MINNESOTA COUNTY BIOLOGICAL SURVEY: 1988 HERPETOLOGICAL SURVEYS

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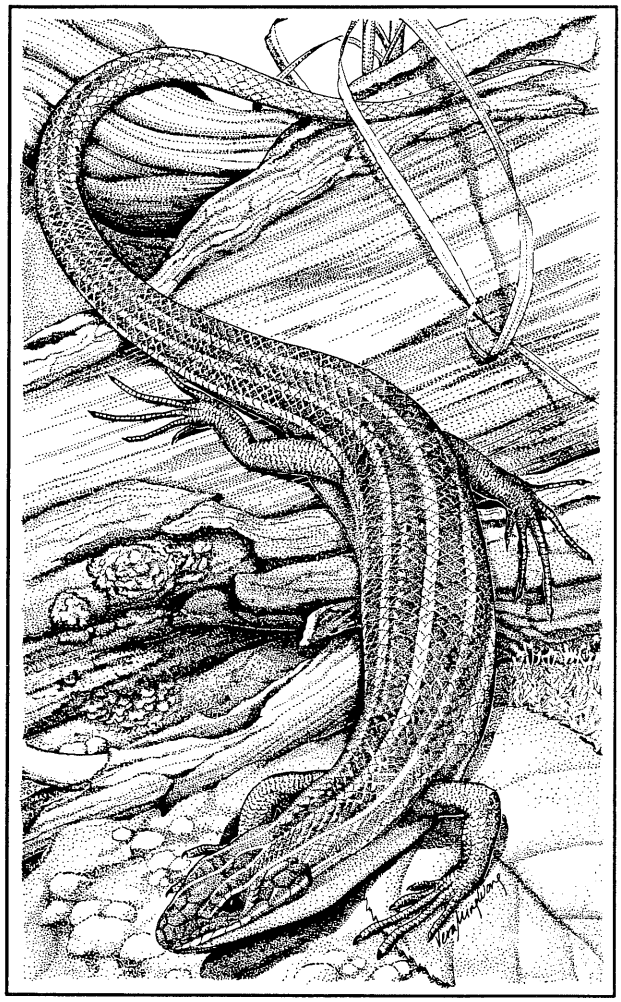

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BACKGROUND AND PRELIMINARY RESEARCH

Record Verification

The first step of the herp survey was to verify and confirm the existing amphibian and reptile records from Minnesota. Lang's 1982 Distribution Maps (Unpublished Report to Nongame) were used as base maps. The collections at the J.F. Bell Museum of Natural History were reviewed for additions. Requests were also sent to and received from 20 Museums and Universities (Appendix A) for a listing of their herp holding from Minnesota. Most museums had small holdings, but Carnegie Museum has over 400 collections and is the largest Minnesota collection next to the Bell Museum. They have a large series of Blanding's and wood turtles.

All new records were mapped. Records of elements were entered into the database. The entire database was reviewed and re-edited. All records without a voucher or photograph were changed from Verified to Sighting. Over 300 changes were made to the database. The majority of the changes were verification codes.

When the updates and corrections were complete, checklists (Appendix B) for the state and survey counties were developed. The lists included all 48 species, plus 4 possible border entrants, and their status in each county.

Species Accounts

Species Accounts (Appendix C) were developed for 19 high interest species. High interest species are most of the state listed species. Snapping turtles, fox snake, eastern hognose, and milksnake though of interest were not considered a high priority because of their relative abundance and wide habitat range. The map turtles and softshell turtles were included because of the lack of information on their distribution in the survey counties. The mudpuppy was included for the same reason. All of these species are restricted to large rivers. The possible border entrants, which includes 2 salamanders and 2 toads were included because of their chances of being located in the survey counties.

The species accounts include information on the species habitat, seasonal activity, breeding seasons, and searching techniques. There is also information on previous records and results of the 1988 surveys. These matrices helped identify what habitats high interest species would be found. This allowed for matching of rare habitats to high interest species in an easy format.

Site Selection

The priority sites were selected by using the background information for references. The first priority was to visit rare habitats that may support rare species. This included sand and bluff prairies in the east and outcrops in the west. The second priority was to check habitats that would harbor rare species. The better quality sites were selected for this priority by consulting with the plant ecologist for the county. Important natural area quality sites were also visited so that a complete survey package would be available for the site. The lowest priority were sites that "looked good" when passing or which were referred by a local contact.

The site selection was tied in with the breeding and activity dates of the high interest species. This way the visits would provide the best opportunity to locate the animal.

The prairie region of Minnesota has a lower diversity of herps than does the hardwood forest regions. The low diversity in the western counties meant a smaller number of high interest species (4) as compared to Washington County (10). The high interest species were found in only a limited number of habitats. These factors led to a less intensive survey in terms of number of days and total number of sites per area than was conducted in Washington County.

Survey Techniques

The majority of the survey was conducted using visual and hand searching. All areas were searched in the most promising habitats. Binoculars were used to scan wetlands and large outcrops. Hand searching of all appropriate cover (rocks, logs, and debris) was conducted. These techniques are useful, but not always productive if only one visit is made to the site.

Trapping and netting were used at several locations. Long-term drift fences were established in 4 habitats (bog, sedge meadow, lake border, and oak woods) in Warner Nature Center. Each fence had 3 pitfall traps and were operating from 7 June to 19 August (1022 trap nights). Their success for herps was low. Only 6 specimens of 3 species were collected. A large number of small mammals were collected and sent to E. Birney for inclusion in the mammal survey.

Turtle trapping was conducted at Carpenter and Belwin Nature Centers. Hoop nests were used at both locations. The Carpenter location on the St. Croix River had a total of 26 trap nights and 6 trap nights at Belwin. The biggest worry of turtle trapping was security of traps along the St. Croix River.

Recommendations for documenting herp records were developed for use by other biologists and the public (Appendix E). Information was sent to all of the nature centers, DNR offices and CBS staff in an attempt to solicit additional records. This was successful in producing a few records. A statewide survey of Turtle Harvesters was conducted. This survey was helpful in filling in distribution gaps for many species, but not specifically helpful to the CBS counties.

Specimens collected during the survey were prepared and cataloged at the J.F. Bell Museum. Photos of specimens were cataloged in the J.F. Bell Museum Photo Collection. The vouchers will be available for future research and reference from the Museum. Copies of the catalogs are stored at the Department of Natural Resources, St. Paul. EORs were written for listed species.

Photographs of various habitats, species, and researchers were taken during all aspects of the field season. The photos were marked with the date, locality, and species. The photos are deposited with the Natural Heritage Program.

A site summary form (Appendix F) was completed for each site. The site summary forms were used to denote habitats important to herps. Detailed descriptions of the habitats were left to the plant ecologists. The site forms had a section for Herp Suitability. This ranking, from A to D, allowed for an assessment of sites even if no animals were found. The sites with B or better ranking were placed in a table (Appendix G).

The majority of the sites visited had negative results, in that no species of interest were found. Many of these sites had suitable habitat for a number of species. The species expected and the potential of locating them is included in the table.

SUMMARY OF 1988 SURVEY FINDINGS

Weather Effects

The 1988 field season was a mixed success for amphibian and reptile work. The extremely hot (record 44 days above 90° F) and dry (8.9 in. April - August, 9.4 in. below normal) weather negatively effected the abundance and activity of many species, especially amphibians. Early surveys of salamander breeding sites were fruitless because many sites were dry or very low. There was only one rainy night in the first month, the best salamander season, of the survey. The water levels of most wetlands and lakes dropped all summer.

The one group whose visibility was positively influenced by the low water were turtles. Observations were increased because of greater movement between wetlands. Populations were more concentrated in the remaining wetlands and lakes. Turtles along the St. Croix were forced out into the main channel. Basking time was decreased because of the high temperatures.

The effect of the extreme weather on searches for lizards and snakes is not known. Most species are highly secretive and are difficult to locate. The temperatures may have shifted normal activity patterns to a more nocturnal pattern. The success rate for locating snakes was, in part, due to DOR specimens.

Washington County

The objectives of the amphibian and reptiles surveys in Washington County were to: 1. Search for and locate species of high interest, including 6-lined racerunner, timber rattlesnake, and blue racer (represented by old records); 2. Search high priority CBS sites (determined by J. Almendinger); 3. Search for other areas and species that were not originally identified.

Twenty six species of amphibians and reptiles were recorded during the survey in Washington County. (Appendix H). Three of these were new vouchers or sightings for the county. A total of 22 EORs were written, 10 vouchers and 12 sightings. The sightings were all Blanding's turtle reports from the Nongame Program turtle survey. The total number of Herp EORs for Washington Co. prior to the survey was 21, 15 vouchers, 6 sightings. The 1988 CBS work doubled the amphibian and reptile EORs for the county.

A total of 54 sites were visited during the course of the season. Many sites were revisited to check for species active during different times of the year. A total of 40 days, between April 4 and September 8, were spent in Washington County.

Twenty-nine of the 54 sites visited were better than average for herp habitat (Appendix I). The sites in the county that provided the most specialized and limiting habitats were the beaches along the St. Croix and the sand and bluff prairies in the southern half of the county. The other habitat types that were critical were the seeps , large streams, and large woodlands.

The specific sites of special interest include:

McLeod Slough Beach (#181) which is a large sand beach at the north end of the island. This is an important nesting beach for both species of softshells, map turtles, and snapping turtles. The beach is also a major stopping point for canoeists. There was evidence of over 100 canoes on the beach in one day in early June. There is also picnicking and camping that takes place on the beach. The access to this beach and other sand beaches, including Afton S.P. (#17) and Carpenter N.C. (#3), needs to be limited between June 1 to September 1. This will allow the turtles to nest and to protect the nests from being compacted by humans.

Grey Cloud Dunes (#39, 40, 42) is a large sand prairie, sand dune complex. It is one of two blue racer localities. It is also the most likely site for six lined racerunners. No lizards were seen in 1988 even though 4 visits were made to the site. The only record from the county for this lizard is from this general locality. The lower end of the prairie borders the Mississippi River and provides important turtle nesting habitat. The dunes area is currently used by ATVs. A portion of the tract is for sale. This site should be acquired or otherwise protected. The ATV use should be stopped. The sumac stands on the west side of the RR track should be thinned.

Bayport WMA (#78) is a sand prairie/savannah complex. No listed species were found, but the habitat is ideal for blue racer, bullsnakes, and possibly six lined racerunners. The Area Wildlife Manager recently toured the site with J. Almendinger to develop a better management plan.

Two Nature Centers provide large areas of diverse habitat. **Warner N.C.** (#133) has a mixture of oak woodlands, lakes, and open bog. This area was trapped using drift fences, in hopes of finding

salamanders, though none were found. Warner does have Blanding's turtles, which are currently being studied by T. Anderson. **Belwin N.C.** (#61) has a variety of habitats. The two important ones are the sand prairie, where blue racers were found, and a high quality trout stream. There have been reports of wood turtles from this stream. Belwin also has Blanding's turtles.

Highlighted Species for Washington County

Species Found or Reported

Fox Snake - Four new records were found during the 1988 survey, all were DORs. There was also a report of a large hibernaculum at Carpenter Nature Center. This snake is relatively common in the county and is found in a number of habitats.

Blue Racer - Two new records were found in 1988. There has previously been only 1 specimen. Both specimens were found in areas of sand or bluff prairie. The blue racer is rare in the county and is probably restricted to the few prairie sites along the St. Croix and Mississippi Rivers.

Smooth Softshell –The first specimen for the county was collected during the 1988 survey. This is the first record north of Prairie Island in Goodhue county. This turtle is limited to the major rivers in the state. The nesting habitat along the St. Croix is declining because of development and recreational use.

False Map Turtle – One specimen was collected and several sightings were made during the 1988 survey. There were three previous collections from the St. Croix. This turtle is found in all the major rivers and appears to be doing well.

Ouachita Map Turtle – One sighting of this turtle was made at Carpenter Nature Center. There are no specimens north of Prairie Island. This is one of the rarer turtles in the state, but its taxonomic status is in question.

Eastern Hognose – One DOR specimen was collected during this survey. There are other reports of this snake from the county. The hognose will use a variety of habitats and is relatively secretive.

Blanding's Turtle – 3 specimens/photos were collected during 1988. An additional 12 reports were sent to the DNR. A number of sites were visited with good habitat, though turtles were not seen. Blanding's turtles use a variety of habitats from small bogs to open lakes. One study is being conducted a Warner Nature Center using radio-marked turtles.

Eastern Milksnake – No snakes were seen, but Tom Anderson of Warner N.C. provided a slide of a specimen from the Nature Center. This is a highly secretive snake and numerous records are not expected.

Wood Turtle – No specimens were seen, but sightings were reported by Dwain Warner at Belwin N.C.. The stream that runs through Belwin and Charles Bell's property is the only stream in the County with appropriate habitat.

Species Not Found

Timber Rattlesnake – There is only one record from Washington County and that was collected in the 1960's. The specimen was from Denmark Tsp., which is across the St. Croix from Kinnickinnic River. The Kinnickinnic River has a good population and the one Washington County record may have been a straggler from Wisconsin. There is no good habitat in the Denmark area.

6-lined Racerunner – There is one old record (1899) from Grey Cloud Island. There is still good habitat along the Mississippi River in the area of Grey Cloud. This is an active lizard that is normally highly visible. Repeated visits were made to the better habitats. The continued existence of this lizard in Washington County is questioned.

Bullsnake – No specimens were seen in 1988, but there have been animals collected and sightings in the recent past. The warm weather may have caused this snake to retreat into gopher and ground squirrel burrows.

Salamanders (Spotted and Four-toed) – Searches were conducted for both of these species in April. The dry spring may have reduced their nesting activity. They are located within 100 meters of the St., Croix River on the Wisconsin side in habitat similar to that found in Washington county. There is still a good possibility that someday they will be found in Minnesota.

Additional Work Needed for Washington County

1. Continue survey of Belwin Nature Center for wood turtles.
2. Trap Grey Cloud Dunes for 6-lined racerunners.
3. Continue survey of the bluff prairies at Fairy Falls and the Boomsite for blue racers. There is an old record from that area.
4. Conduct additional turtle trapping on the St. Croix River. A general assessment of recruitment is needed.
5. Keep a look out for spotted and four-toed salamanders.

Western Counties

The objectives of the amphibian and reptiles surveys in the Western Counties were to: 1. Search for and locate species of high interest, including bullsnake and western hognose (represented by old records), and 5-lined skinks and spiny softshells; 2. Search high priority CBS sites (determined by CBS plant ecologists); 3. Search for other areas and species that were not originally identified.

Fifteen species of amphibians and reptiles were recorded from the western counties (Appendix H). A total of 20 new county records were found during the 1988 CBS work. Two EORs (1 voucher, 1 sighting) were written. This is a 50 % increase over the previous 4 EORs for the 6 county region.

A total of 63 sites were visited during the course of the season (Lac Qui Parle - 19, Big Stone - 5, Traverse - 2, Wilkin - 13, Clay - 13, Norman - 11). Several sites were revisited to check for species active during different times of the year. A total of 18 days, between April 19 and September 16, were spent in Western Counties.

Lac Qui Parle

Eleven of the 19 sites (Appendix G) visited were better than average herp habitat for the county. Two habitats with the best potential were the granite outcrops and good quality prairie with available water. This could either be adjacent lakes or areas of wet prairie / wetland. The better sites in Lac Qui Parle Co. are found in the Minnesota Valley Outwash. Yellow Bank Hills SNA is the only quality site outside of the outwash region.

The most interesting site was **Plover Prairie** (#11, 49, 51). This site had a combination of all three habitats. The outcrops were intensively searched for five-lined skinks. The prairie sections looked suitable for larger snakes, but none were found. The wet prairie areas were bone dry during the September visit. TNC crews should be aware of larger snakes and report any sightings. The outcrops should be acquired to protect this habitat from exploitation.

The outcrops in the **Big Stone National Wildlife Refuge** also appear to be good five-lined skink habitat. After extensive searching only prairie skinks were found. These outcrops are adjacent to the Minnesota River and would be good habitat for fox snakes.

Yellow Bank Hills SNA (#70) had a nice gravel prairie that would be good hognose and bullsnake habitat. No snakes were seen during the survey, but ground squirrel activity was extensive.

Big Stone

Only one site in Big Stone Co. (Appendix G) was better than average for herps. This was the **Big Stone NWR Outcrops** (#107). This site is part of the outcrop system that is found in Lac Qui Parle Co. across the river. This site has the same qualities and potential species.

Most of the prairie remnants along Big Stone Lake are not suitable for most herp species. There is a good chance that western hognose snakes occur there, but the success rate would be too low to justify a special survey.

Traverse

Only one site (Appendix G) appeared to be above average for the county. This is the **Reservation Dam WMA** at the north end of Lake Traverse. This was a large wetland at the mouth of the Mustinka River. No high interest species were found, but it is a good site for amphibians. A "Kandiyohi" type leopard frog was collected.

Wilkin

Four sites appeared better than average for herps in Wilkin Co. (Appendix G). The Rothsay prairie complex is the only site that has the potential to provide habitat for all of the possible species found on the prairie. There was a good combination of wetlands and prairie. No listed species were found during the survey, but a number of amphibians were found.

Clay

There were four sites of above average herp habitat in Clay County (Appendix G). All of the sites except for **Bluestem Prairie** (#94) were associated with woodlands. This is a restricted habitat for the region and makes it critical for some herp species. The sites with good woodland habitat include; **Buffalo River S.P.** (#97), **Foulball Lake** (#117), and **Ulen City Park**.

These sites had a number of the common herps and potential for others. Grey treefrogs were collected at Foulball Lake. This is the most westerly record for this species in the state.

Norman

Three sites were of above average quality for herps in Norman Co. (Appendix G). The only habitat that is unique and has the potential for rare species are the dune areas. These include **Agassiz Dunes SNA** (#12) and **Agsco Dunes** (# 9 & 10). Both of these sites have the potential for bullsnakes. Western hognose snakes have been collected or seen at both sites. Agsco is currently trying to sell their property. The area with the dune should be looked at for acquisition.

HIGHLIGHTED SPECIES FOR WESTERN COUNTIES

Species Found or Reported

Spiny Softshell (Lac Qui Parle, Big Stone, Norman)
The first specimen (photo) for Lac Qui Parle Co. was collected during the 1988 survey at the dam at LQP State Park. This is the furthest upstream for this species. An additional report was received from the Hwy 40 bridge on LQP Lake. No turtles were seen or reported from Big Stone Co. The Red River near Grand Forks has an old sighting, but no softshells were seen. Additional trapping of the Minnesota and Red River drainages may turn up more localities for this species.

Western Hognose (Lac Qui Parle, Big Stone, Traverse, Wilkin, Clay, Norman)
A photo of a hognose was received from C. Converse from LQP Co. This is the first documentation of this snake from the county. Reports were received from the manager of the Agsco property in Norman Co. There were no other reports or sightings from the other counties. The hot and dry weather may have caused a shift and reduction in the species activity. This species appears to be uncommon throughout the prairie region.

Snapping Turtle (Lac Qui Parle, Big Stone, Traverse, Wilkin, Clay, Norman)
The snapper was seen or collected in all the counties, except Traverse and Norman. There is no doubt that it is found in those two counties. This species should be found in all large wetlands, streams, rivers, and lakes.

Not Found

Fox Snake (Lac Qui Parle, Big Stone)
No fox snakes were reported from the counties. They are found in Yellow Medicine and Chippewa Co. in similar habitat to LQP and Big Stone Co. These snakes probably occur in these counties, especially along the Minnesota River. They are probably uncommon. The trouble with many large snakes is that they normally do not have high densities and are easily missed. Many records are from DOR specimens, but in the survey counties most of the good habitats have few roads. The roads that are present are not heavily traveled and thus less likely to produce DORs.

Bullsnake (Lac Qui Parle, Big Stone)
No specimens were seen in 1988. This snake has been collected in Yellow Medicine Co. in habitats similar to those in Lac Qui Parle and Big Stone Co. The Norman Co. record is an old record from near Fertile. There is still good habitat at Agassiz Dunes. If this snake is found in these counties, it should be considered rare. The warm weather may have caused this snake to retreat into gopher and ground squirrel burrows.

Milksnake (Lac Qui Parle, Big Stone)
No milksnakes were located during the 1988 survey. This is a highly secretive snake that is easily missed. There are records from Yellow Medicine and Chippewa Counties from similar habitat. This snake is probably found in the outcrop regions.

Five-lined Skink (Lac Qui Parle, Big Stone)
No skinks were seen during the 1988 survey. There had been a previous search for them in 1982. The outcrops along the Minnesota River look like good habitat. Searches were conducted during the times of the year when the skinks should have been active. These skinks probably do not exist in the counties.

Additional Work Needed for Western Counties

1. An intensive search of Agassiz and Agsco Dunes for bullsnakes.

2. Continue solicitation of reports on all listed species.

3. Any future work should be limited to Lac Qui Parle, Big Stone and Norman Cos. The other counties are too depauperate to expend any addition effort on.

RECOMMENDATIONS FOR FIELD SCHEDULES IN FUTURE COUNTY SURVEYS

1. Start after mid-April. The only possible species that would be missed is the wood frog.
2. Emphasize breeding amphibians and snake hibernacula until mid-May.
3. Mid-May through June emphasize basking and nesting turtles, large snakes and lizards.
4. July and August are slow months. Rainy days can be productive for newly metamorphed amphibians.
5. September is good for turtle trapping and searching for hatchling snakes and lizards. Cool rainy nights are good searching times for amphibians.
6. Mid-September is a good cut-off time.

The recommended field schedule is similar to the 1988 schedule. The activity times of the species of interest will fit this time scale if there are normal weather conditions. Extensive field work during July and August was not profitable. Other tasks should be undertaken during these months.

Recommendations for Future Field Techniques

1. A greater emphasis should be placed on fewer sites. Sites should be limited to a few high quality and high potential areas. These areas should have multiple visits in conjunction with trapping using proper techniques for species sought. Specific techniques can be found in Karns (1986).

2. Visual reconnaissance and debris flipping is only effective under proper conditions. The extremely hot, dry weather of 1988 lowered the effectiveness of these methods. Weather should be considered when planning field work.

3. Inform and educate area wildlife and fisheries personnel, nature centers, and the general public to species of interest. Information packets and news releases should be distributed early in the season. This is a very valuable source of information!

The 1988 survey tried to visit too many sites. Fewer sites should have been targeted. Trapping and intensive repeat visits would eliminate the use of one person for all the counties. The amount of area to be covered did not allow for intensive coverage of the west. In the case of the counties covered in 1988, this may not have been a problem.

The use of other DNR personnel and other interested parties needs to be increased. Presentations should be given at the Fisheries and Wildlife schools. The use of press releases should be increased.

APPENDIX A. MUSEUMS AND UNIVERSITIES CONTACTED FOR INFORMATION ON HERPETOLOGICAL HOLDING FROM MINNESOTA.

American Museum of Natural History
Academy of Natural Science
Carnegie Museum of Natural Science
Field Museum of Natural History
Milwaukee Public Museum
Museum of Comparative Zoology
National Museum of Natural History
Science Museum of Minnesota
Drake University
George Mason University
St. Cloud University
University of Colorado
University of Illinois
University of Kansas
University of Michigan
University of Minnesota-Duluth
University of Wisconsin-Madison
University of Wisconsin-Stevens Point
R.E. Olson - Private Collection

APPENDIX B. STATE AND COUNTY HERP LISTS

MINNESOTA REPTILES AND AMPHIBIANS

AMPHIBIANS

Species		Habitats	Present
Ambystoma laterale	blue-spotted salamander	C D M	
Ambystoma maculatum (BE)	spotted salamander	D M	
Ambystoma tigrinum	tiger salamander	D M WP	
Hemidactylum scutatum (BE)	4-toed salamander	B M	
Necturus maculosus	mudpuppy	L R	
Notopthalmus viridescens	central newt	M R	
Plethodon cinereus	redbacked salamander	C D	
Acris crepitans	cricket frog	M R	
Bufo americanus	American toad	GENERAL	
Bufo cognatus	great plains toad	M P SP	
Bufo hemiophrys	Canadian toad	M P SP	
Bufo woodhousei (BE)	Woodhouse's toad	M P SP	
Hyla chrysoscelis	Cope's treefrog	D P WP	
Hyla versicolor	gray treefrog	D M	
Pseudacris crucifer	spring peeper	M	
Pseudacris triseriata	chorus frog	GENERAL	
Rana catesbeiana	bullfrog	M R	
Rana clamitans	green frog	L M	
Rana palustris	pickeral frog	L M R	
Rana pipiens	leopard frog	GENERAL	
Rana septentrionalis	mink frog	B L	
Rana sylvatica	wood frog	B C D M	
Scaphiopus bombifrons (BE)	spadefoot toad	P SP WP	

REPTILES

Apalone muticus	smooth softshell	R	
Apalone spiniferus	spiny softshell	L R	
Chelydra serpentina	snapping turtle	L M R	
Chrysemys picta	painted turtle	B L M R	
Clemmys insculpta	wood turtle	D R	
Emydoidea blandingi	Blanding's turtle	M WP	
Graptemys geographica	map turtle	R	
Graptemys p. ouachitensis	Ouachita map	R	
Graptemys p. pseudogeographica	false map turtle	R	
Cnemidophorus sexlineatus	6-lined racerunner	GP S SP	
Eumeces fasciatus	5-lined skink	GP O	
Eumeces septentrionalis	prairie skink	GP S SP WP	
Coluber constrictor	blue racer	D GP	
Crotalus horridus	timber rattlesnake	D O	
Diadophis puntatus	ringnecked snake	D GP O	
Elaphe obsoleta	rat snake	D GP O	
Elaphe vulpina	fox snake	D M	
Heterodon nasicus	W. hognose	P SP WP	
Heterodon platyrhinos	E. hognose	D M WP	
Lampropeltis triangulum	milk snake	D GP O	
Nerodia sipedon	water snake	M R	
Opheodrys vernalis	green snake	GENERAL	
Pituophis melanoleucus	bullsnake	P S SP	
Sistrurus catenatus	massasauga	M R	
Storeria dekayi	brown snake	D	
Storeria occipitimaculata	red-bellied snake	GENERAL	
Thamnophis radix	plains garter	GENERAL	
Thamnophis sirtalis	eastern garter	GENERAL	
Tropidoclonion lineatum	lined snake	O P	

HABITATS

B = Bog	M = Marsh	SP = Sand Prairie
C = Conifer Forest	O = Outcrops	WP = Wet Prairie
D = Decid. Forst	P = Prairies	
GP = Goat Prairie	R = Rivers	
L = Lakes	S = Savannah	(BE) = possible border entrant

BIG STONE COUNTY
REPTILES AND AMPHIBIANS

AMPHIBIANS

Species	Status	Present		Habitats
Ambystoma laterale		_____	blue-spotted salamander	C D M
Ambystoma maculatum (BE)		_____	spotted salamander	D M
Ambystoma tigrinum	P	_____	tiger salamander	D M WP
Hemidactylum scutatum (BE)		_____	4-toed salamander	B M
Necturus maculosus	S*	_____	mudpuppy	L R
Notopthalmus viridescens		_____	central newt	M R
Plethodon cinereus		_____	redbacked salamander	C D
Acris crepitans		_____	cricket frog	M R
Bufo americanus	V	_____	American toad	GENERAL
Bufo cognatus	V*	_____	great plains toad	M P S
Bufo hemiophrys	V	_____	Canadian toad	M P SP
Bufo woodhousei (BE)	H*	_____	Woodhouse's toad	M P SP
Hyla chrysoscelis	P	_____	Cope's treefrog	D P WP
Hyla versicolor	P	_____	gray treefrog	D M
Pseudacris crucifer		_____	spring peeper	M
Pseudacris triseriata	V	_____	chorus frog	GENERAL
Rana catesbeiana		_____	bullfrog	M R
Rana clamitans		_____	green frog	L M
Rana palustris		_____	pickeral frog	L M R
Rana pipiens	V	_____	leopard frog	GENERAL
Rana septentrionalis		_____	mink frog	B L
Rana sylvatica		_____	wood frog	B C D M
Scaphiopus bombifrons (BE)	H*	_____	spadefoot toad	P SP WP

REPTILES

Apalone muticus	H*	_____	smooth softshell	R
Apalone spiniferus	P*	_____	spiny softshell	L R
Chelydra serpentina	S	_____	snapping turtle	L M R
Chrysemys picta	V	_____	painted turtle	B L M R
Clemmys insculpta		_____	wood turtle	D R
Emydoidea blandingi		_____	Blanding's turtle	M WP
Graptemys geographica	P*	_____	map turtle	R
Graptemys p. ouachitensis		_____	Ouachita map	R
Graptemys p. pseudogeographica		_____	false map turtle	R
Cnemidophorus sexlineatus		_____	6-lined racerunner	GP S SP
Eumeces fasciatus	H*	_____	5-lined skink	GP O
Eumeces septentrionalis	S	_____	prairie skink	GP S SP WP
Coluber constrictor		_____	blue racer	D GP
Crotalus horridus		_____	timber rattlesnake	D O
Diadophis puntatus		_____	ringnecked snake	D GP O
Elaphe obsoleta		_____	rat snake	D GP O
Elaphe vulpina	P*	_____	fox snake	D
Heterodon nasicus	V*	_____	W. hognose	P SP WP
Heterodon platyrhinos		_____	E. hognose	D M WP
Lampropeltis triangulum	P*	_____	milk snake	D GP O
Nerodia sipedon		_____	water snake	M R
Opheodrys vernalis	P	_____	green snake	GENERAL
Pituophis melanoleucus	P*	_____	bullsnake	P S SP
Sistrurus catenatus		_____	massasauga	M R
Storeria dekayi	P	_____	brown snake	D
Storeria occipitimaculata	S	_____	red-bellied snake	GENERAL
Thamnophis radix	S	_____	plains garter	GENERAL
Thamnophis sirtalis	P	_____	eastern garter	GENERAL
Tropidoclonion lineatum	H	_____	lined snake	O P

HABITATS

B = Bog	M = Marsh	SP = Sand Prairie
C = Conifer Forest	O = Outcrops	WP = Wet Prairie
D = Decid. Forst	P = Prairies	
GP = Goat Prairie	R = Rivers	
L = Lakes	S = Savannah	

KEY

V = verified specimen	1 = Specimen collocted
S = sighting	2 = Specimen photographed
P = probable	3 = Specimen seen
H = hopeful	4 = Specimen heard
* high interest species	(BE) = possible border entrant

CLAY COUNTY
REPTILES AND AMPHIBIANS

AMPHIBIANS

Species	Status	Present		Habitats
Ambystoma laterale		_____	blue-spotted salamander	C D M
Ambystoma maculatum (BE)		_____	spotted salamander	D M
Ambystoma tigrinum	P	_____	tiger salamander	D M WP
Hemidactylum scutatum (BE)		_____	4-toed salamander	B M
Necturus maculosus	P*	_____	mudpuppy	L R
Notopthalmus viridescens	P*	_____	central newt	M R
Plethodon cinereus		_____	redbacked sal.	C D
Acris crepitans		_____	cricket frog	M R
Bufo americanus	P	_____	American toad	GENERAL
Bufo cognatus	V*	_____	great plains toad	M P S
Bufo hemiophrys	V	_____	Canadian toad	M P SP
Bufo woodhousei (BE)	H*	_____	Woodhouse's toad	M P SP
Hyla chrysoscelis	H	_____	Cope's treefrog	D P WP
Hyla versicolor	H	_____	gray treefrog	D M
Pseudacris crucifer		_____	spring peeper	M
Pseudacris triseriata	V	_____	chorus frog	GENERAL
Rana catesbeiana		_____	bullfrog	M R
Rana clamitans		_____	green frog	L M
Rana palustris		_____	pickeral frog	L M R
Rana pipiens	V	_____	leopard frog	GENERAL
Rana septentrionalis		_____	mink frog	B L
Rana sylvatica	P	_____	wood frog	B C D M
Scaphiopus bombifrons (BE)		_____	spadefoot toad	P SP WP

REPTILES

Apalone muticus		_____	smooth softshell	R
Apalone spiniferus	H*	_____	spiny softshell	L R
Chelydra serpentina	P	_____	snapping turtle	L M R
Chrysemys picta	P	_____	painted turtle	B L M R
Clemmys insculpta		_____	wood turtle	D R
Emydoidea blandingi		_____	Blanding's turtle	M WP
Graptemys geographica		_____	map turtle	R
Graptemys p. ouachitensis		_____	Ouachita map	R
Graptemys p. pseudogeographica		_____	false map turtle	R
Cnemidophorus sexlineatus		_____	6-lined racerunner	GP S SP
Eumeces fasciatus		_____	5-lined skink	GP O
Eumeces septentrionalis	V	_____	prairie skink	GP S SP WP
Coluber constrictor		_____	blue racer	D GP
Crotalus horridus		_____	timber rattlesnake	D O
Diadophis punctatus		_____	ringnecked snake	D GP O
Elaphe obsoleta		_____	rat snake	D GP O
Elaphe vulpina		_____	fox snake	D
Heterodon nasicus	V*	_____	W. hognose	P SP WP
Heterodon platyrhinos		_____	E. hognose	D M WP
Lampropeltis triangulum		_____	milk snake	D GP O
Nerodia sipedon		_____	water snake	M R
Opheodrys vernalis	P	_____	green snake	GENERAL
Pituophis melanoleucus	H	_____	bullsnake	P S SP
Sistrurus catenatus		_____	massasauga	M R
Storeria dekayi		_____	brown snake	D
Storeria occipitimaculata	S	_____	red-bellied snake	GENERAL
Thamnophis radix	V	_____	plains garter	GENERAL
Thamnophis sirtalis	V	_____	eastern garter	GENERAL
Tropidoclonion lineatum		_____	lined snake	O P

HABITATS

B = Bog	M = Marsh	SP = Sand Prairie
C = Conifer Forest	O = Outcrops	WP = Wet Prairie
D = Decid. Forst	P = Prairies	
GP = Goat Prairie	R = Rivers	
L = Lakes	S = Savannah	

KEY

V = verified specimen
S = sighting
P = probable
H = hopeful
* high interest species

CODES

1 = Specimen collocted
2 = Specimen photographed
3 = Specimen seen
4 = Specimen heard
(BE) = possible border entrant

LAC QUI PARLE COUNTY
REPTILES AND AMPHIBIANS

AMPHIBIANS

Species	Status	Present		Habitats
Ambystoma laterale		_____	blue-spotted salamander	C D M
Ambystoma maculatum (BE)		_____	spotted salamander	D M
Ambystoma tigrinum	V	_____	tiger salamander	D M WP
Hemidactylum scutatum (BE)		_____	4-toed salamander	B M
Necturus maculosus	P*	_____	mudpuppy	L R
Notopthalmus viridescens		_____	central newt	M R
Plethodon cinereus		_____	redbacked sal.	C D
Acris crepitans		_____	cricket frog	M R
Bufo americanus	P	_____	American toad	GENERAL
Bufo cognatus	V*	_____	great plains toad	M P S
Bufo hemiophrys	V	_____	Canadian toad	M P SP
Bufo woodhousei (BE)	H*	_____	Woodhouse's toad	M P SP
Hyla chrysoscelis	P	_____	Cope's treefrog	D P WP
Hyla versicolor	P	_____	gray treefrog	D M
Pseudacris crucifer		_____	spring peeper	M
Pseudacris triseriata	V	_____	chorus frog	GENERAL
Rana catesbeiana		_____	bullfrog	M R
Rana clamitans		_____	green frog	L M
Rana palustris		_____	pickeral frog	L M R
Rana pipiens	V	_____	leopard frog	GENERAL
Rana septentrionalis		_____	mink frog	B L
Rana sylvatica		_____	wood frog	B C D M
Scaphiopus bombifrons (BE)	H*	_____	spadefoot toad	P SP WP

REPTILES

Apalone muticus	H*	_____	smooth softshell	R
Apalone spiniferus	S*	_____	spiny softshell	L R
Chelydra serpentina	P	_____	snapping turtle	L M R
Chrysemys picta	P	_____	painted turtle	B L M R
Clemmys insculpta		_____	wood turtle	D R
Emydoidea blandingi		_____	Blanding's turtle	M WP
Graptemys geographica		_____	map turtle	R
Graptemys p. ouachitensis		_____	Ouachita map	R
Graptemys p. pseudogeographica	H*	_____	false map turtle	R
Cnemidophorus sexlineatus		_____	6-lined racerunner	GP S SP
Eumeces fasciatus	H*	_____	5-lined skink	GP O
Eumeces septentrionalis	V	_____	prairie skink	GP S SP WP
Coluber constrictor		_____	blue racer	D GP
Crotalus horridus		_____	timber rattlesnake	D O
Diadophis puntatus		_____	ringnecked snake	D GP O
Elaphe obsoleta		_____	rat snake	D GP O
Elaphe vulpina	P*	_____	fox snake	D
Heterodon nasicus	V*	_____	W. hognose	P SP WP
Heterodon platyrhinos		_____	E. hognose	D M WP
Lampropeltis triangulum	P*	_____	milk snake	D GP O
Nerodia sipedon		_____	water snake	M R
Opheodrys vernalis	P	_____	green snake	GENERAL
Pituophis melanoleucus	P*	_____	bullsnake	P S SP
Sistrurus catenatus		_____	massasauga	M R
Storeria dekayi		_____	brown snake	D
Storeria occipitimaculata	P	_____	red-bellied snake	GENERAL
Thamnophis radix	P	_____	plains garter	GENERAL
Thamnophis sirtalis	S	_____	eastern garter	GENERAL
Tropidoclonion lineatum	H	_____	lined snake	O P

HABITATS

B = Bog	M = Marsh	SP = Sand Prairie
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D = Decid. Forst	P = Prairies	
GP = Goat Prairie	R = Rivers	
L = Lakes	S = Savannah	

KEY

V = verified specimen
S = sighting
P = probable
H = hopeful
* high interest species

CODES

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(BE) = possible border entrant

NORMAN COUNTY
REPTILES AND AMPHIBIANS

AMPHIBIANS

Species	Status	Present		Habitats
Ambystoma laterale		_____	blue-spotted salamander	C D M
Ambystoma maculatum (BE)		_____	spotted salamander	D M
Ambystoma tigrinum	V	_____	tiger salamander	D M WP
Hemidactylum scutatum (BE)		_____	4-toed salamander	B M
Necturus maculosus	V*	_____	mudpuppy	L R
Notopthalmus viridescens		_____	central newt	M R
Plethodon cinereus		_____	redbacked salamander	C D
Acris crepitans		_____	cricket frog	M R
Bufo americanus	V	_____	American toad	GENERAL
Bufo cognatus	V*	_____	great plains toad	M P S
Bufo hemiophrys	V	_____	Canadian toad	M P SP
Bufo woodhousei (BE)		_____	Woodhouse's toad	M P SP
Hyla chrysoscelis	H	_____	Cope's treefrog	D P WP
Hyla versicolor	V	_____	gray treefrog	D M
Pseudacris crucifer		_____	spring peeper	M
Pseudacris triseriata	V	_____	chorus frog	GENERAL
Rana catesbeiana		_____	bullfrog	M R
Rana clamitans		_____	green frog	L M
Rana palustris		_____	pickeral frog	L M R
Rana pipiens	V	_____	leopard frog	GENERAL
Rana septentrionalis	P	_____	mink frog	B L
Rana sylvatica	V	_____	wood frog	B C D M
Scaphiopus bombifrons (BE)		_____	spadefoot toad	P SP WP

REPTILES

Apalone muticus		_____	smooth softshell	R
Apalone spiniferus	H*	_____	spiny softshell	L R
Chelydra serpentina	P	_____	snapping turtle	L M R
Chrysemys picta	P	_____	painted turtle	B L M R
Clemmys insculpta		_____	wood turtle	D R
Emydoidea blandingi		_____	Blanding's turtle	M WP
Graptemys geographica		_____	map turtle	R
Graptemys p. ouachitensis		_____	Ouachita map	R
Graptemys p. pseudogeographica		_____	false map turtle	R
Cnemidophorus sexlineatus		_____	6-lined racerunner	GP S SP
Eumeces fasciatus		_____	5-lined skink	GP O
Eumeces septentrionalis	V	_____	prairie skink	GP S SP WP
Coluber constrictor		_____	blue racer	D GP
Crotalus horridus		_____	timber rattlesnake	D O
Diadophis puntatus		_____	ringnecked snake	D GP O
Elaphe obsoleta		_____	rat snake	D GP O
Elaphe vulpina		_____	fox snake	D
Heterodon nasicus	V*	_____	W. hognose	P SP WP
Heterodon platyrhinos		_____	E. hognose	D M WP
Lampropeltis triangulum		_____	milk snake	D GP O
Nerodia sipedon		_____	water snake	M R
Opheodrys vernalis	P	_____	green snake	GENERAL
Pituophis melanoleucus	H*	_____	bullsnake	P S SP
Sistrurus catenatus		_____	massasauga	M R
Storeria dekayi		_____	brown snake	D
Storeria occipitimaculata	P	_____	red-bellied snake	GENERAL
Thamnophis radix	V	_____	plains garter	GENERAL
Thamnophis sirtalis	V	_____	eastern garter	GENERAL
Tropidoclonion lineatum		_____	lined snake	O P

HABITATS

B = Bog	M = Marsh	SP = Sand Prairie
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GP = Goat Prairie	R = Rivers	
L = Lakes	S = Savannah	

KEY

V = verified specimen
S = sighting
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H = hopeful
* high interest species

CODES

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4 = Specimen heard
(BE) = possible border entrant

TRAVERSE COUNTY
REPTILES AND AMPHIBIANS

AMPHIBIANS

Species	Status	Present		Habitats
Ambystoma laterale		_____	blue-spotted salamander	C D M
Ambystoma maculatum (BE)		_____	spotted salamander	D M
Ambystoma tigrinum	V	_____	tiger salamander	D M WP
Hemidactylum scutatum (BE)		_____	4-toed salamander	B M
Necturus maculosus	P*	_____	mudpuppy	L R
Notopthalmus viridescens		_____	central newt	M R
Plethodon cinereus		_____	redbacked salamander	C D
Acris crepitans		_____	cricket frog	M R
Bufo americanus	V	_____	American toad	GENERAL
Bufo cognatus	V*	_____	great plains toad	M P S
Bufo hemiophrys	V	_____	Canadian toad	M P SP
Bufo woodhousei (BE)	H*	_____	Woodhouse's toad	M P SP
Hyla chrysoscelis	P	_____	Cope's treefrog	D P WP
Hyla versicolor	H	_____	gray treefrog	D M
Pseudacris crucifer		_____	spring peeper	M
Pseudacris triseriata	S	_____	chorus frog	GENERAL
Rana catesbeiana		_____	bullfrog	M R
Rana clamitans		_____	green frog	L M
Rana palustris		_____	pickeral frog	L M R
Rana pipiens	V	_____	leopard frog	GENERAL
Rana septentrionalis		_____	mink frog	B L
Rana sylvatica		_____	wood frog	B C D M
Scaphiopus bombifrons (BE)	H*	_____	spadefoot toad	P SP WP

REPTILES

Apalone muticus		_____	smooth softshell	R
Apalone spiniferus	H*	_____	spiny softshell	L R
Chelydra serpentina	P	_____	snapping turtle	L M R
Chrysemys picta	P	_____	painted turtle	B L M R
Clemmys insculpta		_____	wood turtle	D R
Emydoidea blandingi		_____	Blanding's turtle	M WP
Graptemys geographica		_____	map turtle	R
Graptemys p. ouachitensis		_____	Ouachita map	R
Graptemys p. pseudogeographica		_____	false map turtle	R
Cnemidophorus sexlineatus		_____	6-lined racerunner	GP S SP
Eumeces fasciatus		_____	5-lined skink	GP O
Eumeces septentrionalis	S	_____	prairie skink	GP S SP WP
Coluber constrictor		_____	blue racer	D GP
Crotalus horridus		_____	timber rattlesnake	D O
Diadophis puntatus		_____	ringnecked snake	D GP O
Elaphe obsoleta		_____	rat snake	D GP O
Elaphe vulpina		_____	fox snake	D
Heterodon nasicus	V*	_____	W. hognose	P SP WP
Heterodon platyrhinos		_____	E. hognose	D M WP
Lampropeltis triangulum		_____	milk snake	D GP O
Nerodia sipedon		_____	water snake	M R
Opheodrys vernalis	V	_____	green snake	GENERAL
Pituophis melanoleucus	P*	_____	bullsnake	P S SP
Sistrurus catenatus		_____	massasauga	M R
Storeria dekayi	P	_____	brown snake	D
Storeria occipitimaculata	P	_____	red-bellied snake	GENERAL
Thamnophis radix	V	_____	plains garter	GENERAL
Thamnophis sirtalis	V	_____	eastern garter	GENERAL
Tropidoclonion lineatum		_____	lined snake	O P

HABITATS

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KEY

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S = sighting
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* high interest species

CODES

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(BE) = possible border entrant

WASHINGTON COUNTY
REPTILES AND AMPHIBIANS

AMPHIBIANS

Species	Status	Present		Habitats
Ambystoma laterale	S	_____	blue-spotted salamander	C D M
Ambystoma maculatum (BE)	H*	_____	spotted salamander	D M
Ambystoma tigrinum	V	_____	tiger salamander	D M WP
Hemidactylum scutatum (BE)	H*	_____	4-toed salamander	B M
Necturus maculosus	V*	_____	mudpuppy	L R
Notopthalmus viridescens	P*	_____	central newt	M R
Plethodon cinereus	P	_____	redbacked salamander	C D
Acris crepitans	H*	_____	cricket frog	M R
Bufo americanus	V	_____	American toad	GENERAL
Bufo cognatus		_____	great plains toad	M P S
Bufo hemiophrys		_____	Canadian toad	M P SP
Bufo woodhousei (BE)		_____	Woodhouse's toad	M P SP
Hyla chrysoscelis	P	_____	Cope's treefrog	D P WP
Hyla versicolor	V	_____	gray treefrog	D M
Pseudacris crucifer	V	_____	spring peeper	M
Pseudacris triseriata	V	_____	chorus frog	GENERAL
Rana catesbeiana		_____	bullfrog	M R
Rana clamitans	V	_____	green frog	L M
Rana palustris		_____	pickeral frog	L M R
Rana pipiens	V	_____	leopard frog	GENERAL
Rana septentrionalis	P*	_____	mink frog	B L
Rana sylvatica	V	_____	wood frog	B C D M
Scaphiopus bombifrons (BE)		_____	spadefoot toad	P SP WP

REPTILES

Apalone muticus	S*	_____	smooth softshell	R
Apalone spiniferus	V*	_____	spiny softshell	L R
Chelydra serpentina	V	_____	snapping turtle	L M R
Chrysemys picta	V	_____	painted turtle	B L M R
Clemmys insculpta	S*	_____	wood turtle	D R
Emydoidea blandingi	V*	_____	Blanding's turtle	M WP
Graptemys geographica	V	_____	map turtle	R
Graptemys p. ouachitensis	P*	_____	Ouachita map	R
Graptemys p. pseudogeographica	V*	_____	false map turtle	R
Cnemidophorus sexlineatus	V*	_____	6-lined racerunner	GP S SP
Eumeces fasciatus	H*	_____	5-lined skink	GP O
Eumeces septentrionalis	V	_____	prairie skink	GP S SP WP
Coluber constrictor	V*	_____	blue racer	D GP
Crotalus horridus	V*	_____	timber rattlesnake	D O
Diadophis puntatus		_____	ringnecked snake	D GP O
Elaphe obsoleta		_____	rat snake	D GP O
Elaphe vulpina	V*	_____	fox snake	D
Heterodon nasicus	H*	_____	W. hognose	P SP WP
Heterodon platyrhinos	V*	_____	E. hognose	D M WP
Lampropeltis triangulum	V*	_____	milk snake	D GP O
Nerodia sipedon	V	_____	water snake	M R
Opheodrys vernalis	V	_____	green snake	GENERAL
Pituophis melanoleucus	V*	_____	bullsnake	P S SP
Sistrurus catenatus		_____	massasauga	M R
Storeria dekayi	V	_____	brown snake	D
Storeria occipitimaculata	V	_____	red-bellied snake	GENERAL
Thamnophis radix	V	_____	plains garter	GENERAL
Thamnophis sirtalis	V	_____	eastern garter	GENERAL
Tropidoclonion lineatum		_____	lined snake	O P

HABITATS

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KEY

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S = sighting
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CODES

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(BE) = possible border entrant

WILKIN COUNTY
REPTILES AND AMPHIBIANS

AMPHIBIANS

Species	Status	Present		Habitats
Ambystoma laterale	H	_____	blue-spotted salamander	C D M
Ambystoma maculatum (BE)		_____	spotted salamander	D M
Ambystoma tigrinum	V	_____	tiger salamander	D M WP
Hemidactylum scutatum (BE)		_____	4-toed salamander	B M
Necturus maculosus	P*	_____	mudpuppy	L R
Notopthalmus viridescens		_____	central newt	M R
Plethodon cinereus		_____	redbacked salamander	C D
Acris crepitans		_____	cricket frog	M R
Bufo americanus	V	_____	American toad	GENERAL
Bufo cognatus	V*	_____	great plains toad	M P S
Bufo hemiophrys	V	_____	Canadian toad	M P SP
Bufo woodhousei (BE)	H	_____	Woodhouse's toad	M P SP
Hyla chrysoscelis	H	_____	Cope's treefrog	D P WP
Hyla versicolor	H	_____	gray treefrog	D M
Pseudacris crucifer		_____	spring peeper	M
Pseudacris triseriata	V	_____	chorus frog	GENERAL
Rana catesbeiana		_____	bullfrog	M R
Rana clamitans		_____	green frog	L M
Rana palustris		_____	pickeral frog	L M R
Rana pipiens	V	_____	leopard frog	GENERAL
Rana septentrionalis		_____	mink frog	B L
Rana sylvatica	V	_____	wood frog	B C D M
Scaphiopus bombifrons (BE)		_____	spadefoot toad	P SP WP

REPTILES

Apalone muticus	H*	_____	smooth softshell	R
Apalone spiniferus	P	_____	spiny softshell	L R
Chelydra serpentina	P	_____	snapping turtle	L M R
Chrysemys picta		_____	painted turtle	B L M R
Clemmys insculpta		_____	wood turtle	D R
Emydoidea blandingi		_____	Blanding's turtle	M WP
Graptemys geographica	P*	_____	map turtle	R
Graptemys p. ouachitensis		_____	Ouachita map	R
Graptemys p. pseudogeographica		_____	false map turtle	R
Cnemidophorus sexlineatus		_____	6-lined racerunner	GP S SP
Eumeces fasciatus	H*	_____	5-lined skink	GP O
Eumeces septentrionalis	S	_____	prairie skink	GP S SP WP
Coluber constrictor		_____	blue racer	D GP
Crotalus horridus		_____	timber rattlesnake	D O
Diadophis punctatus		_____	ringnecked snake	D GP O
Elaphe obsoleta		_____	rat snake	D GP O
Elaphe vulpina	P*	_____	fox snake	D
Heterodon nasicus	V*	_____	W. hognose	P SP WP
Heterodon platyrhinos		_____	E. hognose	D M WP
Lampropeltis triangulum	P*	_____	milk snake	D GP O
Nerodia sipedon		_____	water snake	M R
Opheodrys vernalis	P	_____	green snake	GENERAL
Pituophis melanoleucus	P*	_____	bullsnake	P S SP
Sistrurus catenatus		_____	massasauga	M R
Storeria dekayi	P	_____	brown snake	D
Storeria occipitimaculata	S	_____	red-bellied snake	GENERAL
Thamnophis radix	S	_____	plains garter	GENERAL
Thamnophis sirtalis	P	_____	eastern garter	GENERAL
Tropidoclonion lineatum	H	_____	lined snake	O P

HABITATS

B = Bog	M = Marsh	SP = Sand Prairie
C = Conifer Forest	O = Outcrops	WP = Wet Prairie
D = Decid. Forst	P = Prairies	
GP = Goat Prairie	R = Rivers	
L = Lakes	S = Savannah	

KEY

V = verified specimen
S = sighting
P = probable
H = hopeful
* high interest species

CODES

1 = Specimen collected
2 = Specimen photographed
3 = Specimen seen
4 = Specimen heard
(BE) = possible border entrant

APPENDIX C. SPECIES ACCOUNTS OF HIGH INTEREST SPECIES

Common Name: Spotted salamander
Scientific Name: *Ambystoma maculatum*

Habitat: Woodland ponds and surrounding wet areas, found under logs and rocks.

Spring Emergence: late-March

Breeding Season: early to mid April (start 3-4 days after Blue-spots)
Egg laying:

Hatching / Metamorph Dates: about 30 - 60 days after deposit, eggs layed in clusters on twigs
Metamorph: mid August through September

Searching Methods
Breeding: Survey small woodland ponds in early April. Possible drift fencing in suitable habitat.
Other: Survey suitable habitats in early September for emigrating young, rainy nights are best.

Counties to Search: Washington

Previous Records: The closest record is from Interstate Park, WI. The Washington County sites are approximately 25 miles down stream from Interstate.

1988 Results: 5 B-quality sites were searched for salamanders, none were found. The dry weather may have reduced breeding activity. The species may be limited to the Wisconsin side of the river.

Common Name: Four-toed salamander
Scientific Name: *Hemidactylum scutatum*

Habitat: Mesic woods in association with sphagnum lined springs and creeks. Small closed bogs.

Spring Emergence: April

Breeding Season: Will breed spring and fall

Egg laying: early May
eggs layed in sphagnum 2-12 cm above running water.

Hatching / Metamorph Dates: 30-60 days
Metamorph: 6 weeks (early August)

Searching Methods
Breeding: Search habitat suitable by flipping logs and rocks, digging into sphagnum hummocks
Other: Same as breeding

Counties to Search: Washington

Previous Records: The closest record is from Interstate Park, WI. The Washington County sites are approximately 25 miles downstream from Interstate.

1988 Results: 5 B-quality sites were searched for salamanders, none were found. The dry weather may have reduced breeding activity. The species may be limited to the Wisconsin side of the river.

Common Name: Mudpuppy
Scientific Name: *Necturus maculosus*

Habitat: Large rivers and streams, large lakes, prefer clear moving water.

Spring Emergence: active year round

Breeding Season: late April through May
Egg laying: same - female constructs a nest under logs or rocks in rivers.

Hatching / Metamorph Dates: 30 - 60 days.

Searching Methods
Breeding: Requests for information will be sent to DNR fisheries, U of M researchers, and local fisherman (commercial and recreational). Secondary captures during turtle trapping is possible.
Other: Same as breeding

Counties to Search: All

Previous Records: There have been a number of reports and records from Washington Co., the most recent being winter of 1987 -88. Big Stone Co. is reported in Breckenridge and specimens have been taken from the Red River in Polk Co.

1988 Results: No mudpuppies were collected. There was no effort to collect large rivers, except for turtles. Fishery and Wildlife personnel were requested to turn in reports, but none were received.

Common Name: Cricket frog
Scientific Name: *Acris crepitans*

Habitat: Small gravel bottom streams and adjacent wetlands. They stay close to the water year round.

Spring Emergence: April

Breeding Season: Mid June
Egg laying:

Hatching / Metamorph Dates: 1 to 2 weeks
Metamorph; early August.

Searching Methods
Breeding: Listen for calls in suitable habitat, check old Chisago Co. record.
Other: Seining for tadpoles. Search for transformed juveniles along stream banks.

Counties to Search: Washington

Previous Records: There is 1 record from the 1960's from Chisago Co. All other records are south of Winona.

1988 Results: No frogs were found. Appropriate habitat was found along several creeks in the Cedar Bend area.

Common Name: Woodhouse's toad
Scientific Name: *Bufo woodhousei*

Habitat: Open sandy areas adjacent to wetlands or open water.

Spring Emergence: April

Breeding Season: Late April - early May
Egg laying:

Hatching / Metamorph Dates: 4 weeks
Metamorph: late July

Searching Methods
Breeding: Listen for choruses. Check suitable habitat for breeding congregations and tadpoles.
Other: Drift fence suitable habitat.

Counties to Search: Lac Qui Parle to Norman

Previous Records: There are several records within several miles of the Minnesota Border in South and North Dakota. The habitat is the same as in Minnesota.

1988 Results: No Woodhouse toads were found. The dry weather eliminated much of the potential breeding habitat. The presence of these toads would be spotty at best and a bad breeding year would make them very difficult to find.

Common Name: Plains spadefoot toad
Scientific Name: *Scaphiopus bombifrons*

Habitat: Open prairies with wetlands and potholes
highly fossorial - is only found after torrential rains.

Spring Emergence: Variable

Breeding Season: Late May through June
Egg laying:

Hatching / Metamorph Dates: 4 - 5 weeks

Searching Methods
Breeding: Drive through suitable habitat listening for choruses.
Other:

Counties to Search: Lac Qui Parle, Big Stone, Traverse.

Previous Records: There are records in South Dakota and Iowa within one mile of the border. It is also found in Manitoba and North Dakota.

1988 Results: No spadefoot toads were collected. This was expected because this toad is only found during and after very wet periods.

Common Name: Wood turtle
Scientific Name: *Clemmys insculpta*

Habitat: Small rivers and streams with sand bars and beaches. Water should be clean and fast moving. Surrounding land should be wooded.

Spring Emergence: early April

Breeding Season: April - June
Egg laying: Late May - early June

Hatching / Metamorph Dates: Mid - late August

Searching Methods
Breeding: Search suitable habitat for females laying eggs, preferably late afternoon - early evening.
Other: Canoe streams looking for basking turtles. Request info from DNR fisheries personnel.

Counties to Search: Washington Co.

Previous Records: There are records from the surrounding counties of Ramsey and Chisago, also from Goodhue.

1988 Results: Dwain Warner reported them from Belwin Nature Center, but not 1988. He has seen them on several occasions over the past 5 years. Belwin is the only site with suitable habitat in the county.

Common Name: Blanding's Turtle
Scientific Name: *Emydoidea blandingi*

Habitat: Wetlands and marshes normally associated with open water. Sandy uplands near the wetlands.

Spring Emergence: mid-late March

Breeding Season: March to June
Egg Laying: Late May to mis June

Hatching:/Metamorph Dates: Mid to Late August

Searching Methods
Breeding: Search for migrating females, best time is early evening or morning. Look for destroyed nests.
Other: Search suitable habitat for basking turtles. Obtain leads from Nongame Program and C. Dorff.

Counties to Search: Washington

Previous Records: There were 7 previous records from Washington Co. There are also records from Ramsey, Dakota, and Chisago Cos.

1988 Results: There were 4 collections (3 photos, 1 spec.) during the survey. An additional 12 records were collected by a Nongame Wildlife turtle survey. This survey was a phone survey with no specimen or verification. A total of 10 new database entries were made for Washington Co.

Common Name: Smooth Softshell Turtle
Scientific Name: *Apalone mutica*

Habitat: Large rivers and lakes with soft sandy bottoms and sandy beaches.

Spring Emergence: Early May

Breeding Season: May through June
Egg Laying: June to early June

Hatching/Metamorph Dates: Late August through September

Searching Methods
Breeding: Search for nesting females along sandy beaches
Other: Search for basking turtles. Use of fyke nets and trot lines. Contact DNR fisheries and commercial turtle trappers.

Counties to Search: Washington

Previous Records: There was one sighting in the 1970's. The closest specimen is from Prairie Island.

1988 Results: 2 nesting females were found north end of McLeod slough. One female was collected. The nesting beaches are being highly disturbed by boaters. This was a new database record.

Common Name: Spiny softshell turtle
Scientific Name: *Apalone spinifera*

Habitat: Large rivers and lakes with soft sandy bottoms and sandy beaches.

Spring Emergence: Early May

Breeding Season: May through June
Egg Laying: June to early June

Hatching/Metamorph Dates: Late August through September

Searching Methods
Breeding: Search for nesting females along sandy beaches
Other: Search for basking turtles. Use of fyke nets and trot lines. Contact DNR fisheries and commercial turtle trappers.

Counties to Search: Washington, Lac Qui Parle, Big Stone, Norman

Previous Records: Washington – common ion the St. Croix and Mississippi Rivers.
Lac Qui Parle – One sighting from the LQP Lake Dam.
Big Stone – no records
Norman – old report of several dead turtles in a trap near Grand Forks.

1988 Results: Washington – Collected at 3 sites and sightings at a number of others.
Lac Qui Parle – Sightings and photos at LQP lake dam.. Report from local of one caught at the HWY 40 Bridge.
Big Stone – No records, but potential is good.
Norman – No records, the old records are suspect.

Common Name: Map turtle
Scientific Name: *Graptemys geographica*

Habitat: Large rivers and their backwaters

Spring Emergence: Late April

Breeding Season: early spring and fall
Egg Laying: June and early June

Hatching/Metamorph Dates: September

Searching Methods
Breeding: Search for basking adults and females nesting.
Other: Search for basking adults by canoeing suitable rivers. Fyke nets.

Counties to Search: Washington, Lac Qui Parle, Big Stone

Previous Records: Washington – common ion the St. Croix and Mississippi Rivers.
Lac Qui Parle and Big Stone –no records, but found down stream at Blue Earth.

1988 Results: Washington – 2 collections and numerous sightings.
Lac Qui Parle and Big Stone – No records.

Common Name: False map turtle
Scientific Name: *Graptemys pseudogeographica*

Habitat: Large rivers and their backwaters.

Spring Emergence: late April

Breeding Season: early spring and fall
Egg laying: June and early July

Hatching / Metamorph Dates: September

Searching Methods
Breeding: Search for basking adults and females nesting.
Other: Search for basking adults by canoeing suitable rivers. Fyke nets.

Counties to Search: Washington, Lac Qui Parle, Big Stone

Previous Records: Washington - 1 record near Hudson.
LQP and Big Stone - closest record is downstream at New Ulm.

1988 Results: Washington - 1 Collection and numerous sightings.
LQP and Big Stone - No records

Common Name: Ouachita map turtle
Scientific Name: *Graptemys ouachitensis*

Habitat: Large rivers and their backwaters.

Spring Emergence: late April

Breeding Season: early spring and fall
Egg laying: June and early July

Hatching / Metamorph Dates: September

Searching Methods
Breeding: Search for basking adults and females nesting.
Other: Search for basking adults by canoeing suitable rivers. Fyke nets.

Counties to Search: Washington

Previous Records: Closest records are from Prairie Island

1988 Results: Sighting at Carpenter N.C.

Common Name: Six-lined racerunner
Scientific Name: *Cnemidophorus sexlineatus*

Habitat: Dry goat prairies and dune areas. Gravelly slopes.

Spring Emergence: early May

Breeding Season: at emergence
Egg laying: Mid June

Hatching / Metamorph Dates: mid August

Searching Methods
Breeding: Search for basking adults in suitable habitat
Other: Drift fences. (maintains a very small home range)

Counties to Search: Washington

Previous Records: There is one 1899 record from Grey Cloud Area.

1988 Results: No lizards were located. No drift fences were used but the main areas were well searched. Racerunners are a diurnally active lizard and should have been encountered if present. There was a recent (Sept. 1988) Northern Dakota County record.

Common Name: Five-lined skink
Scientific Name: *Eumeces fasciatus*

Habitat: Rock outcrops and talus slopes with a southerly exposure.

Spring Emergence: Late April

Breeding Season: Mid May
Egg laying: Mid June

Hatching / Metamorph Dates: Late July

Searching Methods
Breeding: Search for basking adults in suitable habitat. Flip debris and rocks in search of nests.
Other: Drift fences and use of selectively placed debris. Search for young in early September.

Counties to Search: Washington, Lac Qui Parle, Big Stone

Previous Records: Washington - There is a record from near Dresser, WI (approx. 20 miles from Washington Co.)
LQP and Big Stone - Skinks have been collected in similar habitat near Granite Falls.

1988 Results: Washington - The only good site was not searched because of Peregrine Falcons on territory on the bluffs at the Hastings Lock & Dam.
LQP and Big Stone - No records even though outcrops were intensively searched.

Common Name: Blue racer
Scientific Name: *Coluber constrictor*

Habitat: open prairies and savannah, goat prairies and adjacent dry oak woods. Hibernate along the bluffs.

Spring Emergence: Mid April

Breeding Season: May - early June
Egg laying: late June to early July

Hatching / Metamorph Dates: late August to early September

Searching Methods
Breeding: Search near hibernating areas for early basking adults.
Other: Search for signs of the snake during all visits to the appropriate habitat. Drift fences in very high quality areas.

Counties to Search: Washington

Previous Records: There was one 1958 record from north of Stillwater.

1988 Results: 2 Specimens were collected from sand prairie habitat in the southern part of the county. These were both added to the database.

Common Name: Timber rattlesnake
Scientific Name: *Crotalus horridus*

Habitat: Bluffs, rock outcrops with a southerly exposure. Range of approx. 2 miles from hibernacula. Move down into deciduous forests and open areas during the summer.

Spring Emergence: Mid April (spend the first month at the den)

Breeding Season: fall and early May
Egg laying:

Hatching / Metamorph Dates: late August to early September

Searching Methods
Breeding: Search suitable habitat for basking snakes. Contact locals about possible sites.
Other: Search hibernacula areas for gravid females.

Counties to Search: Washington

Previous Records: There was one 1964 record from Denmark Twp.

1988 Results: No snakes were found. There is no suitable habitat in the area of the record. None of the persons talked to knew of any records. It may have been a stray from WI.

Common Name: Western hognose snake
Scientific Name: *Heterodon nasicus*

Habitat: Sandy prairies and savannahs.

Spring Emergence: late April to early May

Breeding Season: at emergence
Egg laying: Late June

Hatching / Metamorph Dates: Mid August

Searching Methods
Breeding: Search suitable habitats in early breeding season for basking snakes.
Other: Search for signs of the snake during all visits to the appropriate habitat. Drift fences in very high quality areas.

Counties to Search: All Western

Previous Records: Lac Qui Parle - 2 previous sightings
Big Stone - 1 older collection
Traverse - 1 older collection
Wilkins - no reports
Clay - 2 previous sightings
Norman - 1 older collection

1988 Results: Lac Qui Parle - C. Converse photo of a DOR from 1987
Big Stone - No snakes reported
Traverse - no snakes reported
Wilkin - no snakes reported
Clay - no snakes reported
Norman - Manager of Agsco reported seeing them in previous years.

Common Name: Bullsnake
Scientific Name: *Pituophis melanoleucus*

Habitat: Open sand prairies and savannahs

Spring Emergence: Early May

Breeding Season: Late May
Egg laying: Late June to early July

Hatching / Metamorph Dates: Early September

Searching Methods
Breeding: Search suitable habitats in early breeding season for basking snakes.
Other: Search for signs of the snake during all visits to the appropriate habitat. Drift fences in very high quality areas.

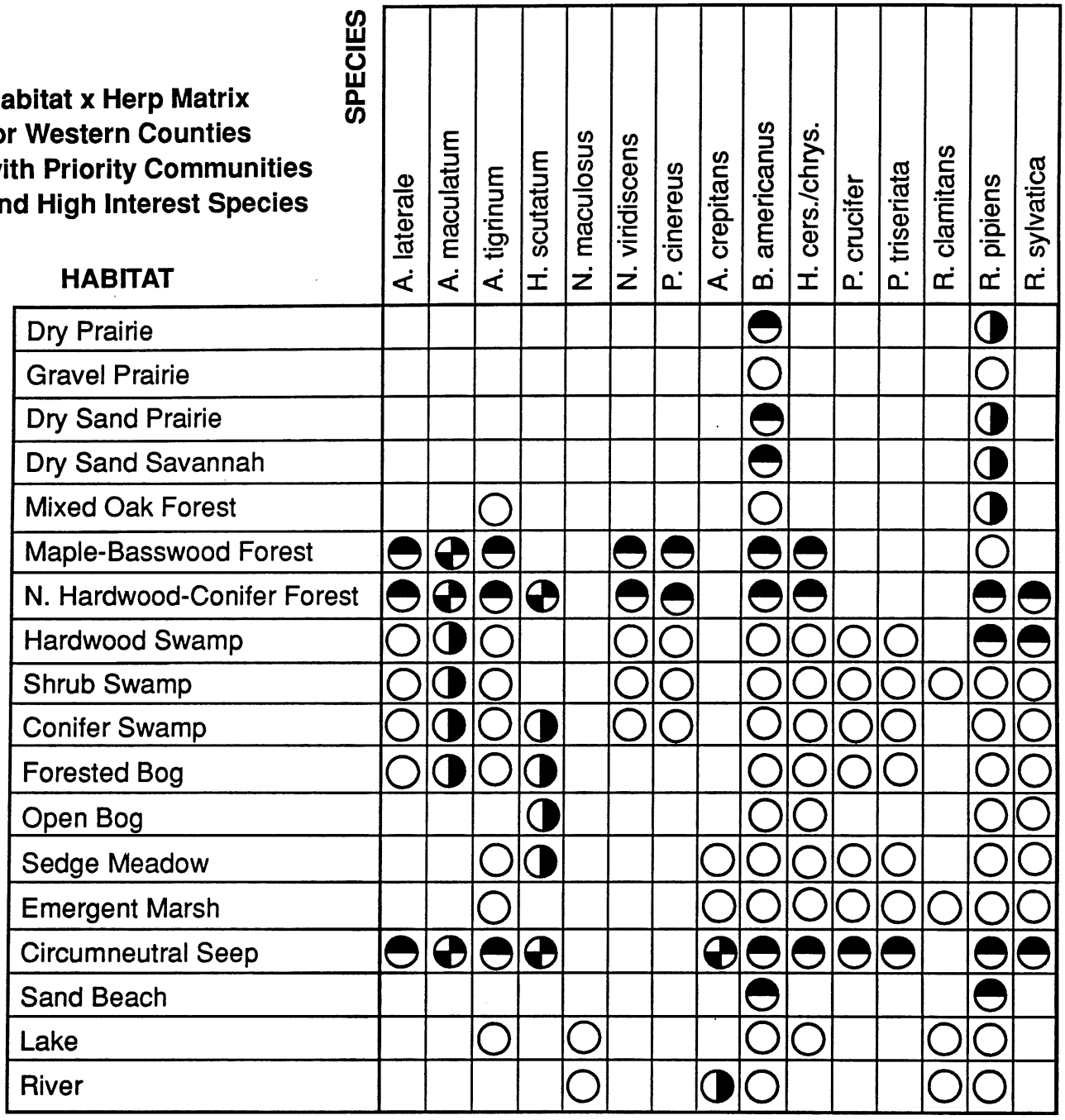
Counties to Search: All

Previous Records: Washington - 1 collection and several sightings.
Lac Qui Parle - no records, but in adjacent county
Big Stone - no records, but in adjacent county
Traverse - no records
Wilkin -no records
Clay -no records
Norman - One 1930's record from near Fertile.

1988 Results: Washington - No reports.
Western Cos. - No reports.

APPENDIX D. HABITAT MATRIX FOR PRIORITY SPECIES

Habitat x Herp Matrix for Western Counties with Priority Communities and High Interest Species



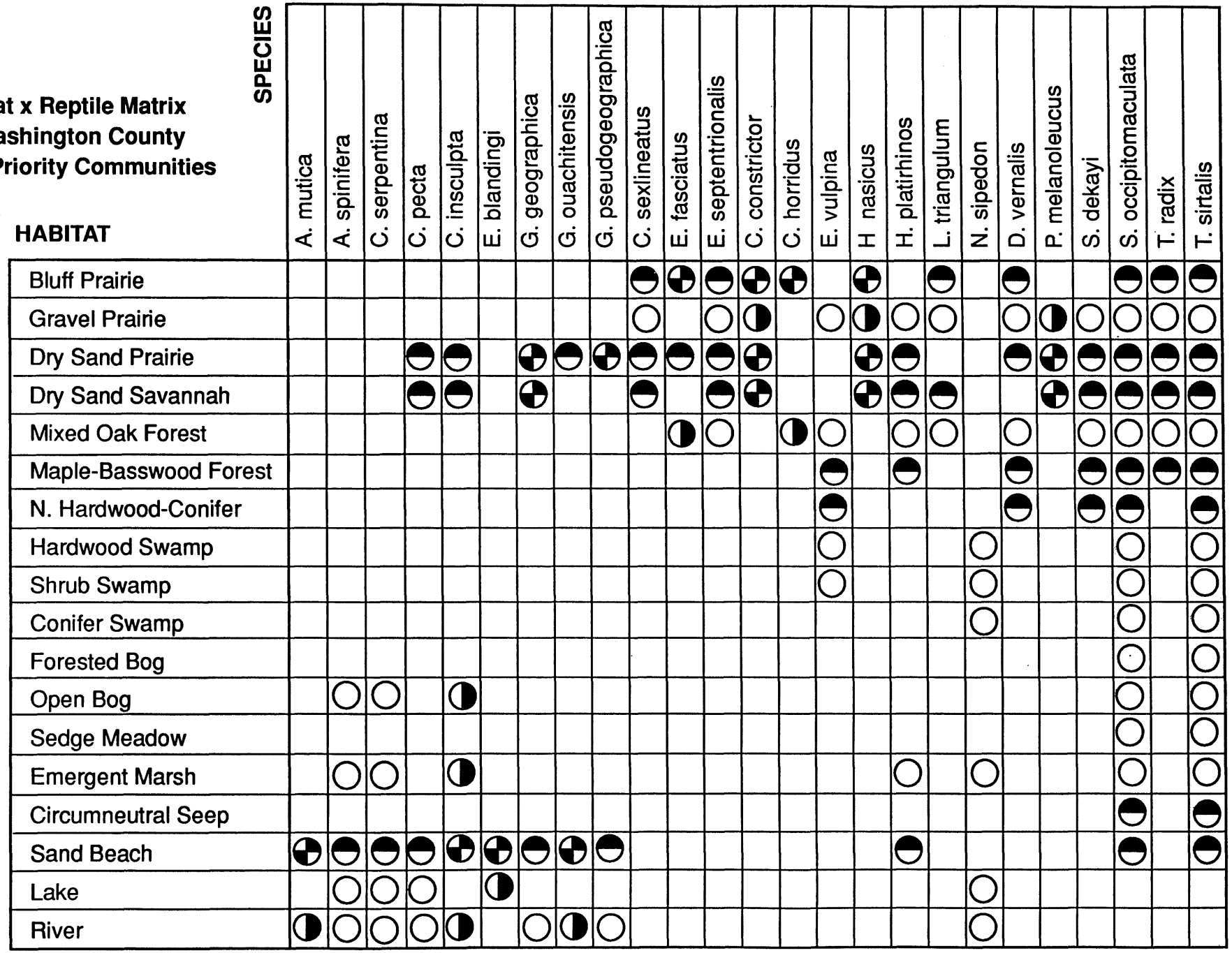
○ Habitat where species could be found

◑ High interest species (see definition p. 2)

◓ Rare habitat

◕ Features rare species and rare habitat

Habitat x Reptile Matrix for Washington County with Priority Communities



○ Habitat where species could be found ◑ High interest species ◒ Rare habitat ◓ Features rare species and rare habitat

Habitat x Herp Matrix for Western Counties with Priority Communities and High Interest Species

HABITAT	A. tigrinum	N. maculosus	B. americanus	B. cognatus	B. hemiophrys	B. woodhousei	H. versicolor	P. triseriata	R. pipiens	R. sylvatica	S. bombifrons	C. serpentina	C. picta	G. geographica	A. spinifera	E. fasciatus	E. septentrionalis	E. vulpina	H. nasicus	L. triangulum	O. vernalis	P. melanoleucus	S. occipitomaculata	T. radix	T. sirtalis
Glacial Till Prairie			○	○	○	◑											○		◑	○	○	◑	○	○	○
Wet Blacksoil Prairie	○		○	○	○	◑		○	○		◑							○	◑		○			○	○
Mesic Blacksoil Prairie	○		○	○	○	◑			○		◑						○	○	◑		○	◑	○	○	○
M.B.P. – Saline			○	○	○	◑			○		◑								◑			◑	○	○	○
M.B.P. – Calcareous Seep	○		○	○	○	◑			○		◑								◑	○					
M.B.P. – savannah			◒	◒	◒	◪			◒		◪						◒	◒	◪		◒	◒	◒	◒	◒
Mixed Oak Forest			○				○		○								○			○	○		○		○
Aspen Parkland			○		○		○		○	○							○	○	◑	○	○	◑	○	○	○
Floodplain Forest	○		○				○		○	○	◑							○			○		○		○
Calcareous Fen			◒						◒	○															
Sedge Meadow	○		○					○	○															○	○
Emergent Marsh	○		○	○	○		○	○	○	○		○	○											○	○
Shrub Swamp	○		○					○	○			○	○					○							○
Lacustrine			○						○			○	○	○	◑										
Riverine		○	○						○			○	○	○	◑										
Outcrops																◪	◒	◒		◒		◪	◒	◒	◒

SPECIES

○ Habitat where species could be found ◑ High interest species (see definition p. 2) ◒ Rare habitat ◪ Features rare species and rare habitat

APPENDIX E: DOCUMENTATION OF AMPHIBIAN AND REPTILE RECORDS

In an effort to increase our knowledge on the distribution of amphibians and reptiles in Minnesota, the Nongame Wildlife Program is requesting records for species of interest (see attached list). In order to maintain quality records and build a complete distribution data file certain criteria have been set for record documentation. These criteria are designed to be quickly and easily met.

The criteria are:

1. Name of species: This should be determined from one of the listed references, or left as unknown.

2. Location: The more precise the better. General descriptions are not acceptable (i.e. 5 miles S of Stillwater) . The correct location should be descriptive and have the legal description (i.e. MN, Washington Co., West Lakeland, Jct. of Co. Rd. 21 and 19th St. N (T29N R20W Sec 27 1/4NE 1/4NW)). A small map, either xeroxed or hand drawn, would be helpful.

3. Date: Date of record.

4. Specimen verification
   A. Voucher: This could be a roadkill or a live animal. The collection of live Blanding's and wood turtles and 5-lined skinks is illegal without a permit! Specimens can be preserved in formalin, frozen or kept alive until they are turned over to the proper person. Additional information on collecting and specimen preparation can be found in Field Herpetology (Karns 1986) or by contacting John Moriarty. Caution should be taken when trying to collect any live animal.

   B. Photograph: Clear photographs of a specimen are acceptable. The photos should be full frame of the animal. If possible three views should be taken. They are the dorsal, ventral, and a closeup of the head. Photos may be of handheld specimens, natural background is not required. DO NOT attempt to take ventral or head photos of rattle snakes. Photos should be slides, preferably Kodachromes. Slides should have the name of photographer, date of photo, and location printed on the border.

   C. Tape Recordings: Recordings of frog and toad calls can be identified to species. Calls of an isolated species is preferred to that of a mixed chorus of frogs.

   D. Written Descriptions: These are discouraged. There are a number of species that are easily confused and would not be accepted on sightings records alone. If a written description is all you can provide then please be as detailed as possible .

5. Name and Address: The collector should provide their name, affiliation (if any), address, and phone number. This will allow for follow-up information.

Records should be sent or brought to:

Nongame Wildlife Program
Box 7, DNR Building
500 Lafayette Rd.
St. Paul, MN 55155

Herpetologist
Bell Museum of Natural History
10 Church St. SE
Minneapolis, MN 55455

Specimen containers or additional information are available from:

John Moriarty
Herpetologist
MN County Biological Survey
626-2030 (Bell Museum)
297-4963 (Nongame Office)

Recommended References:

Breckenridge, W.J. 1944. Reptiles and Amphibians of Minnesota. Minnesota press

Conant, R. 1975. A Field Guide to the Amphibians and Reptiles of Eastern and Central United States. Houghton-Mifflin.

Karns, D.R. 1976. Field Herpetology: Methods for the Study of Amphibians and Reptiles in Minnesota. Bell Museum of Natural History.

Moriarty, J.J., and MHS Records Committee. 1987. Distribution Maps for Minnesota's Amphibians and Reptiles. Minn. Herp. Society.

Smith, H.M. 1978. Amphibians of North America. Golden Press.

_____, and E.D. Brodie. 1982. Reptiles of North America. Golden Press.

Vogt, R.C. 1981. Natural History of the Amphibians and Reptiles of Wisconsin. Milwaukee Public Museum.

Moriarty
April 1988

AMPHIBIANS

Species	Common Name	Priority	Habitats
Ambystoma laterale	blue-spotted salamander		C D M
Ambystoma maculatum	spotted salamander	3	D M
Ambystoma tigrinum	tiger salamander	3	D M WP
Hemidactylum scutatum	4-toed salamander	1	B M
Necturus maculosus	mudpuppy	1	L R
Notopthalmus viridescens	central newt		M R
Plethodon cinereus	redbacked salamander		C D
Acris crepitans	cricket frog	1	M R
Bufo americanus	American toad		GENERAL
Bufo cognatus	great plains toad	2	M P SP
Bufo hemiophrys	Canadian toad		M P SP
Bufo woodhousei	Woodhouse's toad	3	M P SP
Hyla chrysoscelis	Cope's treefrog		D P WP
Hyla versicolor	gray treefrog		D M
Pseudacris crucifer	spring peeper		M
Pseudacris triseriata	chorus frog		GENERAL
Rana catesbeiana	bullfrog	1	M R
Rana clamitans	green frog		L M
Rana palustris	pickeral frog	1	L M R
Rana pipiens	leopard frog		GENERAL
Rana septentrionalis	mink frog	2	B L
Rana sylvatica	wood frog		B C D M
Scaphiopus bombifrons	spadefoot toad	3	P SP WP

REPTILES

Apalone muticus	smooth softshell	1	R
Apalone spiniferus	spiny softshell	1	L R
Chelydra serpentina	snapping turtle		L M R
Chrysemys picta	painted turtle		B L M R
Clemmys insculpta	wood turtle	1*	D R
Emydoidea blandingi	Blanding's turtle	1*	M WP
Graptemys geographica	map turtle	2	R
Graptemys p. ouachitensis	Ouachita map	2	R
Graptemys p. pseudogeographica	false map turtle	2	R
Cnemidophorus sexlineatus	6-lined racerunner	1	GP S SP
Eumeces fasciatus	5-lined skink	1*	GP O
Eumeces septentrionalis	prairie skink		GP S SP WP

PRIORITIES
1=All records are wanted
*=protected species do not take live specimens
2=Records outsideof known range are wanted
3=Possible border entrant–all records wanted
=Records are wanted but not a priority for searches

HABITATS

B = Bog	M = Marsh	SP = Sand Prairie
C = Conifer For.	O = Outcrops	WP = Wet Prairie
D = Decid. For.	P = Prairies	
GP = Goat Prairie	R = Rivers	
L = Lakes	S = Savannah	

REPTILES (continued)

Species	Common Name	Priority	Habitats
Coluber constrictor	blue racer	1	D GP
Crotalus horridus	timber rattlesnake	1	D O
Diadophis puntatus	ringnecked snake	2	D GP O
Elaphe obsoleta	rat snake	1	D GP O
Elaphe vulpina	fox snake	2	D M
Heterodon nasicus	W. hognose	2	P SP WP
Heterodon platyrhinos	E. hognose	2	D M WP
Lampropeltis triangulum	milk snake	2	D GP O
Nerodia sipedon	water snake		M R
Opheodrys vernalis	green snake		GENERAL
Pituophis melanoleucus	bullsnake	2	P S SP
Sistrurus catenatus	massasauga		M R
Storeria dekayi	brown snake		D
Storeria occipitimaculata	red-bellied snake		GENERAL
Thamnophis radix	plains garter		GENERAL
Thamnophis sirtalis	eastern garter		GENERAL
Tropidoclonion lineatum	lined snake	1	O P

PRIORITIES
1=All records are wanted
*=protected species do not take live specimens
2=Records outsideof known range are wanted
3=Possible border entrant–all records wanted
=Records are wanted but not a priority for searches

HABITATS

B = Bog	M = Marsh	SP = Sand Prairie
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GP = Goat Prairie	R = Rivers	
L = Lakes	S = Savannah	

APPENDIX F. SITE SUMMARY FORM AND INSTRUCTIONS

Instructions for
Site Survey Summary –Herps
Supplemental Animal List – Herps

Site Survey Summary:

Herp Site No. – Sequential within County

Site Name – Use MCBS name if available, otherwise use Twp/Sec.

MCBS Site # – Use number from plant community site log.

Site Description – Description should include physical and vegetational characteristics; disturbances on site (i.e. gravel pits, buildings, junk piles, cultivation); surrounding land use.

Herp Suitability Rank – A=Very Good to D=Poor
The rank should reflect the quality of the habitat in respect to herps. Some areas that are good prairie would be poor for herps and some degraded natural communities would be good herp areas. Things to look for are presence of herps, available hiding cover, distance to water, abundance or evidence of prey animals, size and diversity of the site.

Surveys Conducted – Explain what techniques were used to sample for herps. Types of surveys may include drift fencing, fyke nets, timed visual searches, flipping of ground materials (i.e. rocks, logs, boards)

Weather – The weather has a great influence on the activity of herps. Knowledge of the conditions at the time of the survey are important. Include the temperature, sky condition (cloudy, sunny, etc.), wind speed and direction, and any general comments (raining, heavy rain recently, storm brewing, etc.).

Supplemental Animal List:

Site Information: This should be the same as the Site Survey Summary.

Species: Either common or scientific name.

Numbers: How many animals were seen.

Evidence of breeding: This would include eggs, hatchlings, tadpoles, observation of copulation.

Habitat: Very brief description of specific habitat were animal was seen

Documentation: This would include vouchers, photos, tape recordings, or visual sightings.

Voucher: This is for the Museum catalog number or private field number. It is not a check off box.

county:_____
herp site no.:_____
quad code:_____

MINNESOTA COUNTY BIOLOGICAL SURVEY
SITE SURVEY SUMMARY
HERPS

Site Name:_____MCBS Site #_____

Surveyors:_____ Date:_____

T_____NR_____W Sec_____

Quad:_____

Site Description:

Describe the site to convey a mental image of its features. Discuss and entitle in order, the following categories: 1) Landform and Topography, 2) Soils/Aquatic features, 3) Vegetation, 4) Disturbance-natural, or unnatural (livestock grazing, logging, mining, buildings, cultivation, exotics), 5) Surrounding land use (e.g., buildings, agriculture, recreational), 6) Threats to site and management implications.

_____

_____

_____

_____

_____

Herp Suitability Rank:_____
Comments:_____

_____

_____

_____

Surveys Conducted:_____

_____

_____

_____

General Comments:_____

_____

_____

Weather
Temp:_____F Sky Condition:_____

Wind:_____ General:_____

county:_____
herp site no.:_____
quad code:_____

MINNESOTA COUNTY BIOLOGICAL SURVEY
SUPPLIMENTAL ANIMAL LIST
HERPS

Site Name:_____MCBS Site #_____

Surveyors:_____ Date:_____

SPECIES	NUMBERS	EVIDENCE OF BREEDING	HABITAT	DOCUMENTATION	VOUCHER

APPENDIX G. HIGH QUALITY SITES (B OR BETTER) VISITED DURING THE 1988 COUNTY BIOLOGICAL SURVEY HERP SURVEYS

County Site	CBS #	Habitat	Species Expected or Found	1988 Collection	Future Potential	Comments
Lac Qui Parle County						
Plover Prairie	49	Mesic Prairie	Western hognose		high	sightings within 5 miles
		Wet Prairie	fox snake		medium	in adjacent counties
			bullsnake		medium	" " "
	51	Outcrops	5-lined skink		low	extensive search, previous search in 82
			fox snake		medium	in adjacent counties
State Park and Dam	–	Minn. River	spiny softshell	JFBM-P-117		
		Bottomland forest	fox snake		medium	in adjacent counties
Yellow Banks 2	157	Mesic Prairie				
		Outcrops	(see Plover Prairie)			
Yellow Banks 25	–	Outcrops	5-lined skink		low	searched extensively
		Minn. River	spiny softshell		medium	within 10 miles downstream
Yellow Bank Hills SNA	70	glacial till	western hognose		high	sightings within 5 miles
		prairire	bullsnake		medium	good ground squirrel population
Odessa 4	–	Outcrop & Talus	5-lined skink		low	extensive searching
		Lakeshore	spiny softshell		medium	within 10 miles
Hwy 40 & LQP Lake	–	Lakeshore	western hognose		very high	previous sighting on site. Local fisherman
			spiny softshell	sighting		caught one. This is the furthest record upstream.
BSNWR auto route	–	Outcrops	5-lined skink		low	extensive searching
			fox snake		medium	in adjacent county.
Big Stone County						
Big Stone Outrcrops	107	Outcrops	fox snake		medium	
			western hognose		medium	see Plover Prairie
			5-lines skink		low	
Traverse County						
Lake Travers	–	Marsh/Lakeshore	spiny softshell		low	Wetland complex is good for amphibians.
Mustinka River						"Kandiyohi" leopard frog collected
Wilkin County						
Nilsen 6 WPA	57	Mesic prairie	western hognose		medium	other records from county, good habitat
Akron 36 WPA	53	Gravel pits & wetlands	western hognose		medium	" " " "
Rothsay Prairie	21	wet Prairie	general herps			good habitat for amphibians.
Deerhorn Creek	–	stream	snapping turtle			good habitat for turtles and amphibians
Clay County						
Buffalo R. S.P.	97	River/bottomlands	general herps			the woodlands along the river are an
		Prairie	western hognose		high	important habitat for many amphibians.
Bluestem Prairie	94	Prairie	western hognose		high	previous records from the area.
Foulball Lake	117	Mesic woodlands	general herps			Area is western extent of woodlands into the prairie. Allows for eastern species
Ulen City Park	12	Mesic woodlands	general herps			see Foulball Lake
		marsh				

County Site	CBS #	Habitat	Species Expected or Found	1988 Collection	Future Potential	Comments
Norman County						
Agassiz Dunes	12	Oak savannah/Dunes	bullsnake western hognose		high high	old record within 5 miles. previous record from site.
Agsco Dunes	9 & 10	Oak savannah/Dunes	bullsnake western hognose		medium high	old record within 10 miles. previous sightings on site.
Homelake WMA	49	lake	general herps			good general habitat for turtles and amphibians.
Washington County						
Trout Farm	183	Seep/Ponds	Salamanders*		low	found in similar habitat across River.
Masterman	118	Oak woodlands	general herps Blanding's turtle		 high	good diversity of upland and wetland good wetlands, records within 2 miles.
Warner N.C. A-Quality	133	Ponds Bog Oak woodland	Blanding's turtle 4-toed salamander fox snake bullsnake eastern hognose milk snake	JFBM -P-113	 low high high high high	2 radio tagged turtles found in similar habitat across River. old records from nature center records from the area " " " photo from 1972 (JFBM-P)
Science Museum Seep A-Quality	136	Wetlands/seep	Blanding's turtle salamanders		high low	records from within 5 miles found in similar habitat across River
McLeod Slough	181	sand beach	smooth softshell false map turtle	JFBM-13249 sighting		fisrt drainage record
White pine seep	182	stream/wetland	Salamanders		low	records from within 5 mlies
W.O'Brien S.P.	146	hardwood swamp	Salamanders		low	records from within 5 miles
Hugo Farms WMA	159	lake w/cattail	Blanding's turtle		high	reports from area.
Kelly Farms	140 141 	oak forest lake/marsh	fox snake bullsnake eastern hognose Blanding's turtle		high high high high	reports within 5 miles reports within 5 miles reports within 5 miles reports within 1 mile.
Afton Alps	19	bluff prairie	blue racer bullsnake 6-lined racerunner		high high low	reports within 5 miles reports within 5 miles old record in similar habitat.
Fairy Hills	96	bluff prairie	blue racer bullsnake		high high	old record within 1 mile. reports within 5 miles.
New Scandia 12	184	bog	Blanding's turtle Salamanders	JFBM-P-112	 low	large male
Forest Lake 24		bog	Blanding's turtle		high	records within 5 miles.

* Salamanders include spotted and four-toed

County Site	CBS #	Habitat	Species Expected or Found	1988 Collection	Future Potential	Comments
Washington County (continued)						
St. Croix Palisade	101	outcrops/ oak woods	fox snake eastern hognose		high high	record from road above palisade. general good herp habitat
Grey Cloud Dunes A-Quality	39 40	sand prairie/dunes	blue racer bullsnake 6-lined racerunner	JFBM-13321	 high medium	 reports within 5 miles. old record (1899) from locality.
Belwin N.C. A-Quality	61	sand prairie	blue racer bullsnake eastern hognose	JFBM-13271 JFBM-13272	 high	 previous sightings
		Wetland/stream	Blanding's turtle wood turtle	JFBM-13229	 high	 sightings by D. Warner.
		oak woodlands	fox snake		high	previous sightings.
Bayport WMA	78	oak savannah	blue racer bullsnake		high high	record within 10 miles. records within 10 miles
Corrie Swamp	165	larg wetland complex	general herps			very large area with a good mixture of habitats.
L&D #2	6	outcrops (sandstone/limestone)	milksnake fox snake 6-lined racerunner blue racer timber rattlesnake	JFBM	medium medium medium low	reports within 10 miles. DOR at hwy 61 reports within 10 miles. reports within 10 miles. found in similar habitat in WI.
Baldwin Lake	38	sand beaches backwater	false map turtles smooth softshell	sighting	 high	good turtle habitat.
Afton S.P. beach	17	sand beaches	Ouachita map turtle smooth softshell	sighting	 high	good turtle habitat
Carpenter N.C.	3	sand beaches	Ouachita map turtle smooth softshell	sighting	 high	collected false & common map turtles records from upstream and downstream.
		oak woodlands	bullsnake fox snake		high high	previous sightings on site report of hibernaculum on site.
Cedar Bend N.	–	seep	Salamanders		low	good amphibian habitat.
Forest Lake 33	167	sedge meadow alders	Blanding's turtle fox snake		high high	reports within 5 miles. reports within 5 miles.
Cranberry Lake	192	bog/rice lake	Blanding's turtle		high	reports within 5 miles.
Big Marine Lake north beach	–	sand beach	Blanding's turtle		high	reports within 5 miles.

APPENDIX H. AMPHIBIANS AND REPTILES SEEN OR COLLECTED DURING THE 1988 COUNTY BIOLOGICAL SURVEY

SPECIES Sites Visited (total/CBS/B-quality)	WASH 54/48/29	LQP 17/10/11	BS 3/3/1	TRAV 2/0/1	WILK 13/9/4	CLAY 13/12/5	NORM 11/9/3
high interest							
smooth softshell	spec* 1/3**						
spiny softshell	spec 4/5	photo* 1/4	XX 0/0				XX
snapping turtle	spec 4/18	sight* 1/4	sight 1/1	XX 0/1	spec* 1/2	spec* 1/2	XX 0/1
wood turtle	sight 1/1						
Blanding's turtle	spec*** 3/11						
false map turtle	spec. 1/5						
Ouachita map	sight* 1/3						
5-lined skink		XX 0/4	XX 0/1				
6-lined racerunner	XX 0/3						
blue racer	spec. 2/5						
fox snake	spec. 4/5	XX 0/3	XX 0/1				
e. hognose	spec. 1/4						
w. hognose		photo 1/3	XX 0/1	XX 0/0	XX 0/2	XX 0/2	XX 0/2
bullsnake	XX 0/6	XX 0/2	XX 0/0				XX 0/1
milksnake	photo 1/2	XX 0/1	XX 0/0				
timber rattlesnake	XX 0/1						
central newt	XX 0/1						
4-toed salamander	XX 0/7						
spotted salamander	XX 0/5						
mudpuppy	XX 0/?	XX 0/?	XX 0/?	XX 0/?	XX 0/?	XX 0/?	XX 0/?

spec = specimen collected
sight = sighting or calling of species
XX = photograph of specimen
* = species expected, but not found
** = county record
*** = (# of Occurrences/Possible # of B-quality habitats)
Additional reports were turned in from the Volunteer Blanding's turtle survey

APPENDIX H. (continued)

SPECIES	WASH	LQP	BS	TRAV	WILK	CLAY	NORM
others							
painted turtle	spec	spec*	spec*	spec*	spec*	spec*	spec*
map turtle	spec						
prairie skink	spec	spec	spec*	XX	sight	XX	spec
redbellied snake	spec	spec	XX	XX	XX	sight	XX
brown snake	XX	XX	XX				
green snake	XX	XX	XX	XX	XX	XX	XX
water snake	XX						
plains garter	spec	spec*	spec*	XX	XX	spec	spec
eastern garter	spec	spec	spec*	XX	spec	XX	spec
redbacked salamander	XX						
tiger salamander	sight	spec	XX	XX	XX	spec*	XX
blue-spotted salamander	photo*						
American toad	spec	spec*	XX	XX	spec	XX	XX
Canadian toad		spec	XX	XX	XX	XX	XX
great plains toad		XX	XX	XX	XX	sight	XX
chorus frog	sight	sight	sight	XX	sight	XX	XX
spring peeper	spec						
gray treefrog	spec					spec*	XX
green frog	sight						
leopard frog	spec	spec	XX	spec	spec	spec	spec
wood frog	spec					spec*	XX

spec = specimen collected
sight = sighting or calling of species
XX = photograph of specimen
* = species expected, but not found
** = county record
*** = (# of Occurrences/Possible # of B-quality habitats)
Additional reports were turned in from the Volunteer Blanding's turtle survey

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