the Wabash River in Illinois. Parmalee (1967) thought that it was doubtful that this mussel still was present in the state in 1967.
Habitat: The clubshell inhabits small to medium sized rivers (Watters 1987a), where it is usually found deeply buried in sand and fine gravel (Ortmann 1919).
Reason for Status: This mussel has a limited range in Illinois and has declined throughout most of its range. Presumably increased siltation, channelization, and pollution have negatively affected Illinois populations of this species.
Management Recommendations: Areas where this species is known to occur should receive increased protection from herbicides, pesticides, pollution, and agricultural soil run-off.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

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Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2002-09-19	2	1	0	3	2	2

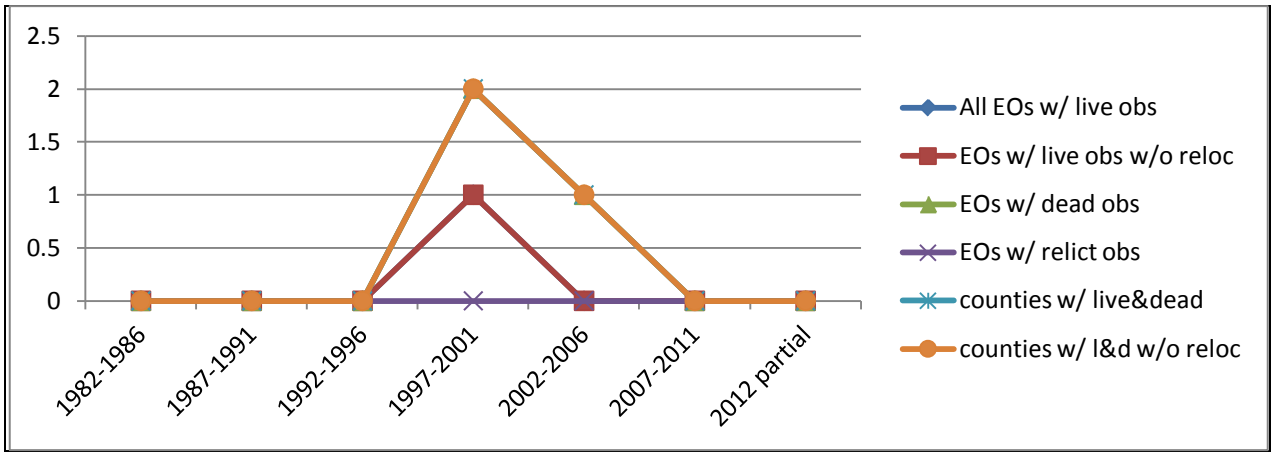
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

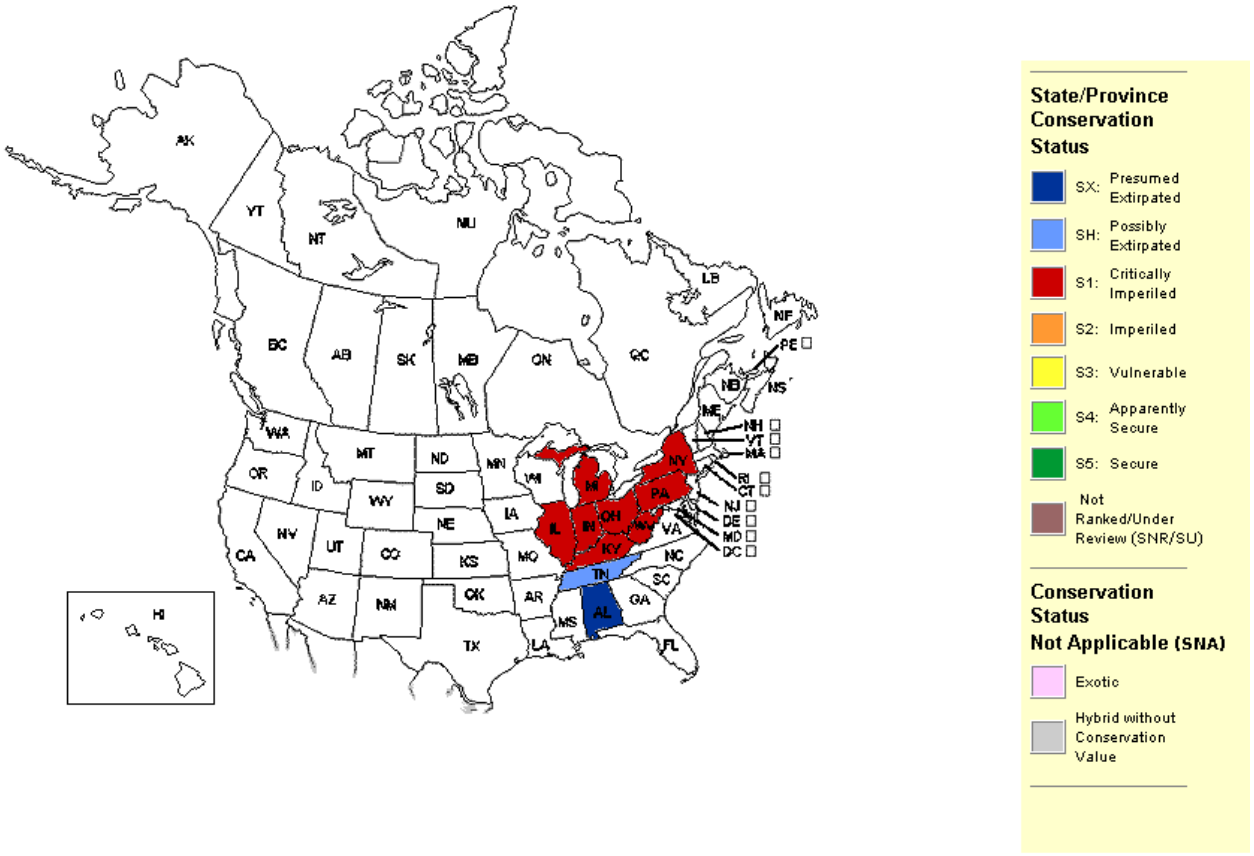
	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	0	0	0	1	0	0	0
EOs w/ dead obs	0	0	0	2	1	0	0
EOs w/ relict obs	0	0	0	0	0	0	0
Total EOs w/ live&dead	0	0	0	2	1	0	0
counties w/ live&dead	0	0	0	2	1	0	0

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
11/2012	0	0	0	0	0



Pleurobema clava



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Ohio Pigtoe, Pleurobema cordatum (Illinois endangered)

Listed as IL E, 1/18/1994
Reason for listing: restricted habitats or low pops in IL;

Pleurobema cordatum (Rafinesque)

OHIO PIGTOE **UNIONIDAE** **Status:** Endangered in Illinois

Present Distribution: The Ohio pigtoe occurs in the upper Mississippi River drainage from southwestern New York, west to Kansas and Iowa, north to upper Wisconsin (Parmalee 1967). It is presently widespread but sporadic in the Ohio River basin (Cummings and Mayer 1992). In Illinois, this species is restricted to the Ohio River.
Former Illinois Distribution: The Ohio pigtoe was formerly more widespread in Illinois, occurring in the lower Wabash and Ohio rivers (Cummings and Mayer 1992). Illinois populations of this species in the lower Wabash River have apparently been extirpated.
Habitat: Large rivers, although occasionally found in medium-sized rivers. It is usually found in riffles in a gravel, cobble, or boulder substrate at a depth of 1-3 m.
Reason For Status: This species has been extirpated from, or occurs in greatly reduced numbers throughout, considerable portions of its former range (Cummings and Mayer 1992).
Management Recommendations: This mussel would benefit from efforts to restrict dredging, impoundments, and navigational improvements on the large rivers of the state. Additionally, there is a need for increased efforts to reduce undue siltation and pollution in the Wabash and Ohio rivers.

KEY

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Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2006-06-28	3	1	0	3	2	1

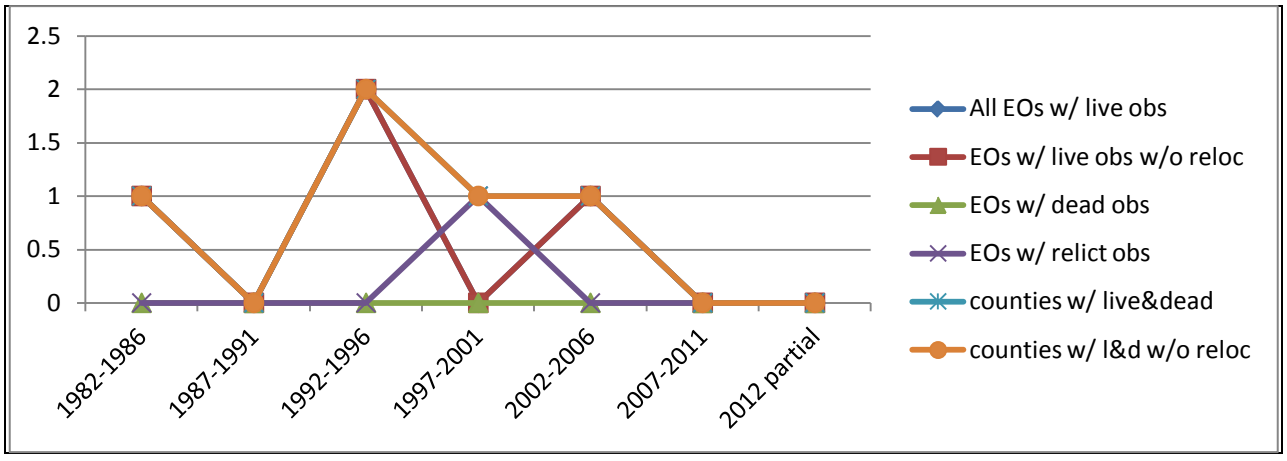
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

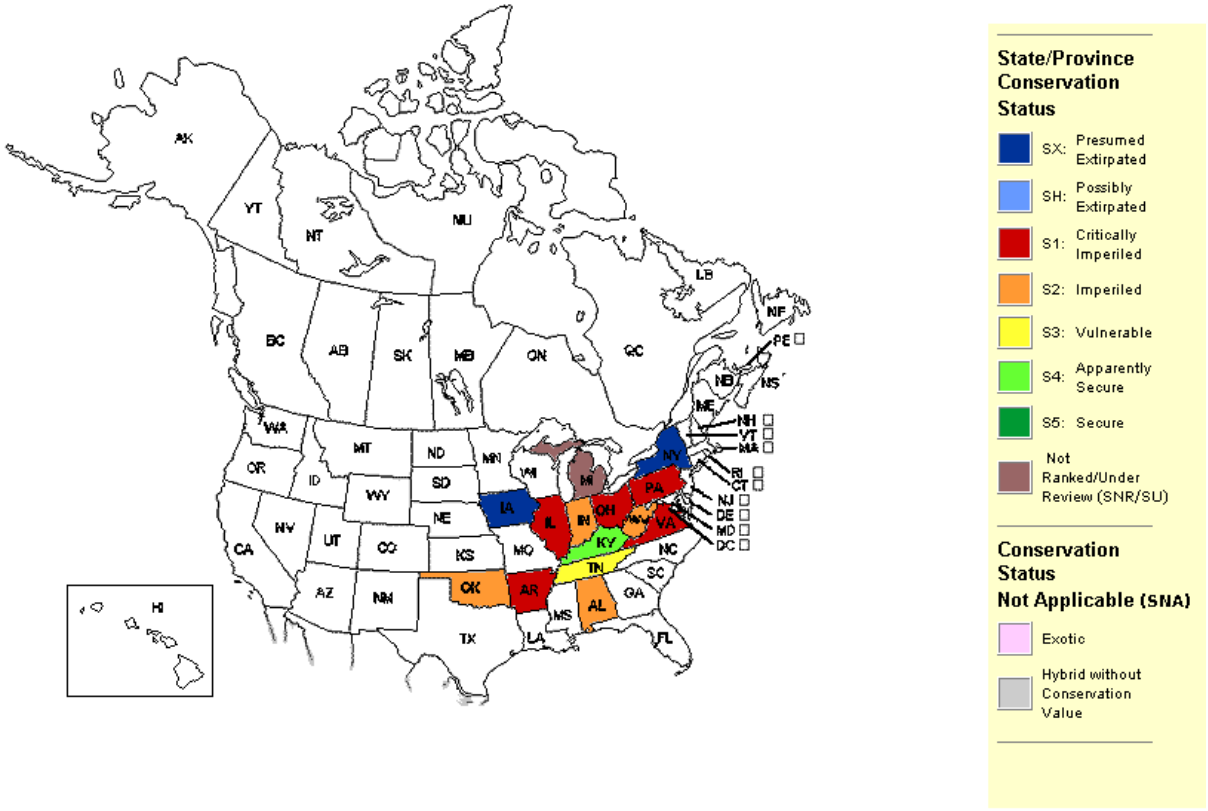
	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	1	0	2	0	1	0	0
EOs w/ dead obs	0	0	0	0	0	0	0
EOs w/ relict obs	0	0	0	1	0	0	0
Total EOs w/ live&dead	1	0	2	0	1	0	0
counties w/ live&dead	1	0	2	0	1	0	0

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
11/2012	0	0	0	0	0



Pleurobema cordatum



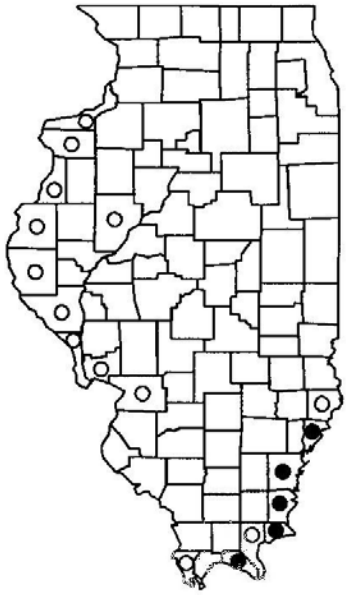
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Fat Pocketbook, Potamilus capax (Illinois endangered, Federally endangered)

Listed as IL E, 7/25/1984; Listed as Fed E, 6/14/1976
Reason for listing: designated Fed E or T; formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures;

Potamilus capax (Green)

FAT POCKETBOOK **UNIONIDAE** **Status:** Endangered in Illinois
Federally Endangered



Present Distribution: The fat pocketbook occurred in the lower Wabash, upper Mississippi, Cumberland, and St. Francis rivers (Dennis 1985). In Illinois it is presently known from the lower Wabash River and possibly the Ohio River (IDNR Natural Heritage database, INHS Mollusk Collection).
Former Illinois Distribution: The fat pocketbook was formerly fairly widespread in Illinois, occurring in the Mississippi River from approximately St. Louis to Rock Island, the Illinois River from Ottawa south, and the Wabash and Ohio rivers (Dennis 1985).
Habitat: The fat pocketbook is a large river species, occurring on both sand and mud substrates, in slow-flowing water, and at depths of only a few cm to 3 m or more (Parmalee 1967).
Reason for Status: Populations of the fat pocketbook have declined throughout its historic range due primarily to activities related to navigation and flood control, especially dredging; agricultural run-off is also believed to have negatively impacted populations of this species (Dennis 1985).
Management Recommendations: The protection of existing populations and habitat used by this species, additional searches for viable populations in the Wabash and Mississippi rivers, and life history research are the primary management needs for this species (Cummings *et al.* 1990).

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-08-18	30	24	1	22	7	6

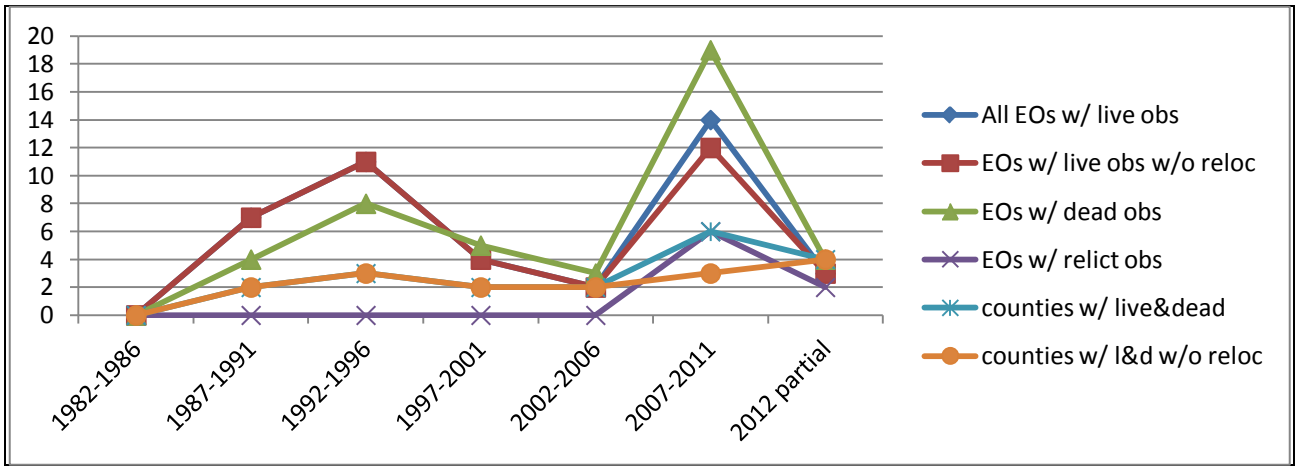
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	0	7	11	4	2	14 [2]	3
EOs w/ dead obs	0	4	8	5	3	19	4
EOs w/ relict obs	0	0	0	0	0	6	2
Total EOs w/ live&dead	0	7	11	5	3	21 [2]	7
counties w/ live&dead	0	2	3	2	2	6 [3]	4

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
07/2011	2 (4)	4	3	14%	19%



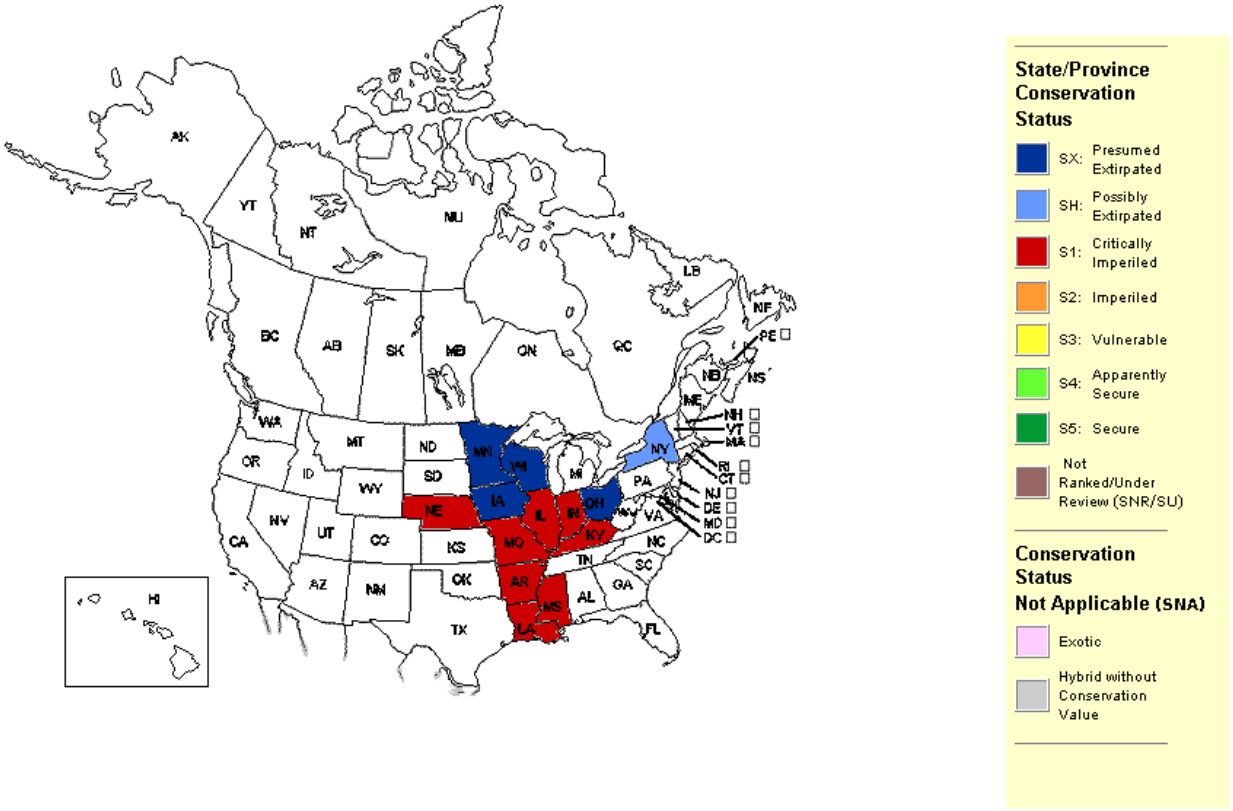
Mankowski notes and recommendation:

There has been an increase in live and dead animal observations since the species was listed as endangered in 1984. The increase has not been steady, with a notable dip from 1997-2006 that is explained by reduced search effort during that time – from 1992-1996, 11 EOs were surveyed; from 1997-2001, 6 EOs were surveyed; from 2002-2006, 4 EOs were surveyed; and, from 2007-2011, 23 EOs were surveyed. Since 2002, 28 (94%) of total EOs have been surveyed, with live observations at 17 (57%). While those EO numbers suggest possible status

improvement, they only capture part of the species' historic Illinois distribution. Live or dead animals have only been observed in 6 of 18 counties with historic occurrences, with those observations restricted to the southeastern part of the state from the Wabash and Ohio systems. There have been no observations from the Illinois or Mississippi systems since at least the time when the species was listed. It is likely the species has been extirpated from those systems in Illinois. Because observations are lacking for so much of the historic Illinois range, it would be good to see the increase in live observations from the Wabash and Ohio systems sustained into another 5-year interval before considering an upgrade in listing status.

Mankowski recommendation: - no change in status

Potamilus capax



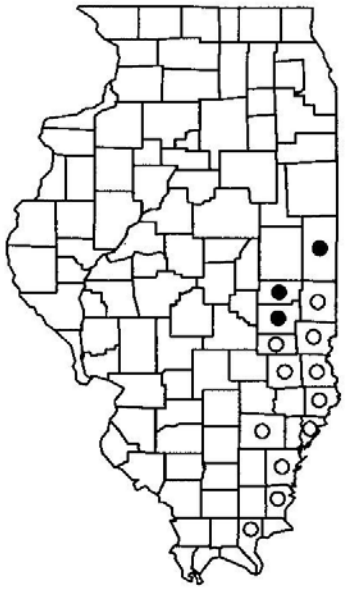
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Kidneyshell, Ptychobranchus fasciolaris (Illinois endangered)

Listed as IL E, 3/17/1989
Reason for listing: restricted habitats or low pops in IL;

Ptychobranchus fasciolaris (Rafinesque)

KIDNEYSHELL **UNIONIDAE** **Status:** Endangered in Illinois



Present Distribution: The kidneyshell is known from the Ohio, Tennessee, and Cumberland rivers and Lake Erie; it also occurs in Michigan and Tennessee. In Illinois it is presently known only from the Embarras and Vermilion river systems.
Former Illinois Distribution: In Illinois, the kidneyshell has apparently always been restricted to the Wabash and Ohio river drainages, with records from the Wabash, Vermilion, Little Wabash rivers and Brouilletts Creek (Baker 1906, Parmalee 1967, Cummings and Mayer 1992).
Habitat: The kidneyshell is usually found in small to medium sized rivers, but may also occur in riffle sections of large rivers (Parmalee 1967). It is usually found in coarse sand and gravel substrates, in current, at water depths of approximately 1 m (Parmalee 1967).
Reason for Status: Increased siltation and municipal, industrial, and agricultural pollution are all potential threats to this species in Illinois.
Management Recommendations: This species would benefit from better soil conservation measures targeted at reducing agricultural runoff and pollution. Improved protection from industrial and domestic pollution would also benefit this species.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-07-19	9	6	0	7	3	3

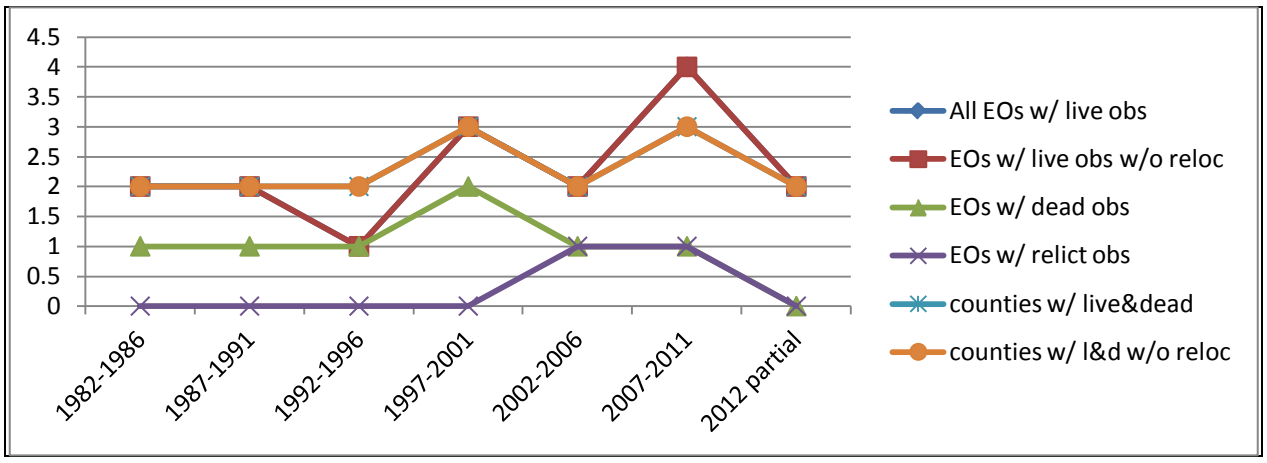
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

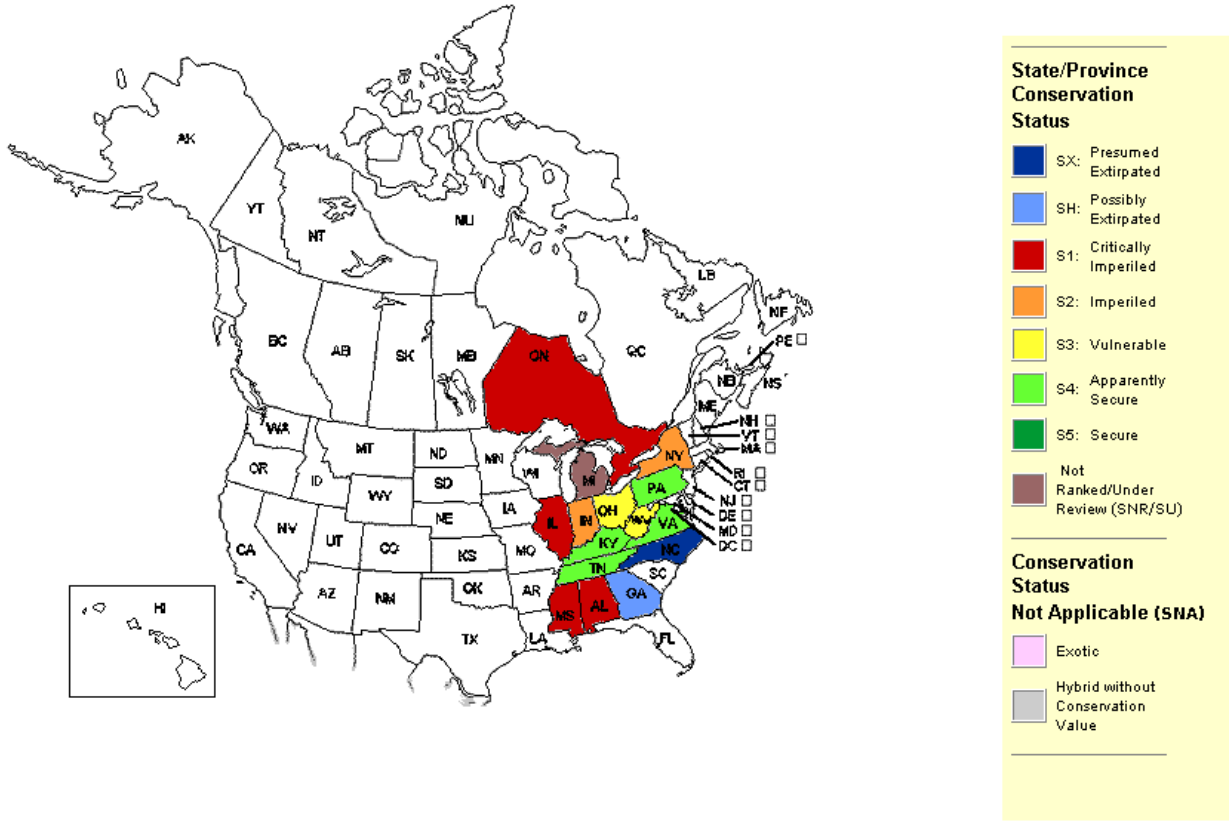
	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	2	2	1	3	2	4	2
EOs w/ dead obs	1	1	1	2	1	1	0
EOs w/ relict obs	0	0	0	0	1	1	0
Total EOs w/ live&dead	2	2	1	4	2	5	2
counties w/ live&dead	2	2	2	3	2	3	2

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
11/2012	0	0	0	0	0



Ptychobranchus fasciolaris



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Rabbitsfoot, Quadrula cylindrica (Illinois endangered)

Listed as IL E, 3/17/1989
Reason for listing: restricted habitats or low pops in IL;

Quadrula cylindrica (Say)

RABBITSFOOT **UNIONIDAE** **Status:** Endangered in Illinois

Present Distribution: The rabbitsfoot is known from the Ohio, Cumberland, and Tennessee river systems, the St. Lawrence drainage, and south into Arkansas, Kansas, and Oklahoma (Parmalee 1967). In Illinois, it is restricted to the North Fork of the Vermilion River and the Ohio River (IDNR Natural Heritage database, INHS Mollusk Collection).
Former Illinois Distribution: In Illinois, the rabbitsfoot has apparently always been restricted to the Wabash and Ohio River drainages with historic records from the Vermilion, Ohio, Embarras, and Wabash rivers (Baker 1906, Parmalee 1967, Cummings and Mayer 1992).
Habitat: This mussel occurs in sand and gravel substrates in areas having current, in 2-3 m of water (Parmalee 1967).
Reason for Status: Increased siltation and municipal, industrial, and agricultural pollution are all potential threats to this species in Illinois.
Management Recommendations: This species would benefit from better soil conservation measures targeted at reducing agricultural runoff and pollution. Improved protection from industrial and municipal pollution would also benefit this species. Populations in the Wabash and Ohio Rivers should be protected form dredging and other detrimental navigation related activities.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2011-09-20	7	4	1	5	3	3

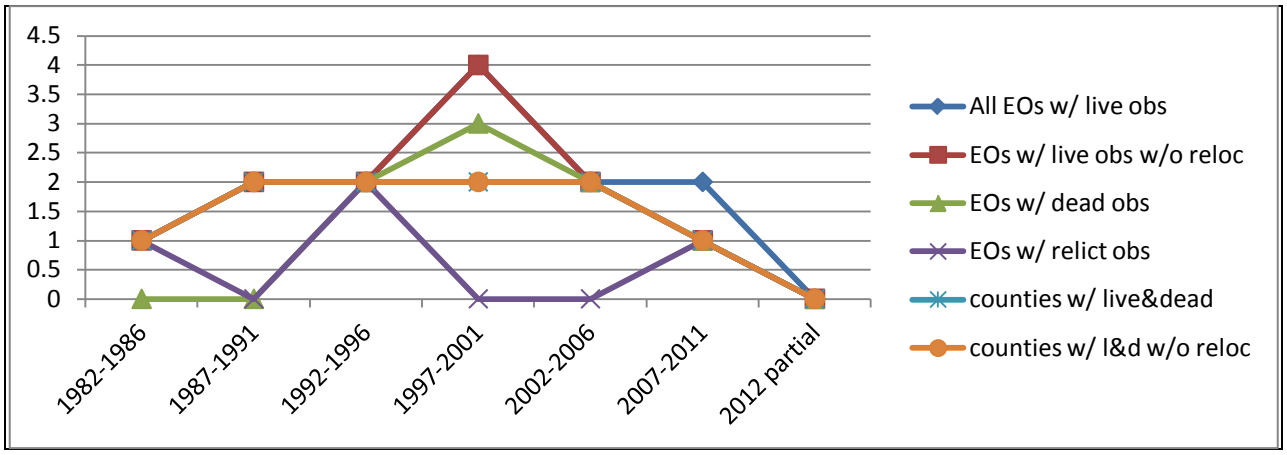
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

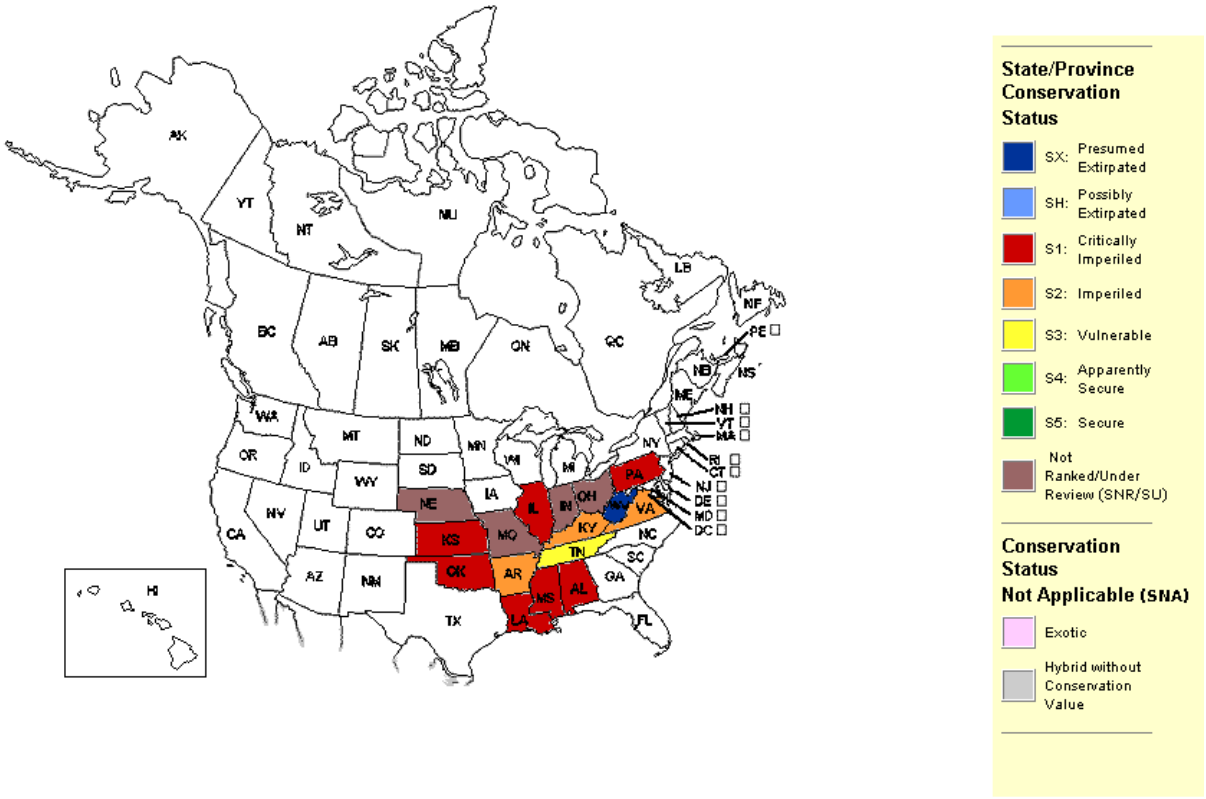
	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	1	2	2	4	2	2 [1]	0
EOs w/ dead obs	0	0	2	3	2	1	0
EOs w/ relict obs	1	0	2	0	0	1	0
Total EOs w/ live&dead	1	2	3	4	3	2 [1]	0
counties w/ live&dead	1	2	2	2	2	1	0

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
07/2011	1 (1)	1	1	14%	20%



Quadrula cylindrica



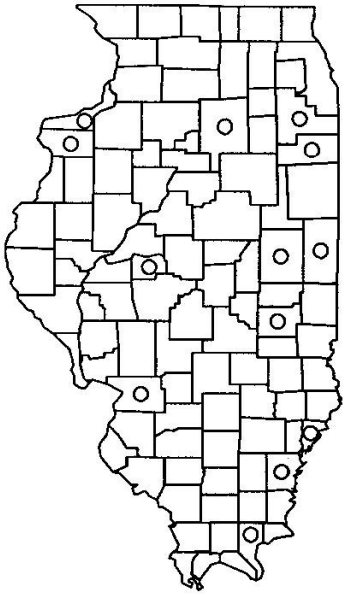
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Salamander Mussel, Simpsonaias ambigua (Illinois endangered)

Listed as IL E, 3/17/1989
Reason for listing: formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures;

Simpsonaias ambigua (Say)

SALAMANDER MUSSEL **UNIONIDAE** **Status:** Endangered in Illinois



Present Distribution: The salamander mussel occurs in the Lake St. Clair, Lake Huron, and Lake Erie drainages, and the Ohio, Cumberland, and upper Mississippi river systems (Watters 1987b). In Illinois, it could possibly still be present in the Sangamon, Vermilion, and Kankakee river systems (IDNR Natural Heritage database, INHS Mollusk Collection).
Former Illinois Distribution: Historically the salamander mussel is known to have occurred in the Mississippi, Illinois, Kankakee, Vermilion, Embarras, Sangamon, and Ohio rivers in Illinois (Cummings and Mayer 1992). Parmalee (1967) considered it to be of doubtful occurrence in Illinois by 1967.
Habitat: The salamander mussel is most commonly found on mud or gravel bars under flat stones in areas of swift current (Oesch 1984, Watters 1987b). The glochidial host is the mudpuppy (Howard 1951).
Reason for Status: This species is known from few locations in Illinois, and its populations are threatened by increased siltation, domestic, industrial, and agricultural pollution, and population declines of its host species (mudpuppy).
Management Recommendations: Increased protection from herbicides, pesticides, and industrial, agricultural, and municipal pollution would benefit this species. Populations of this species also need to be protected from sand and gravel mining.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2007-06-30	9	2	0	8	4	2

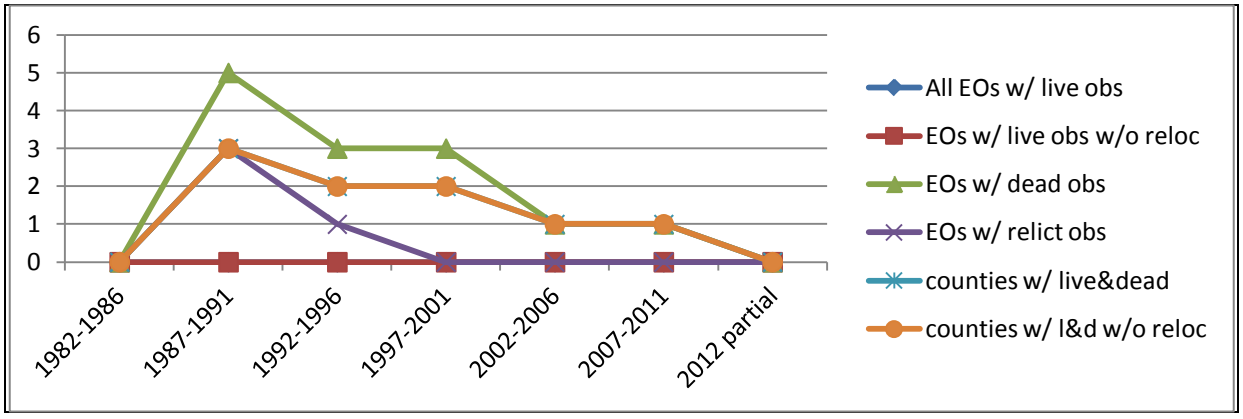
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	0	0	0	0	0	0	0
EOs w/ dead obs	0	5	3	3	1	1	0
EOs w/ relict obs	0	3	1	0	0	0	0
Total EOs w/ live&dead	0	5	3	3	1	1	0
counties w/ live&dead	0	3	2	2	1	1	0

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
11/2012	0	0	0	0	0



The table below includes the Database survey report for each EO during respective periods (l = live; d = dead/recent dead and some weathering; r = relict/sub-fossil/fossil; sno = surveyed, no observation).

EO#	County	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
1	champaign		d, r		d, sno			sno
2	vermilion				d, sno		sno	
3	vermilion		r				d	

4	vermilion		d, r	d	d, sno			
5	vermilion					d		
6	will		d					
7	kankakee			d				
8	kankakee		d	d, r				
9	kankakee		d				sno	

Mankowski notes and recommendation from 12/14/12 1st cut mussel list review draft:
When this species was listed in 1989, its live occurrence in the state had already been questioned for over 20 years. There has not been an observation of a live individual in over 30 years despite fairly considerable effort.

Mankowski recommendation – remove from endangered, due to extirpation. If the Board is not comfortable acting on this recommendation without more recent survey data, it is recommended that if funding is available, the Board contract surveys to better confirm the status of the species.

ESPB TEC comments/evidence in response to Mankowski recommendation from 12/14/12 1st cut mussel list review draft document and Mankowski response included in 01/25/13 1st cut mussel list review final document:

ESPB TEC Jeremy Tiemann comments received 12/18/12:
I disagree with the recommendation of removing the salamander mussel because of the following:

1) The salamander mussel is the quintessential "needle in a haystack." We typically don't sample its habitat when conducting mussel surveys. As your probably know, this is the only species of freshwater mussel that does not use a fish for its host. It uses the mudpuppy, which often occurs under boulders and slab rocks. When we (INHS and several IDNR biologists) conduct our surveys, we seldom flip rocks.
2) The species is small and thin shelled. So not only do we under-sample for it, we have one that will disintegrate quickly. Because of this, we typically don't find dead shell.

Mr. Tiemann made reference to the following citation, but did not provide copy of the report.
Cummings, K.S., C.A. Phillips, C.A. Mayer, and J.E. Petzing. 2002. Status survey for the mudpuppy Necturus maculosus (Amphibia: Protiidae) and salamander mussel Simpsonaias ambigua (Mollusca: Unionidae) in Illinois. Illinois Natural History Survey, Center for Biodiversity, Technical Report 2002(2):1-20.

Mankowski response 01/16/13:
Ms. Mankowski thanked Mr. Tiemann for the input. Comment lacks adequate evidence/information to cross-check information in the ESPB staff 1st cut draft mussel list review and did not explain whether the commenter is asserting that "surveyed with no observation" records in the database were incorrect because surveys were not conducted properly for the subject species. Despite the lack of evidence and explanation, Ms. Mankowski investigated the "surveyed with no observation" records from 1997-2012 and found them to be based on surveys which did look specifically for the species and legitimate.

Regarding note about dead shells not typically being found, the explanation was not qualified with respect to how it supports the Mr. Tiemann's recommendation or with respect to multiple dead records reported to the Database and reflected in Mankowski species review from 12/14/12.

Regarding citation to the Cummings et al, 2002 report, Mr. Tiemann did not provide copy of the report or indicate how the report and data within provided evidence supporting your comments and recommendation. Please submit to the IDNR Natural Heritage Database any occurrence evidence that you have for the species.

Comment otherwise noted.

ESPB TEC Kevin Cummings comments received 12/18/12:
I totally agree with Jeremy in this. It would be a mistake to remove the salamander mussel from the list. It is way too premature to say it has been extirpated. As he mentioned this is a very small and thin-shelled species and it is extremely hard to find given it's habitat preference. We have found shells at 6 locations (which in my mind equates to presence to a live population) in the Sangamon, Vermilion and Fox drainages since 2000. As stated it is a very thin-shelled species and the finding of shells is highly indicative of an extant population. I see no valid reason to remove it from the list.

Mankowski response 01/16/13:
Ms. Mankowski thanked Mr. Cummings for his input. Comment lacks adequate evidence/information to cross-check element occurrence (EO) information in the ESPB staff 1st cut draft mussel list review or establish EOs in the IDNR Natural Heritage Database. The data needs to be in the Database for consideration by the ESPB in the List review. Please submit to the IDNR Natural Heritage Database any occurrence evidence that you have for the species.

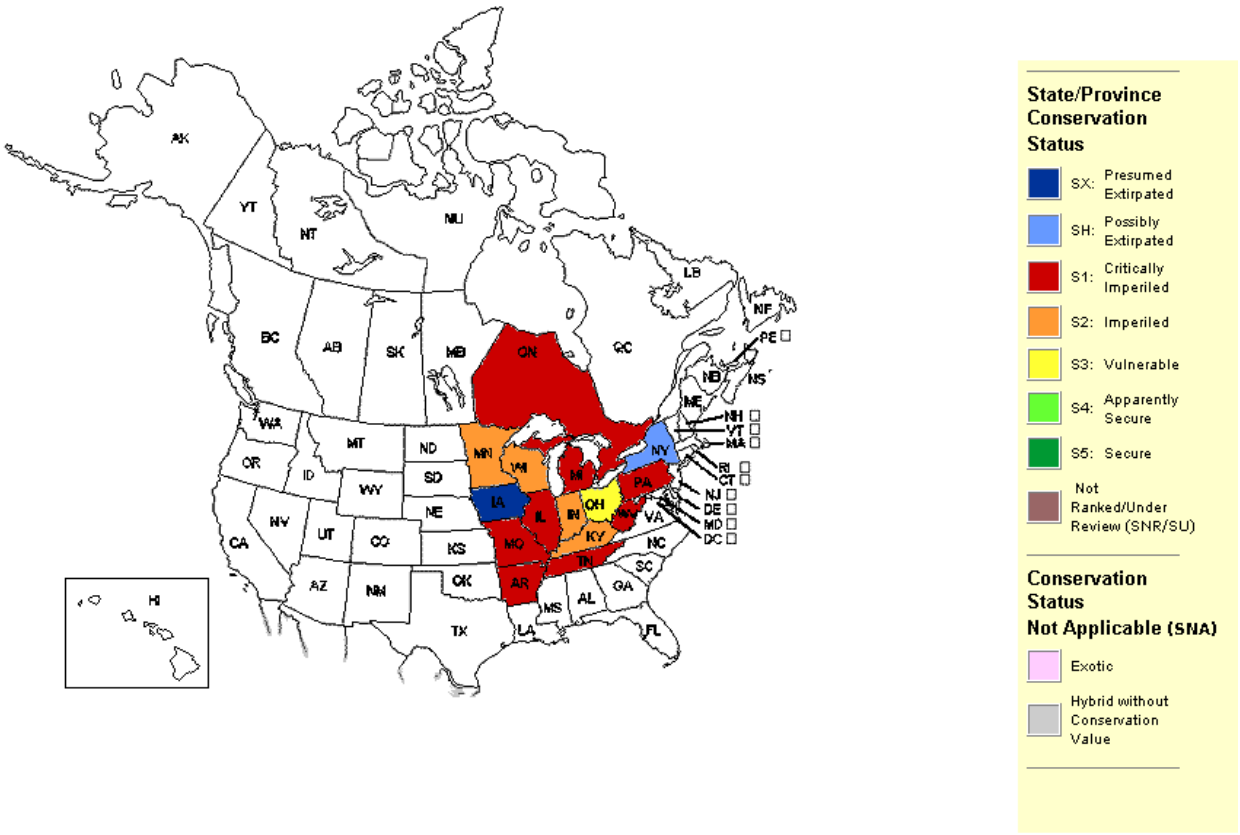
Mr. Cummings' explanation that he believes finding shells at several locations since 2000 equates to presence of a live population prompted Ms. Mankowski to investigate further the terminology/criteria for different categories of "dead" mussels reported to the Database - EOs are qualified variously as "fresh dead", "recent dead", "dead", "dead with flesh intact", "dead with slight weathering", "weathered", "relict", "prehistoric", "historic", and "ancient". That investigation identified that there are inconsistencies in terminology use and direction for EO reporting for mussels and while several experts have fairly recently come to agree on "accepted" terminology, not all are using it and since the "accepted" terminology is not dictated in the EO reporting form, any individual submitting data may use any variety of terms. To correct this problem going forward, Ms. Mankowski is working with IDNR Natural Heritage Database staff to draft new EO reporting forms that will require the reporter to identify observations as "live", "dead" (dead animals with at least some flesh still present and/or nacre still lustrous), and "relict" (dead animals that lack any flesh still present and/or nacre still lustrous). Using this definition of "dead", she agrees that for this species, most "dead" observations equate to at least recent presence of a live population.

Based on what is explained above, when Ms. Mankowski prepared her 12/14/12 1st cut mussel list review, it appears that she attributed a more distant timeframe than appropriate to occurrence records with a variety of "dead" designations and so considered "dead" observations as more historic and not representative of at least recent presence of a live population.

Mankowski recommendation for 1st cut final mussel list review
No change in status - data do not warrant change.

Mankowski note with regard to the Board funding surveys for the species – ESPB staff list review investigations for this species informed ESPB staff that IDNR is still conducting work under a nearly $500,000 State Wildlife Grant to survey for mussels statewide and is looking to incorporate systematic mussel surveys into ongoing Basin Surveys for fish (statewide on a 5-year cycle) funded by IDNR (including Dingle-Johnson funds) and IEPA. Ms. Mankowski communicated with IDNR Watershed Protection Section Head, Ann Holtrop, about including IL E&T mussels in these respective surveys. Ms. Mankowski recommends against the Board funding additional surveys at this time.

Simpsonaias ambigua



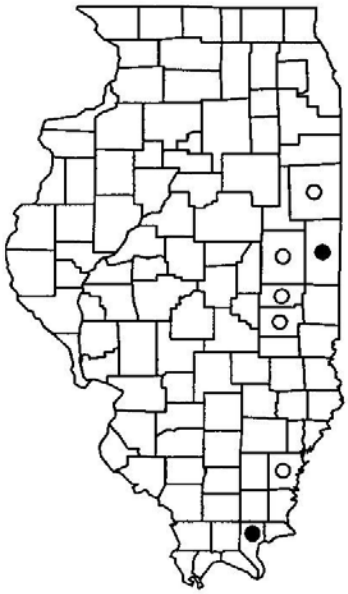
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Purple Lilliput, Toxolasma lividus (Illinois endangered)

Listed as IL E, 3/17/1989
Reason for listing: restricted habitats or low pops in IL;

Toxolasma lividus (Rafinesque)

PURPLE LILLIPUT **UNIONIDAE** **Status:** Endangered in Illinois



Present Distribution: The purple lilliput is found from the Ohio River drainage south to Arkansas and Georgia (Parmalee 1967). In Illinois, it still occurs in the Ohio and Vermilion river drainages.
Former Illinois Distribution: In Illinois, this mussel is restricted to tributaries of the Wabash and Ohio rivers, where it has usually been considered to be relatively uncommon or rare. (Baker 1906, Parmalee 1967).
Habitat: The purple lilliput is occasionally found in small streams on mud substrates but apparently prefers sand or fine gravel beds in shallow running water (Parmalee 1967, Oesch 1984).
Reason for Status: Populations of this mussel have declined in Illinois presumably due to increased siltation, pollution, and channelization.
Management Recommendations: Streams in which this species occurs should receive increased protection from agricultural runoff and municipal and industrial pollution. Maintenance of flowing water in riffle areas with suitable water quality, and avoidance of stream modifications such as dredging and impoundments are also need for protection of this species in Illinois.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-09-10	12	11	1	8	4	4

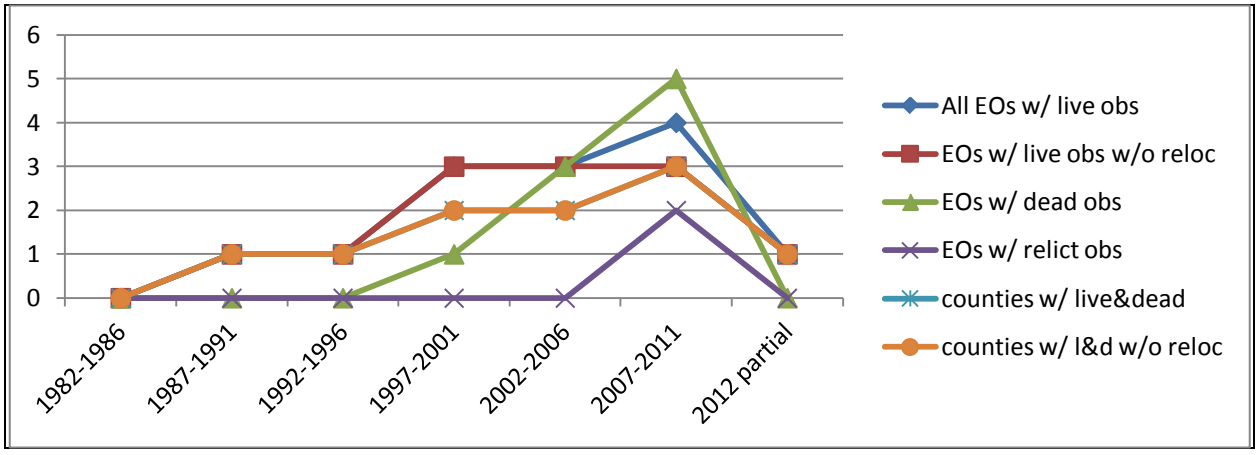
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

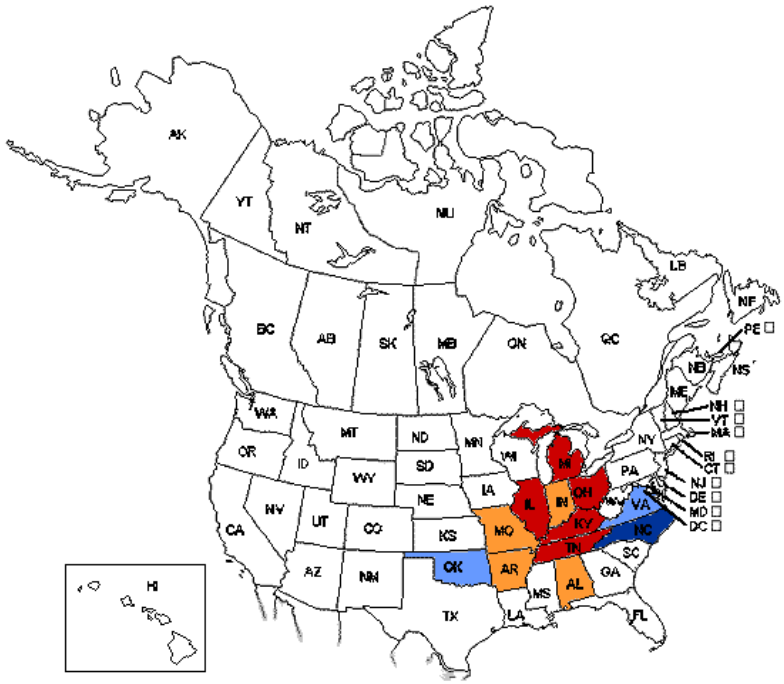
	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	0	1	1	3	3	4 [1]	1
EOs w/ dead obs	0	0	0	1	3	5	0
EOs w/ relict obs	0	0	0	0	0	2	0
Total EOs w/ live&dead	0	1	1	3	4	7 [1]	1
counties w/ live&dead	0	1	1	2	2	3	1

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
07/2011	1 (1)	1	1	11%	14%



Toxolasma lividum



State/Province Conservation Status

- SX: Presumed Extirpated
- SH: Possibly Extirpated
- S1: Critically Imperiled
- S2: Imperiled
- S3: Vulnerable
- S4: Apparently Secure
- S5: Secure
- Not Ranked/Under Review (SNR/SU)

Conservation Status

Not Applicable (SNA)

- Exotic
- Hybrid without Conservation Value

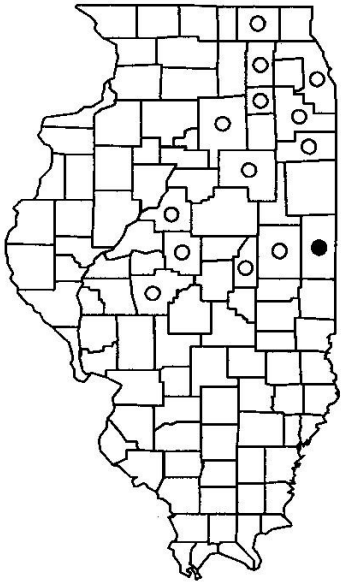
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Rainbow, Villosa iris (Illinois endangered)

Listed as IL E, 3/17/1989
Reason for listing: restricted habitats or low pops in IL;

Villosa iris (Lea)

RAINBOW **UNIONIDAE** **Status:** Endangered in Illinois



Present Distribution: The rainbow occurs in the upper Mississippi and Ohio river drainages (Parmalee 1967). In Illinois, the rainbow is presently known only from the Vermilion River system (Cummings and Mayer 1992).
Former Illinois Distribution: The rainbow once inhabited creeks and small to medium sized shallow rivers in the northeastern half of the state (Baker 1906, Parmalee 1967). It has apparently been extirpated from most of its former range in Illinois.
Habitat: The rainbow inhabits creeks and small to medium sized rivers, where it occurs on sandy or sand/mud bottom substrates, in or below riffles, usually in less than 1 m of water (Parmalee 1967).
Reason for Status: Populations of the rainbow have declined in Illinois presumably as a result of increased siltation, channelization, and pollution.
Management Recommendations: Streams in which this species occurs should receive increased protection from herbicides, pesticides, and industrial agricultural, and domestic pollution.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

Illinois – Natural Heritage (Biotics 4) Database – last updated, November 2012
(EO = element occurrence and is roughly equivalent to one or more local individuals)

The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2011-10-04	9	6	1	7	2	2

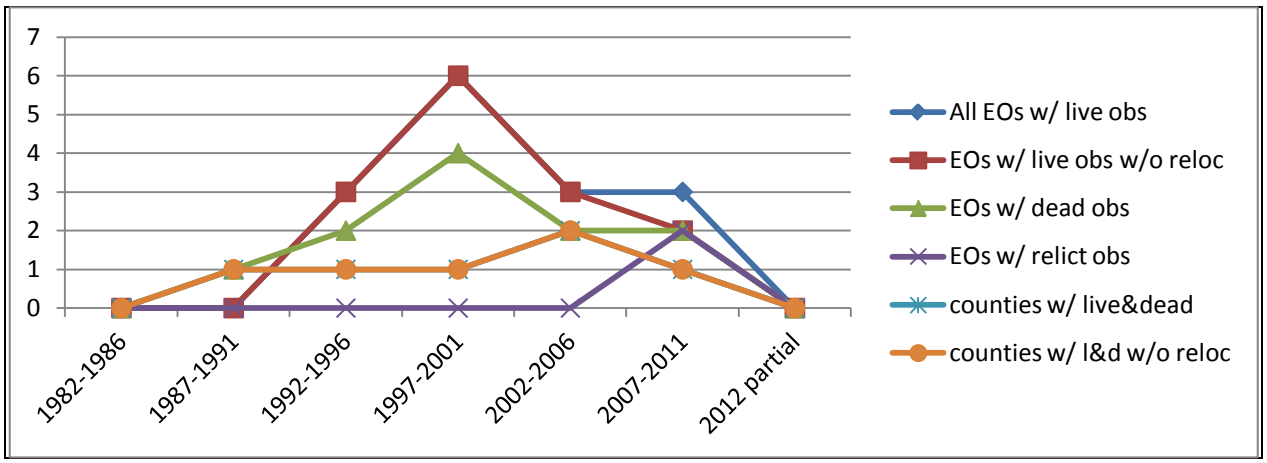
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

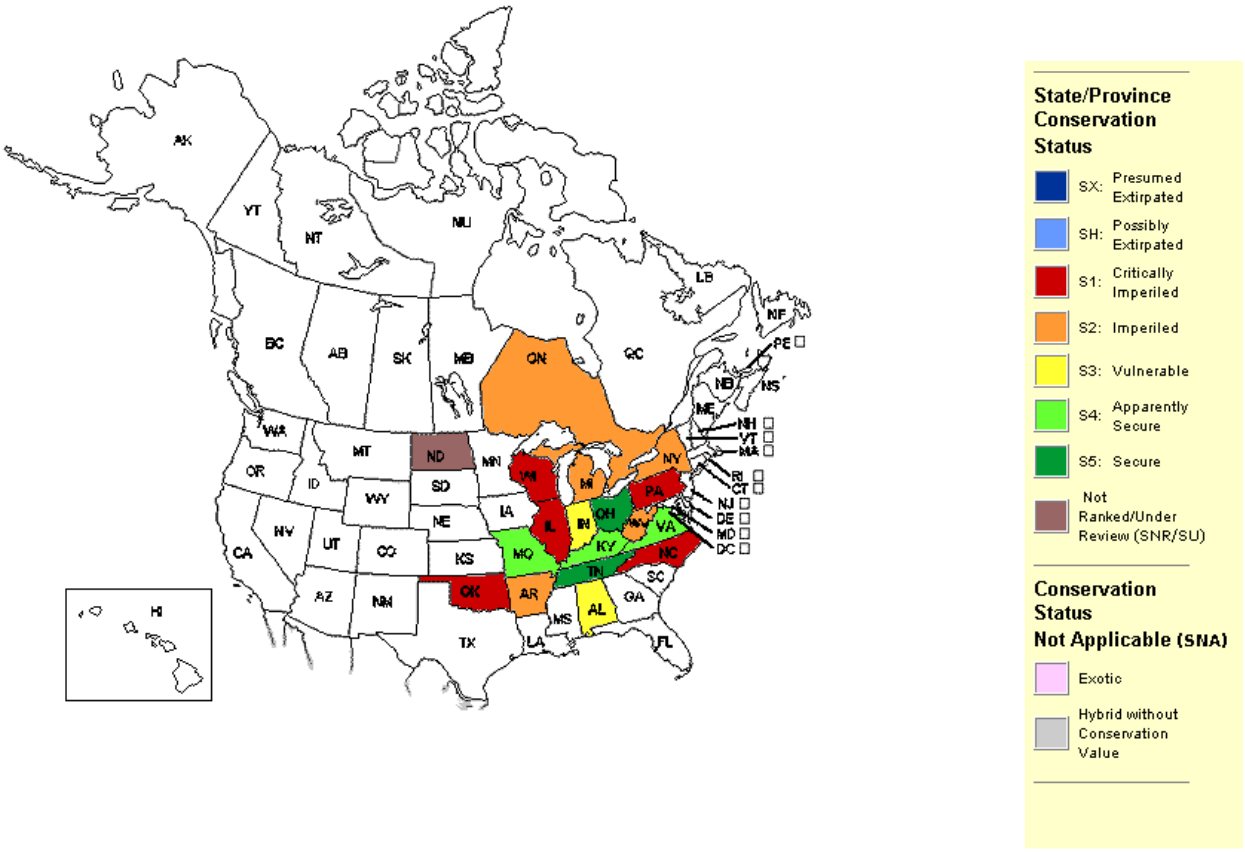
	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	0	0	3	6	3	3 [1]	0
EOs w/ dead obs	0	1	2	4	2	2	0
EOs w/ relict obs	0	0	0	0	0	2	0
Total EOs w/ live&dead	0	1	3	7	3	4 [1]	0
counties w/ live&dead	0	1	1	1	2	1	0

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
07/2011	1 (1)	1	1	11%	20%



Villosa iris



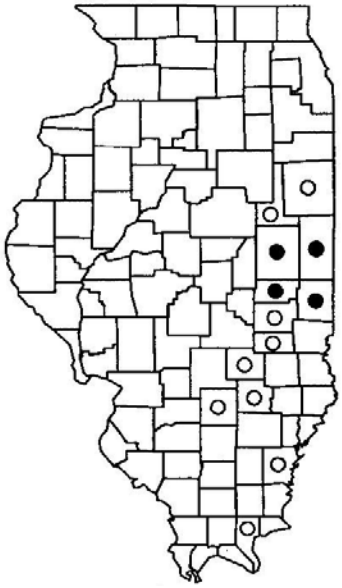
NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).

Little Spectaclecase, Villosa lienosa (Illinois threatened)

Listed as IL E, 3/17/1989; Listed as IL T, 9/1/2004
Reason for listing: formerly widespread, but nearly extirpated from IL due to habitat destruction, collecting, or other development pressures;

Villosa lienosa (Conrad)

LITTLE SPECTACLECASE **UNIONIDAE** **Status:** Threatened in Illinois



Present Distribution: The little spectaclecase is known from the lower Mississippi, Ohio, and Wabash river drainages south to northern Florida and west to Texas. In Illinois, it is presently restricted to the Wabash River drainage where it occurs in the Embarras, Little Vermilion, and Vermilion rivers.
Former Illinois Distribution: The little spectaclecase historically occurred in the Vermilion, Embarras, and Little Wabash Rivers (Cummings and Mayer 1992), but now is very sporadic in occurrence in eastern Illinois.
Habitat: This species inhabits streams and small rivers, and is usually found in shallow water on a sand/mud bottom (Parmalee 1967).
Reason for Status: Increased siltation, domestic, industrial, and agricultural pollution, and competition from exotic mussel species are all potential threats to this species in Illinois.
Management Recommendations: This species would benefit from better soil conservation measures designed to reduce agricultural runoff and pollution. Improved protection from industrial and municipal pollution would also benefit this species.

KEY

The narrative for each species is accompanied by a map of Illinois with county outlines shown. Counties from which the species in known to occur are shown as a solid circle; county records which may no longer be extant are shown as an open circle. An example of a species treatment is as follows:

Nÿboer, R.W., J.R. Herkert, and J.E. Ebinger, editors. 2006. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 2 - Animals. Illinois Endangered Species Protection Board, Springfield, Illinois. 181 pp.

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The table below uses live and dead (dead/recent dead/some weathering) observations and does not include relict (relict/sub-fossil/fossil) observations.

Last Observation	Total # Eos	Total seen since Jan 2002	# protected occurrences	# topo quads	# Counties	# Counties since 2002
2012-08-15	50	44	3	33	12	10

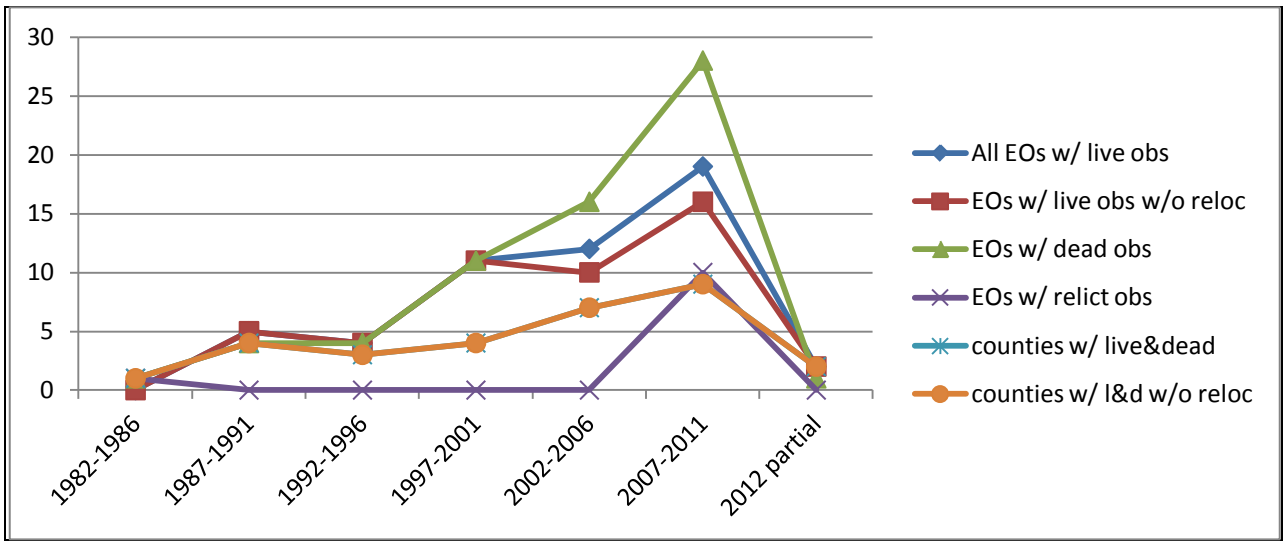
Observed EOs and counties with observations, for 5-year intervals, and any for 2012

The table and graph below have entries to indicate and separate the number of EOs where live animals were prescribed for relocation (as part of IDNR Incidental Take Authorization) or were relocated (as part of activities intended to help recover the species) during five-year interval with no subsequent observations, relative to the total number of EOs with live observations.

	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012 partial
EOs w/ live obs	0	5	4	11	12 [2]	19 [3]	2
EOs w/ dead obs	1	4	4	11	16	28	1
EOs w/ relict obs	1	0	0	0	0	10	0
Total EOs w/ live&dead	1	6	6	13	17 [2]	34 [3]	2
counties w/ live&dead	1	4	3	4	7	9	2

As terms are used in EO reports: live = live; dead = dead/recent dead/some weathering; relict = relict/sub-fossil/fossil
(#) = # of EOs where live individuals were relocated to another location as part of intended recovery activities, no subsequent observations
[#] = # of EOs where live individuals were prescribed for relocation as part of IDNR ITA, no subsequent observations

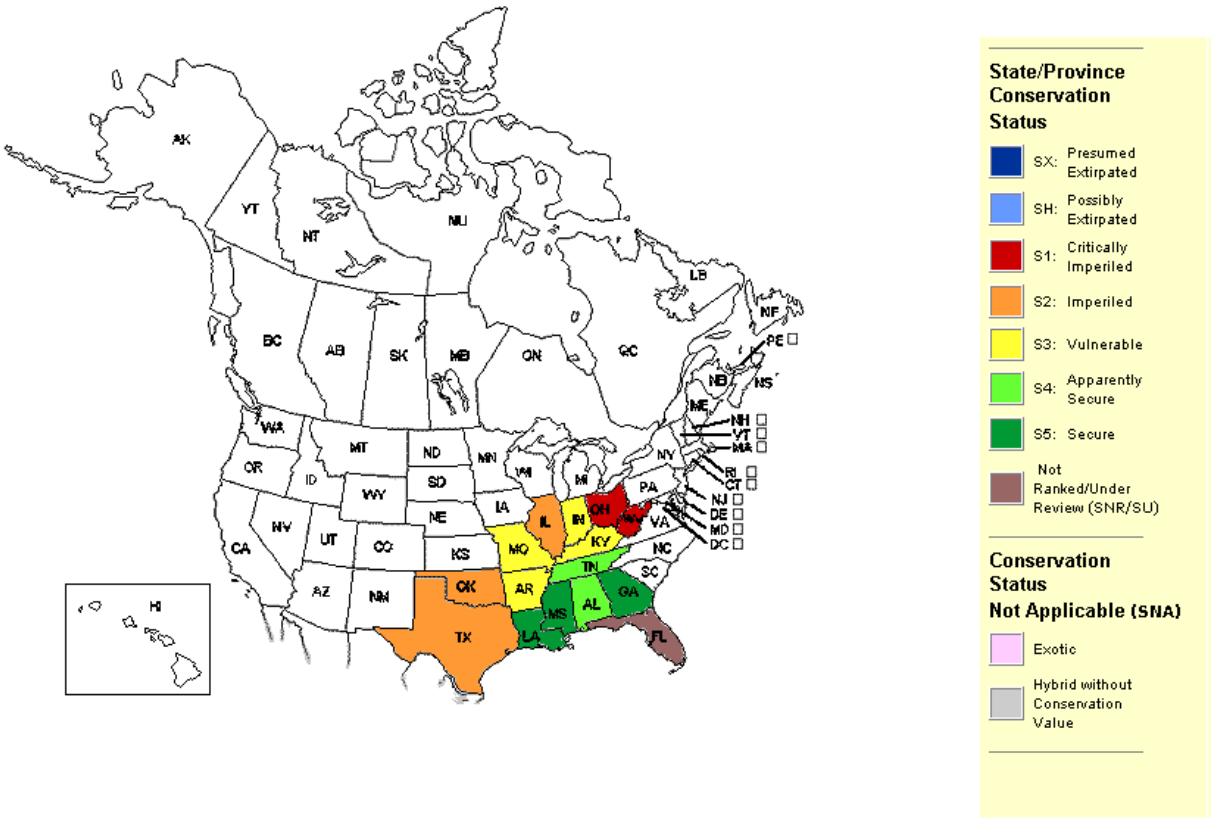
ESPB summary of potential IDNR Incidental Take Authorization impacts to species EOs					
EO and ITA info a/o	Total # of ITAs (# of counties)	# of potential ITA impacts to total EOs	# of potential ITA impacts to recent (< 10 yrs old) EOs	% of total EOs potentially impacted by ITAs	% of recent (<10 yrs old) EOs potentially impacted by ITAs
07/2011	5 (2)	5	5	12%	16%



Mankowski notes and recommendation:
Survey effort for this species has been thorough, with 94% of all EOs surveyed since 2002. The survey effort also correlates to the increase in observations from 1999-2011; there were 13 EOs, 18 EOs, and 39 EOs surveyed during the 1997-2001, 2002-2006, and 2007-2011 windows, respectively. Despite survey effort at 39 EOs in the most recent 5-year interval, live individuals were recorded at only 19 EOs (38% of total); the number is reduced to 16 EOs (32% of total) when the number of EOs where animals were prescribed for or relocated per incidental take authorization and with no subsequent observations, are subtracted. Since 2002, there have been observations of live animal in only 6 of the 11 Illinois counties with historic records. While live observation numbers have increased a good deal since the species was upgraded to threatened in 2004, it would be good to see the positive trend sustained into another 5-year interval.

Mankowski recommendation: - no change in status

Villosa lienosa



NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life (web application). Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed March 3, 2012).