

KANSAS HERPETOLOGICAL SOCIETY NEWSLETTER NO. 93

AUGUST 1993

ANNOUNCEMENTS

ANNOUNCING THE *TWENTIETH ANNIVERSARY MEETING* OF THE KANSAS HERPETOLOGICAL SOCIETY AND CALL FOR PAPERS

KHS will hold its annual meeting on the campus of Emporia State University on 6-7 November 1993. Registration (\$5) will begin at 0830 Saturday morning in the lower floor of the Science Hall, and the regular session will start at 0900. As this is the 20th anniversary of KHS, let's make it a memorable occasion!

This is the first (and last) call for talks at the meeting. If you would like to tell the groups about your herpetological interests, philosophy, and/or a project you've been involved with, we hope you will speak. Presentations will be scheduled for 15 minutes, including time for questions. The reason we have talks is so that we can exchange information, share ideas, and get to know one another, thus the format is flexible and informal. This call for presentations is for *all members*. We want you! Those who have already expressed interest in speaking include Randy Reiserer, Marty Capron, Eric Rundquist, Bob Ball, Rachel Ball, Daren Riedle, and Dr. Robert Clarke. If you want to speak, inform David Edds in writing (address on inside front cover) before 30 September. Give the title of your talk, plus information on any audio-visual equipment you will need.

We are pleased to announce that this year's keynote speaker will be Dr. Robert Powell of Avila College in Kansas City, who will present results of his studies on the fascinating herps of the Dominican Republic. With good fortune, we may have two other special events: a talk by KHS Distinguished Life Member Dr. Henry Fitch on snakes of Kansas and a 20-year audiovisual retrospective extravaganza of the KHS by Larry Miller and Suzanne Collins (they will accept any incriminating photos you may have).

We'll let you in on a secret right now...the KHS Executive Council has voted to honor a third Distinguished Life Member, and the official announcement will be made at the meeting. We will also announce the recipient of the first annual KHS Gloyd-Taylor Student Scholarship. We may even have a visit by the Bronze Salamander.

We encourage you to bring your own (legal) salamanders, snakes, toads, turtles, caecilians, crocodiles, etc. for the live herp exhibit. Bring your camera, too. As in past years, experienced KHS wildlife photographers will

be available to provide a few pointers.

You will have the opportunity to purchase recently published herp books, the new Edward Taylor publication published by KHS, back issues of the *KHS Newsletter*, Ornate Box Turtle bumper stickers, a group photo, and possibly even KHS T-shirts. We urge you to bring items for the annual auction (*no live herps, please*), featuring the extraordinary Joe Collins, auctioneer, plus free gourmet beverage.

Registration, talks, business meeting, and live herp exhibit will all take place in the bottom floor of the Science Hall on the west side of the ESU campus (building 19 on the map). Access is by K-99 (Merchant Street) from the north or south, and via I-35 from the east or west. Free parking will be available in front (west side) of the building. The Science Hall also features a geology museum and the Schmidt Natural History Museum, replete with a display of immortalized herps and including an outstanding exhibit of flying dinosaurs.

Following the morning session, we will break for lunch (on your own at one of Emporia's fine eating establishments) and reconvene for the business meeting. We will hear reports from officers and committees, elect officers, and consider changes in the KHS Constitution and Bylaws. The afternoon ends with a free-for-all slide show, so we invite you to bring your ten favorite herp slides to share with the group.

Evening activities will move to the Ross Natural History Reservation, a 200-acre facility complete with indoor classrooms, about 15 miles northwest of campus (maps provided at registration). As part of our 20th anniversary celebration, meeting attendees will have the opportunity to forage together at an informal burger fry (with trimmings) at "The Ross." Tickets (\$5) will be sold at registration.

For those not inclined to feast on burgers and trimmings, we hope you will at least grab an avocado and join us for dinner at "The Ross," for this is also the site of the evening social and auction, the highlight of the meeting. Search those closets, drawers, and bookshelves for herp paraphernalia and bring it along (or send to David Edds). Remember that one herper's junk is another's treasure.

Also, don't forget to bring cash, as this the society's main fundraiser. We also take plastic now.

Sunday morning's session will begin at 0900 at the Science Hall. Depending on how many people want to talk, we'll probably adjourn around noon.

Don't worry about the weather. It never snows in Emporia in November, so make your lodging arrangements now and join us in Emporia! For more information call David Edds.

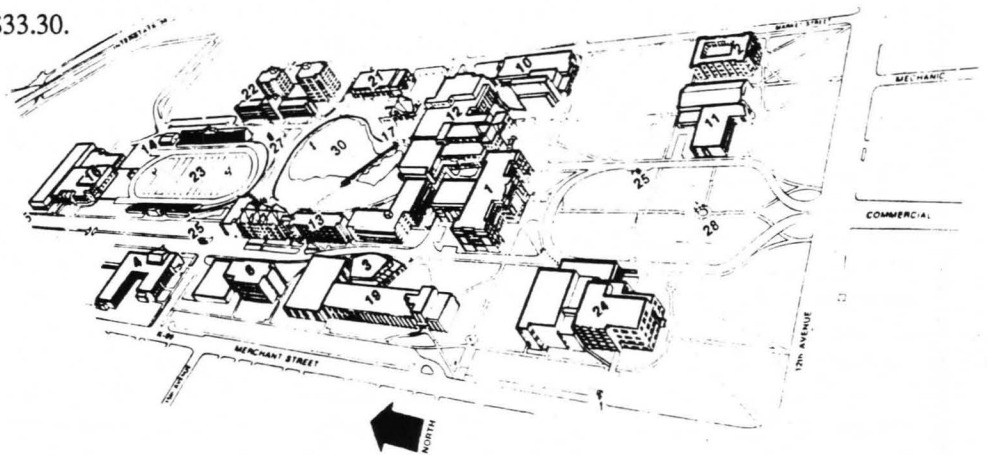
The following motels responded to inquiry about group rates (all plus taxes):

Comfort Inn, 2511 West 18th
(316)343-7750
1B/1P-\$27.90, 2B/2P-\$33.30.

Quality Inn, 3021 West Highway 50
(316)342-3770
1B/1P-\$35, 2B/2P-\$46

Ramada Inn, 1839 Merchant
(316)342-8850
1B/1P-\$35, 2B/2P-\$38

Best Western, 3181 West Highway 50
(316)342-7587
1B/1P-\$34, 2B/2P-\$46



PUBLICATIONS OFFERED

The Museum of Natural History at the University of Kansas announces a special publication offer. First is *Amphibian Species of the World: Additions and Corrections* by KHS charter member William E. Duellman. This is a definitive update of the out-of-print *Amphibian Species of the World* by Darrel Frost. Although Frost's original work is exhaustive and invaluable, much has changed in the world of amphibiology since then. Duellman's compilation includes 32 more genera and 419 additional species; major taxonomic rearrangements of eight amphibian families, new distributional data on scores of taxa, cross-referenced taxonomic changes (with references to authorities), and a complete index. This publication is available now for only \$35 plus \$2 postage and handling for first copy (50¢ for each additional copy). Kansas residents add 5.9% sales tax.

In addition, the Museum is offering complete sets (70 papers) of *Occasional Papers* in herpetology for only \$40 (postpaid).

To take advantage of either or both of these offers, place your order with: Publications, Museum of Natural History, Dyche Hall, University of Kansas, Lawrence, Kansas 66045.

The Society for the Study of Amphibians and Reptiles announces two new publications: *The Gila Monster and its Allies* by Charles Bogert and Rafael Martín del Campo and *Herpetology: Current Research on the Biology of Amphibians and Reptiles*. The first volume is a facsimile reprint of the original classic work and contains an updated preface by the late Charles Bogert, a retrospective essay by Daniel Beck, and a comprehensive index by KHS member Dale Belcher. In addition, a special limited edition print (9 X 11 in.) of the color frontispiece by renowned artist David Dennis is being offered. This print is limited to 100 numbered copies and is signed by both Bogert and Dennis. The Gila monster volume is available for \$38 (add \$2 postage) and the print is \$25 postpaid.

Herpetology contains the updated plenary lectures from the First World Congress of Herpetology. These chapters, by leading authorities on herps, present a broad review of contemporary herpetology and are an excellent collection of readings for herpetology courses and graduate students. The book is available for \$28 (\$2 postage).

Both of these volumes may be ordered from Dr. Robert Aldridge, SSAR Publications Secretary, Department of Herpetology, St. Louis University, St. Louis, Missouri 63103. Make checks payable to "SSAR."

UPCOMING MEETINGS, SYMPOSIA, SHOWS, ETC.

The Maryland Herpetological Society announces the Mid-Atlantic Reptile Show on 25-26 September in Baltimore. The keynote speaker will be Roger Conant and other speakers include Jack Cover, Wayne Hill, and Alan Zulich. Proceeds from this event will be given to the Ecosystem Survival Plan of the American Association of Zookeepers to purchase rainforest in Costa Rica. For more information, write Tim Hoen, John Hopkins University, Jenkins Hall/Biophysics, 34th & Charles Street, Baltimore, Maryland 21218; phone (410)557-6879.

The Iowa Herpetological Society announces its annual Midwestern Herpetological Conference which will be held in Des Moines on 22-24 October. Tentative speakers include Richard Funk, Dick Ross, John McGrath, and Tom Weidner among others. Write Allen Anderson at P.O. Box 166, Norwalk, Iowa 50211 or call him at (515)981-0402 for more information.

The East Texas Herpetological Society will be holding its third annual Conference, Educational Exhibit, and Breeder Expo on 10-12 September in Houston, Texas. Speakers include David Lazcano, Joe Branham, James Jarchow, Gary Ferguson, Tim Tyle, and Steve Hammack. Additional information can be obtained from David Doherty, 25206 Grogans Mill Road, The Woodlands, Texas 77380; phone (713)367-4963.

HERP EQUIPMENT OFFERED AT WHOLESALE PRICES

Gary Warner is offering his line of *Prohook* snake hooks and sexing probes to members of regional herp societies at wholesale prices. His standard snake hook is available in lengths from 28-44 inches with hook diameters of $\frac{1}{4}$ - $\frac{5}{16}$ inch. The dual handle boa hook can be ordered in lengths of 48-52 inches with a $\frac{5}{16}$ inch diameter hook. His juvenile snake hooks are available in standard lengths of 16, 18, and 20 inches. All hooks are manufactured from solid stainless steel. Solid stainless steel sexing probes with polished rounded tips are sets of four with diameters of .035, .062, .093, and .125 inch and a length of six inches. Probes come with a pouch, lubricant, and instruction sheet.

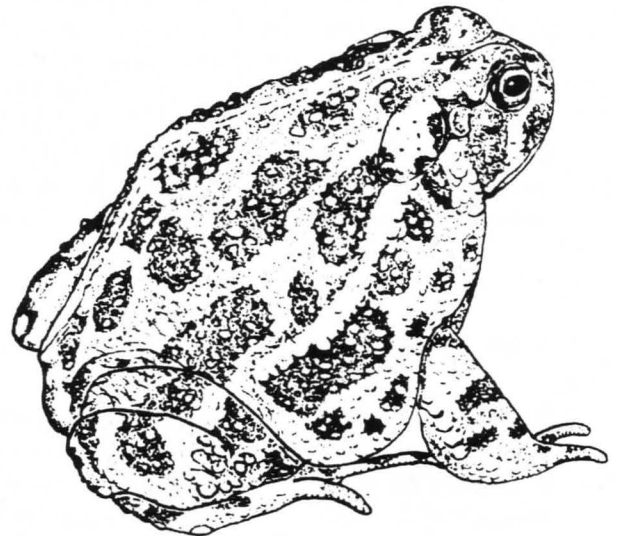
Prices are as follows: boa hook—\$30, standard hooks—\$12.50(\$10 for orders of six or more), juvenile hook—\$7(\$6 for orders of six or more), sexing probe set—\$25(\$15 for orders of five or more). Send orders to W. Warner, 145 Park Hill Road, Southern Pines, North Carolina 28387 or call (919)692-2976. Orders are shipped UPS collect unless more than \$200 of equipment is ordered. I have used these hooks and they are equal in quality to any others I have used. At these prices, I highly recommend that you buy from Mr. Warner.

NEW HERP BUSINESS IN KANSAS

Bush Herpetological Supply has relocated to Neodesha, Kansas. This outfit markets a fairly complete line of equipment and supplies for captive herps. To receive their catalogue and special notices, write to: Bush Herpetological Supply, P.O. Box 539, Neodesha, Kansas 66757 or call (800)451-6178.

BOA SURVEY

William D. Joy has the following request: "Please write for my questionnaire on *Boa constrictor* reproduction. Even if your animals have not reproduced, please respond if they are at least four years old and have had the opportunity. In return for a completed survey, you will receive a chart showing the subspecies [sic], their scale counts, and range. Write to William D. Joy, P.O. Box 821433, Dallas, Texas 75382-1433."



KHS BUSINESS

KHS OFFICER NOMINATIONS

The nominees for elective office of the Kansas Herpetological Society for 1994 are as follows:

The nominees for President-Elect are David Reber of Lawrence and Mary Kate Baldwin of Topeka. Mary Kate has been a KHS member for eight years and has been actively involved in KHS activities and herpetological events around the state. David has been a member for 12 years and again has been a very active member of the Society. He is currently pursuing a Master's degree at the University of Kansas.

Karen Toepfer will stand unopposed for the office of Secretary-Treasurer.

Additional nominations for these offices can be made from the floor at the business session of the annual meeting in November.

PROPOSED CHANGES TO KHS CONSTITUTION AND BYLAWS

In order to bring the KHS Constitution in line with changes in tax codes, to make it possible to amend the constitution itself, to make the document gender neutral, and to reflect changes of editorial responsibility, your Executive Council is proposing the following changes to the Constitution which will be voted on at the annual meeting in November. Old language is denoted by strikethrough and new language is indicated in italics.

Changes to the Constitution:

Article II, add the following section:

Section 4. The purposes of this Society are to operate solely and exclusively within the meaning of Section 501(c)(3) of the Internal Revenue Code of 1986 or the corresponding provision of any future United States Revenue law) as a charitable, scientific, literary, and educational organization.

Article IV. Delete the following section and add:

~~Notwithstanding any provisions of this Constitution or the Bylaws which might be to contrary interpretation:~~

~~1. the Society shall be organized and operated exclusively for scientific and educational purposes;~~

- ~~2. no part of the net earnings of the Society shall or may under any circumstances inure to the benefit of any private shareholder or individual;~~
- ~~3. no substantial part of the activities of the Society shall consist of carrying on propaganda, or otherwise attempting to influence legislation;~~
- ~~4. the Society shall not participate in, or intervene in (including publishing or distribution of statements); any political campaign on behalf for public office;~~
- ~~5. the Society shall not be organized or operated for profit;~~
- ~~6. the Society shall not:
 - a. lend any part of its income or corpus, without the receipt of adequate security and a reasonable rate of interest;
 - b. pay any compensation, in excess of a reasonable allowance for salaries or other compensation for personal services actually rendered;
 - c. make any part of its services available on a preferential basis;
 - d. make any purchase of securities or any other property for more than adequate consideration in money or money's worth from;
 - e. sell any securities or other property for less than adequate consideration in money or money's worth to;
 - or
 - f. engage in any other transactions which result in a substantial diversion of its income or corpus to;~~

~~any officer, or substantial contributor to the organization.~~

The prohibitions contained in this subsection 6 do not mean to imply that the organization may make such loans, payments, or sales to or purchases from anyone else, unless such authority be given or implied by other provisions of this Constitution or Bylaws:

Provided, however, that in all events and under all circumstances, and notwithstanding merger, consolidation, reorganization, termination, dissolution, or winding up of this Society, voluntary or involuntary or by operation of law, the following provisions shall apply: This Society shall not have or exercise any power or authority either expressly, by interpretation, or by operation of law, nor shall it directly or indirectly engage in any activity that would prevent this Society from qualifying (and continuing to qualify) as an organization described in Section 501(c)(3) of the Internal Revenue Code of 1986 (or the corresponding provision of any future United States Internal Revenue law). This Society shall never be operated for the primary purpose of carrying on a trade or business for profit.

No compensation or payment shall ever be paid or

made to any member, officer, director, trustee, creator, or organizer of this Society, or substantial contributor to it, except as an allowance for actual expenditures or services actually made or rendered to or for this Society; and neither the whole nor any portion of the assets or net earnings, current or accumulated, of this Society shall ever be distributed to or divided among any such persons; provided further that neither the whole nor any part or portion of such assets or net earnings shall ever be used for, accrue to, or inure to the benefit of any member or private individual within the meaning of Section 501(c)(3) of the Internal Revenue Code of 1986 (or the corresponding provision of any future United States Internal Revenue law).

Article V. Make the following changes:

Upon dissolution of the Society, the ~~Executive Council~~ ~~the governing body~~ shall, after paying or making provision for the payment of all the liabilities of the Society, dispose of all of the assets of the Society exclusively for the purposes of the Society in such manner, or to such organization or organizations organized and operated exclusively for charitable, educational, religious, or scientific purposes as shall at the time qualify as an exempt organization or organizations under section 501(c)(3) of the Internal Revenue Code of ~~1954~~ 1986 (or the corresponding provision of any future United States Internal Revenue Law), as the ~~Executive Council~~ ~~governing body~~ shall determine. Any such assets not so disposed of shall be disposed of in the ~~Court of Common Pleas~~ ~~District Court~~ of the county in which the principal office of the Society is then located, exclusively for such purposes or to such organizations, as said Court shall determine, which are organized and operated exclusively for such purposes.

Add the following article:

Article VI. Amendment of the Constitution

Section 1. Amendments may be proposed by the governing body or by petition to the Secretary by ten or more members of the Society.

Section 2. Proposed amendments must be submitted in writing to the Secretary-treasurer at least three months before the general meeting at which they are to be discussed.

Section 3. Such amendments shall be submitted in writing by the Secretary-treasurer to the general membership at least two months prior to the general meeting at which they are to be discussed.

Section 4. To be approved, an amendment must receive a positive vote by two-thirds of those voting at the general meeting.

Section 5. Any adopted amendment shall become an integral part of the Bylaws and the Secretary-treasurer shall be instructed to add them to copies of the Bylaws and to distribute the amended Bylaws to the members of the governing body of the Society and to other interested members of the Society.

Changes to the Bylaws

Article II. Make the following changes:

Section 1.

b. The President-elect shall fulfill the duties of the President when the latter is absent, and shall succeed the President at the termination of the latter's term. He/She shall also assume the presidency should that office become vacant during a term.

Section 5. The duties of the Editor of the Society ~~Newsletter~~ shall be as follows:

He/She shall be responsible for all phases of ~~its publication~~ ~~Society publications~~. ~~He~~ ~~The Editor~~ may appoint staff members to assist him/her.

A LETTER TO THE MEMBERS FROM PRESIDENT DAVID EDDES

I would like to take this opportunity to relate some of KHS's accomplishments over the past year. Just as horrible memories of a Kansas rattlesnake roundup began to fade, we were assaulted by Senate Bill 137, which legalized commercialization of prairie rattlesnakes, and then we were cursed with another roundup in the spring. Your Executive Council has been actively informing others about these issues, which has included notifying you by letter of such pending legislation, advising other state conservation organizations, and testifying to the legislature in Topeka and to the Kansas Wildlife and Parks Commission. Now comes word that "Fangs and Rattlers" (the alleged "professional" snake handlers from Texas) will bring their sideshow and 100-200 western diamond-back rattlesnakes to the county fair in Onaga in August. Where (and when) will it all end?

I represented KHS at a spring meeting of the Kansas Nongame Wildlife Advisory Council, a group designed to advise the Secretary of the Department of Wildlife and Parks on nongame wildlife issues. We discussed a number of items with Mr. Ensley, including rattlesnake commercialization and use of Chickadee Checkoff monies. Al Volkmann and I represented KHS on the Environment Awareness Council, an assembly created the Kansas Department of Health and Environment to provide input from various citizen groups on the development of legislation, policy, and regulations.

The Executive Council met in November, February, and June to discuss business, including distinguished life memberships, the Bronze Salamander award, and recommended changes in the KHS Constitution and Bylaws. We approved contributions of \$100 to assist in repair of the Topeka Zoo rainforest exhibit which was damaged by fire, \$200 to Joe and Suzanne Collins to help defray costs of a publication on Cheyenne Bottoms amphibians and reptiles, and \$200 to the Society for the Study of Amphibians and Reptiles to partially finance Bill Brown's excellent new publication on the biology of the vulnerable timber rattlesnake. KHS also published its first major publication, *The Lizards of Kansas* by E. H. Taylor, which is now available to KHS members at a reduced price. Expenditures for such publications are great publicity for KHS and further our stated goal of encouraging education and dissemination of scientific information.

I am delighted that KHS will award our first Howard K. Gloyd-Edward H. Taylor Student Scholarship at this year's annual meeting. This begins what I hope will be a rich tradition of recognizing, encouraging, and assisting deserving students of herpetology. Support for this award comes from interest earned on contributions, so please donate to the scholarship fund if you can. Pending your interest in this award, there are possibilities for instituting honors for research, the best paper at the annual meeting, and/or best paper of the year in the *Newsletter*.

KHS is *your* Society. You elect the officers, but *you* must remain involved. We had two great field trips this year (in the Chautauqua Hills and Flint Hills), and I strongly encourage you to go herping with us at your next opportunity. The annual meeting in November is *the* major gathering of the Society, and this year's meeting is extra special because 1993 is KHS's 20th anniversary. I hope you will come to Emporia and help us celebrate this event. I also urge you to bring or send items for the annual auction, which is our prime fund raiser.

KHS is active and sound, and our membership rolls are solidly over 200. It would be great, however, to increase our membership; I would like to have 300 by our annual meeting. We need you and others like you! If each person reading this *Newsletter* would *recruit one other member*, we could easily reach that goal. So act now, make plans to come to Emporia, and encourage a friend or colleague to join us in our continuing exploration of Kansas herpetology.

—David Edds
KHS President

KHS WANTS OFFICIAL LOGO

At the last meeting of the KHS Executive Council, we decided that it was high time that the Kansas Herpetological Society finally have its own official logo. Therefore, we

are opening competition to any and all who feel that they can design the best logo for any herpetological organization in the country (hey, we have a reputation to uphold). The design is strictly yours but should contain the name of our group and appropriate graphic representation of items specific to Kansas herpetology. One hint: keep it specific, simple, and relatively small. This logo will be used on all items that represent the Kansas Herpetological Society (stationery, T-shirts, publications, etc.). If you feel that you have *the* logo for KHS, submit original artwork to me (address on inside front cover). With luck, we will be able to make the presentation of the new KHS logo at the annual meeting in November.

—EMR

RATTLESNAKE REGULATION: SOME LIGHT AT THE END OF THE TUNNEL

On 7 July this year, the Kansas Wildlife and Parks Commission held its monthly meeting at Pittsburg and, as has been the case for some time now, commercialization of rattlesnakes was one of the topics on the agenda. Once again, KHS President David Edds sallied forth to make his views (see the first article in the Feature Articles section) and those of the Society known on this odious topic (without much hope for change, however). A strange thing happened at this meeting, though. For the first time, it appears that the Commission is listening seriously to us (and other conservationists) and are willing to take steps to limit the impact of commercialization, insofar as is possible.

The Kansas Department of Wildlife and Parks was going to make the following recommendations for harvest of prairie rattlesnakes: season—1 March-30 June, limit—30 (as before), size limit—18 inches, method of take—hand, snake tongs, snake catcher, holding facilities—recommend establishing minimum requirements for space or watering. No mention was made of limiting or defining the area in which snakes could be taken (presumably it would still have been statewide).

Objections were raised to the first five recommendations by Dave and by me. These objections are as follows: if a season had to be designated that it be a late summer/early fall season rather than a spring season. Snakes would be well dispersed at this time and devastating impacts on hibernacula would be avoided. We recommended, in the face of having *no* firm biological data, that the Commission be conservative and return to the original five snake limit (KDWP's recommendations were based on alleged conversations with Oklahoma wildlife officials who deal with the Western Diamondback Rattlesnake, an animal with a vastly different biology than the Prairie Rattlesnake). Further that hand taking not be a legal method of collection as

it promotes the danger of snakebite and ensuing morbidity and possible mortality. We recommended that a maximum, not minimum, size limit be designated as large female rattlesnakes are known to be the primary contributors to their populations. The KDWP-suggested regulation on requirements for space and water was so vague as to be useless and it was suggested that consideration also be given to feeding snakes held longer than two weeks and provisions for shading the animals be made. Last, it was suggested that the Commission designate official areas in which commercial collection of rattlesnakes could be done, as Senate Bill 137 designated the entire state for collection and thereby put other rattlesnakes (specifically the timber rattlesnake) at risk. The area suggested for designation was Wallace County.

After hearing these presentations, an amazing thing happened. The Commission actually seemed to be agreeing with our recommendations and not those of KDWP. Let me quote from a letter I just received from Dave Edds: "During discussions at the meeting, the Commission expressed interest in steering away from the Department's recommendations, and in recommending the following: a season from August 1-September 30, allowing five days within this two month "window" in which the roundup could be held; limiting commercial harvest to such an event; specifying a daily bag limit of five and a possession limit of ten; increasing minimum size limitation to at least 25 inches; limiting commercial harvest to Wallace County, or to a permitted county and those adjacent to it.

About a half hour into this rather invigorating discussion, Secretary [of Wildlife and Parks] Ensley recommended deferring further discussion until the August meeting, and a "re-working of Department recommendations based on the direction the Commission seemed to be leaning." Though Chairman Holderman balked at this suggestion, and indicated a firm interest in having the Commission's recommendations heard at that time, after some insistence from the Secretary, via Darell Montei, the Commission consented."

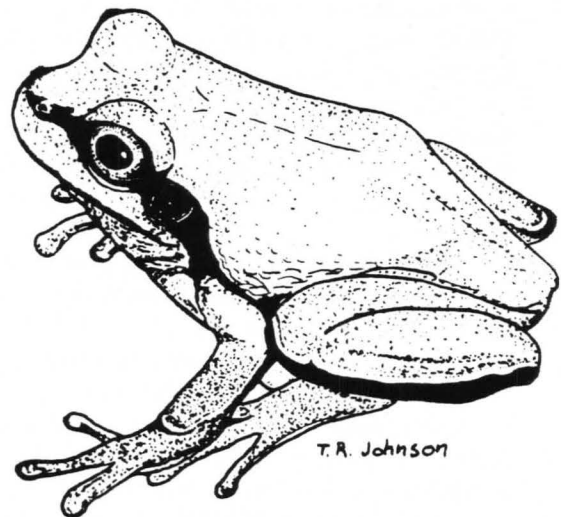
What this means is that the Commission has made a 180 degree turn in their thinking at this time and appears to be on our side. It also means that the roundup folks are sure to have heard about what transpired at Pittsburg and are not going to be very happy about it. They *will* be at the next Commission meeting, perhaps in force, and they *will* attempt to have their position be the prevailing one. Therefore, it is **absolutely vital** that as many KHS members be at this meeting as possible and make your views of opposition to KDWP's recommendations and those of the roundup organizers known. This meeting will be held 11 August at the Red Coach Inn, 2525 West Central, El Dorado at 1:30 P.M. This will be our last chance to limit the impact of commercialization of rattlesnakes in Kansas at this point. We can't change the law but we can affect the

regulations. I realize that, because the meeting is held during normal working hours for most of us, it will entail a sacrifice on your part to attend, but please try to do so. If you care anything about the herpetofauna of this state in general and rattlesnakes in particular, this is your one last chance to do something about it. If you absolutely cannot make the meeting, but want your written views made known to the Commission, please send them to me, either by mail or FAX (316-942-3781), before 11 August and I will make sure that the Commission hears you.

—EMR

SUZANNE & JOE COLLINS LOSE FAMILY MEMBER

Leslie Hunter, father of KHS member and outstanding *Newsletter* contributor Suzanne Collins died suddenly on July 1 of this year. As a decorated veteran of the Pacific theatre during World War II, he was buried with full military honors. The KHS Executive Council extends their sincere condolences to Suzanne and Joe during this time of tribulation.



KHS BRINGS YOU GREAT NEWS OF THE WORLD

TOWN SEES ROUNDUP AS MATTER OF SURVIVAL

An economic development move in [Sharon Springs] has the community enthusiastic, but leaves at least one wildlife expert rattling mad.

Sharon Springs, a town of about 975 people in far western Kansas, is host to the state's only rattlesnake roundup. Organizers said the event is an attempt to carve an economic niche for the struggling community.

"We don't have palm trees or lakes or professional sports," said Judie Withers, who thought of the rattlesnake roundup about four years ago. "You have to take what you have and use it. We have lots and lots of rattlesnakes."

Wallace County is among the state's poorest counties, according to 1990 U.S. Census reports. One in five of the county's residents is below the federal poverty level, and the county has the eighth-lowest family income in Kansas, the reports stated.

Last weekend, more than 50 hunters from as far away as Pennsylvania came to Sharon Springs to participate in the town's second annual rattlesnake roundup and add to the Wallace County coffers.

A state law was passed by the 1993 Legislature specifically for the Sharon Springs event. The law allows rattlesnake parts (sic) to be sold commercially. In 1992, the meat and skin were either given away or discarded.

[KHS member] Joe Collins, a wildlife author from Lawrence, described the hunt and the state law as horrific. He testified against the bill and was a proponent of celebrating rattlesnakes without destroying the animals.

"The wanton killing of wildlife in 1993 in the United States is an absurdity, no matter what the animal," Collins said this week. "It's probably the worst environmental law passed by the Kansas Legislature in the past quarter century."

He said no studies were done on how the hunt would affect the environment, which is a contrast to the usual way environmental issues are dealt with.

"The law was based on greed and politics," he said. "The bottom line was the almighty dollar."

Collins said there is some discussion among wildlife groups of boycotting Wallace County and Colby, home of Senate Majority Leader Sheila Frahm, the bill's sponsor.

"I've had it with the people out there," Collins said. "I'm tired of their attitudes."

Sharon Springs organizers countered the rattlesnakes are treated as humanely as possible, and said the supply in the area is more than ample. Hunters snared 171 snakes last weekend.

"Everyone has their own opinion," said Debbie Fischer, an organizer. "Apparently, the ones who don't approve don't live in our economically depressed area."

While the organizers got past the state law, they couldn't manage the weather.

Cold, wet weather Saturday caused a smaller-than-expected turnout. Sunny weather Sunday may have saved the rattlesnake committee from going in the red.

Sponsors of the roundup, thought to be the only one in the country organized and run by women, are the Sharon Springs Pride Committee and Jaycees.

About \$8,000 was collected at the gate of the 1992 roundup, and that doesn't include the money taken by local motels and restaurants, said Brenda Beringer, economic development director for Wallace County. The amount collected in last weekend's event hasn't been determined.

Beringer admitted the money-making strategy might seem odd to some people, and she said other economic development officials sometimes tease her about the roundup.

"We all do what we have to do," she said. "This just happens to be new for Kansas."

—Topeka Capital-Journal, 8 May 1993
(submitted by Mary Kate Baldwin, Topeka)

LEGISLATORS AGAIN SHOW THEY'RE NO NATURE LOVERS

At the bottom of the fetid, smoldering ashes of the 1993 legislative session is an odorous blob of ooze called Senate Bill 137. It allows the commercialization of wildlife, in particular, prairie rattlesnakes.

The bill was produced, directed, and passed by the Legislature with minimal input from the Kansas Department of Wildlife and Parks, the agency whose primary job is to protect wildlife against commercial exploitation.

Its easy passage into law points to a glaring problem: Wildlife and Parks has no real clout when it comes to stopping wildlife-related legislation created solely for economic development.

The bill had its genesis in Wallace County, where folks from Sharon Springs decided to bring some extra money into their area by staging a "Rattlesnake Roundup."

Aware that rattlesnakes were protected by an existing regulation, the folks from Sharon Springs attended a Wildlife and Parks Commission meeting in Hays and made a pitch to have the hunt with fewer restrictions.

At that time, rattlesnakes were not game species like a pheasant or quail. They were regulated so that up to five

rattlesnakes could be taken each day, more for pest control than organized hunts. The sale of rattlesnake meat, skins, heads, and rattles was illegal.

That is not to say that Wildlife and Parks is prohibited from proposing legislation specific to the commercial harvest of a particular species, say prairie rattlesnakes. Or that it would be wrong to allow those activities after careful biological consideration.

But it would involve a scientific process, which would study prairie rattlesnake populations, the impact hunting would have on that species, and determine what, if any, impact fewer rattlesnakes would have on other creatures in the environment.

Most of us understand that the natural world is an intricate chain of predator-prey relationships. So it is imperative to study all of the links before you strengthen or weaken one of them.

That is why the prime directive for Wildlife and Parks is to "protect wildlife." Recreational and commercial interests are, and should be, a distant second.

After KDWP and snake-hunt advocates discussed the options within existing law, the hunt was allowed in September 1992 under the watchful eye of Wildlife Conservation officers backed up by observers from the Kansas Herpetological Society. It turned out to be a moderate financial success for Sharon Springs.

Wanting to attract more folks and money to Sharon Springs, hunt organizers decided the only way to get the job done was to legalize the commercialization of rattlesnakes. So they sought the help from their state senator, Sheila Frahm, R-Colby.

Frahm pushed the legislation through with only minor interference from Wildlife and Parks.

Members of the Kansas Herpetological Society and the Kansas Audubon Society strenuously fought passage of the bill while Wildlife and Parks, sensing it had no real influence with the Legislature, suggested a daily bag limit of 30 snakes.

Senate Bill 137 easily passed through both houses and was signed into law by Gov. Joan Finney. You would think legislators would grant rattlesnakes a modicum of professional courtesy, but that was not the case. It is now legal to sell rattlesnake meat, skins, heads, and rattles in Kansas.

Wildlife and Parks has the option in 1994 to do what it should have done in the first place: regulate the harvest based on biological data rather than economic development.

I just hope it gives the prairie rattlesnake the same well-researched biological consideration that it gave to the commercial harvest of mussels. That took three years to regulate.

Senate Bill 137 is an ill-conceived law, which put economic development before wildlife management. It is also another example of what can happen when legislators

run roughshod over an agency whose job it is to protect all wildlife.

Legislators, who are more interested in getting re-elected than taking care of wild things, are the last group of people on earth who should be allowed to create laws regarding wildlife. Rattlesnake roundups and the non-resident deer bill, which was amended and ruined by the Legislature, are both examples of their 1993 handiwork.

But ultimately the blame rests with Ted Ensley, secretary of Wildlife and Parks. It is his agency's job to prevail over legislation dreamed up by politicians who don't care about the natural order of things.

John Muir, one of our nations' first conservationists, summed it up best in a single sentence:

"When we try to pick out anything by itself, we find it hitched to everything else in the universe."

And like it or not, Muir's observation includes rattlesnakes.

— Steve Harper

Wichita Eagle, 13 June 1993

(submitted by M. Ensley P. Owed, Wichita)

ACTIVISTS PROTEST SNAKE ROUNDUP

Wildlife activists Tuesday criticized the money-making roundup of [venomous] rattlesnakes in the western Kansas town of Sharon Springs.

[KHS member] Joe Collins, zoologist at Kansas University's Museum of Natural History, said the hunt was bad wildlife management.

The roundup was approved by the Kansas Legislature without first studying possible biological impacts, he said.

"Environmentally and conservation-wise, it's a travesty," said Eric Rundquist, an herpetologist at Sedgwick County Zoo and editor of Kansas Herpetological Society publications.

This spring's second annual rattlesnake roundup attracted 50 hunters and resulted in the capture of about 175 rattlesnakes. It's the state's only rattlesnake roundup.

Brenda Beringer, economic development director for Wallace County, said the roundup was an important event in economically depressed Wallace County.

She said it generated about \$8,000 of economic activity at the roundup site. Area businesses also benefited, she said.

Twenty percent of Wallace County residents live below the poverty line. The county has the eighth-lowest family income in Kansas.

State Sen. Sheila Frahm, R-Colby, sponsored a bill passed by the 1993 Legislature that authorized the commercial sale of rattlesnake parts and added a financial incentive to holding the hunt in Sharon Springs.

"It was an extremely bad bill from an environmental

standpoint," Collins said. "Not because we want to stop Sharon Springs from making money, but because we don't know the biological impact of the roundup."

"Any legislation not based on data...has got to be worrisome. You don't know what the long-term effects are," he said.

Collins said the Kansas Department of Wildlife and Parks should manage the rattlesnake populations just as it does other game animals.

Frahm said similar rattlesnake roundups have occurred for decades in Oklahoma, Texas, and other states.

"If they can have them year after year, surely there are plenty of rattlesnakes around," she said.

Rundquist said support for rattlesnake roundups comes from people who believe they are ridding an area of treacherous, deadly creatures. Nobody has been killed by a snakebite in Kansas since the 1950s, he said.

"In fact, roundups lead to snakebites. It hasn't happened here (Sharon Springs), but I guarantee it will happen," he said.

Collins said wildlife groups support an alternative to the roundup, such as a rattlesnake celebration in which snakes aren't destroyed.

Frahm said the Wallace County rattlesnake roundup was conducted in a humane manner. Hunters at this roundup didn't rely on smoke and flames to flush out the reptiles, she said.

"These people are farmers. They're not interested in destroying the environment," she said.

Rundquist said state law regarding rattlesnake hunts should be amended to restrict roundups to Wallace County and to a specific rattlesnake.

"The bill is vague," he said. "Anybody can come in, get a license and collect 30 snakes. They could...get timber rattlers, which are in trouble in this state."

—Lawrence Journal-World, June 1993
(submitted by Richard M.
and Patricia G. Rundquist, Lawrence)

COLLEGIATE SCHOOL STUDENTS HOP TO THEIR DUTIES IN "HERP COUNT."

The mission for the day: capture in the vicinity any amphibian or reptile that slithered, scampered, splashed, hopped, or crawled.

This was the goal for more than 60 students and adults from Topeka Collegiate School who ventured into eastern Wabaunsee County on Friday afternoon to collect animals for a "herp count."

A herp count involved collecting amphibians and reptiles to identify and counting the approximate numbers of species in a given area.

Clad in rubber boots and long pants and carrying pillow cases and plastic bags, students and teachers split

into six groups to cover nearly 80 acres of wooded area during the two-hour event.

The fifth- through eighth-graders and various adult supervisors surveyed a diverse habitat and collected all the amphibians and non-venomous reptiles they could catch.

Larry Miller, science teacher at Topeka Collegiate School and coordinator of the event, said most of the animals were to be released after they were identified and counted—except for a few snakes and turtles that were kept as pets.

He said the data from the herp count would be recorded and copies given to the Kansas Herpetological Society.

Results of the school's count will be published later along with many other counts from across the state in the *Kansas Herpetological Society Newsletter*.

Miller said the information would also be made available to the Kansas Department of Wildlife and Parks.

Miller, a member of the Kansas Herpetological Society, has conducted herp counts for the past 20 years and decided this year to involve students at Topeka Collegiate School.

Because students have been learning about earth and life sciences, Miller said, the herp count puts facts in the classroom into perspective.

"My teaching philosophy has always been that learning has got to be enjoyable," Miller said. "Even though the students are finding birds and insects and other animals which aren't amphibians and reptiles, they are still seeing the diversity of wildlife in Kansas. They are learning that all these creatures have a reason to be here."

While the group did find more than 30 specimens of ten different species, Miller said he expected to find many more.

"We have a perfect day and a perfect habitat," Miller said. "But as all herpetologists know, optimal conditions don't guarantee high counts."

While Friday's herp count could lead to important data for the future, the day's activities provided more immediate benefits for the students.

"It's a good learning experience because it's fun to look at the animals and see the habitat where they live," said 13-year-old Ann Gandhi.

"It's neat to find animals and actually be a scientist, but most of all, it's fun to get out of school for a day."

—Topeka Capital-Journal, 1 May 1993
(submitted by Suzanne L. Collins, Lawrence)

TROUBLED KANSAS WATERS RUN MURKY AND POLLUTED

Time was when divers from across the country would come to the rivers and lakes in southeast Kansas to search

for mussels with shells that were black and thick and strong.

The shells were exported by the ton to Japan, where workers carved them into tiny beads to form the seeds for cultured pearls.

Lewis Britain remembers. In 1968, his first year as a mussel harvester, he pulled 800 tons of shells out of a 25-mile stretch of the Verdigris River.

No more.

Now the mussel shells he finds are thin and brittle and riddled with holes.

"They look like a worm has been eating on them," Britain says.

Lying on the river bottoms and building their shells from the material they filter out of the water, mussels are susceptible to everything that man dumps into the river.

"They are sitting ducks," says [KHS member] Larry Zuckerman, an aquatic biologist for the Kansas Department of Wildlife and Parks. "They filter water. If the water gets polluted to the point that it kills them, they are dead. They can't get out of the way and run."

Like the mussels, our rivers are sick.

Only five percent of stream and river miles in Kansas are considered clean enough for what they are used for—swimming, boating, and providing a home for native fish and clean water for cattle, crops, communities, and industry.

More than 20 years after Congress passed the Clean Water Act, which set a goal that people should be able to swim and fish in all rivers by 1983, only 670 miles of 16,800 river miles regularly tested in the state are safe for all uses.

About 70 percent of the rivers in the country are fishable and swimmable, according to estimates from the Environmental Protection Agency. Because each state tests its rivers differently, the agency cautions that it is not easy to compare one state's water quality to another's. Kansas, however, is considered typical for an agricultural state.

Four percent of the stream miles in Kansas are safe for all uses part of the time, according to studies by the Kansas Department of Health and Environment. About 91 percent—more than 15,000 miles of streams and rivers—don't even come close.

Ten percent, or about 1,700 miles, of the water tested is so polluted that it is not safe for boating or wading, for fear that bacteria in the water would cause flu, earaches, and sore throats.

More than 70 percent—more than 12,000 miles—is so polluted that the native fish populations can't thrive. Most often, the water is so cloudy that the fish can't find their food. Sometimes, the pollutants affect their behavior, making them easy targets for predators.

The health of the rivers affect those who pay water bills, fish or wade in a stream or boat down a river, or who

live in a city that relies on surface water, as 71 percent of the state's population does.

Among those most at risk are children who wade and splash in the highly polluted streams and drainage ditches that run through most communities, says Bob Angelo, a biologist with KDHE. Those shallow streams pick up a heavy load of toxic chemicals and bacteria that wash off of farm fields, industrial parks, and city streets.

The quality of rivers has improved dramatically since 1972, when Congress passed the Clean Water Act, placing controls on what companies and cities can dump in rivers.

Despite the improvements, the Environmental Protection Agency has repeatedly told the KDHE that it needs to set additional limits on what municipal sewage plants and industry can release to the water, in an attempt to clean up the rivers.

Pollution has caused a range of problems. For example:

- At times, drinking water in some parts of Kansas may make you sick. In Kansas, 56 lakes...are on the EPA's list of polluted waters.

The problem primarily stems from fertilizer that runs off farm fields. For example, 80 percent of the 650 of the square miles of land that drains into Cheney Reservoir is planted with crops.

In some cases, excess nutrients may also come from sediments in the lake bottoms that are stirred up by Kansas winds. In most cases, excess nutrients cause algae blooms, which make the water taste and smell strange. But certain types of blue-green algae can also produce a liver toxin, which some scientists have linked to stomach flu, according to the KDHE. Normal water treatment won't remove that toxin.

The KDHE says it has found some algae strains in the water at Cheney reservoir that can produce the liver toxin, a point the city [of Wichita] disagrees with.

Soon, it won't matter, because you will be paying more to treat the water.

The City of Wichita is spending \$50,000 this summer to construct a special filter at Cheney Reservoir to remove the blue-green algae and end the odor and taste problems. As a bonus, it would also filter out any liver toxins that might be present.

The cost: about \$1 million dollars a year to operate.

- The Little Arkansas River in Wichita has a high concentration of salt, which makes it undesirable as a drinking-water supply, according to test results from the KDHE. The salt is also difficult to remove during normal treatment, according to the department. Some salt is natural in Kansas rivers. After all, the state was once at the bottom of an ocean. Another suspected source of salt is the oil industry.

Wichita is considering using water from the Little Arkansas River as a source of drinking water. By mixing

that water with cleaner water, the city would meet the Safe Drinking Water Act, but it would lower the overall quality of the water.

- The Arkansas River at Derby has so much bacteria that it is unsafe for swimming and water skiing.

- Fish in the Arkansas River south of Wichita's Lincoln Street dam are so contaminated with chlordane that they are not safe to eat. Chlordane, once used as a fumigant on grain and to kill termites in homes, has caused cancer and reproductive problems in animals, raising fears that it could cause similar problems in people. The state has nine such problem areas, all downstream of cities.

The chlordane problem is not new. In 1986, KDHE issued an advisory telling people to limit the amount of fish they ate from the Arkansas River. It lifted the warning in 1988. But almost immediately, the problem returned. The KDHE says it is reworking its policies of when to issue advisories warning people not to eat the fish. The department says the chlordane poses risks only to those who eat the fish over a long period of time.

Critics, however, say the state is risking the health of minorities and poor people, who rely on fishing as a frequent source of food.

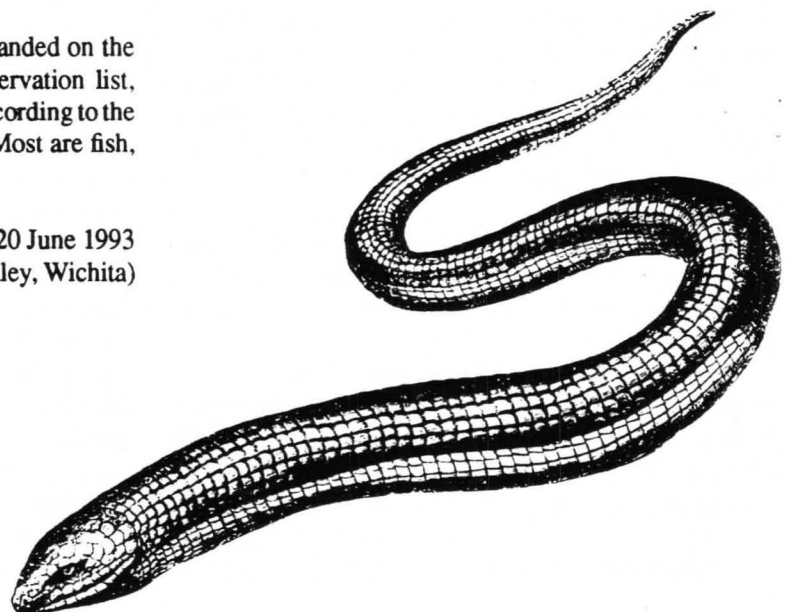
"The risks are occurring every day, every time people eat those fish," says Mark Van Putten of the National Wildlife Federation.

- The Whitewater River near Towanda, at times, carries high levels of atrazine, which is used to kill weeds on crops. It also is high in salts, which the KDHE suspects may be coming from the oil industry.

Sidney Corbin, owner of Corbin Fish Farms, draws out 200 gallons of water a minute out of the Whitewater River to supply his fish ponds near Augusta. He says he always shuts down the pumps after a rain, when the water is most likely to be laden with pesticides and herbicides that can kill the fish.

- Eighty-eight species in Kansas have landed on the endangered, threatened, or in-need-of-conservation list, because of polluted water or lack of water, according to the Kansas Department of Wildlife and Parks. Most are fish, mussels, or insects; 11 are birds and turtles.

—Wichita Eagle, 20 June 1993
(submitted by Ann Bradley, Wichita)



FEATURE ARTICLES

RATTLESNAKE COMMERCIALIZATION UPDATE

by

David Edds
Division of Biological Sciences
Emporia State University
Emporia, Kansas 66801

With the 1993 passage of Senate Bill 137 by the Kansas legislature, commercial harvest of prairie rattlesnakes became legal in the state (see Steve Harper's editorial in the News of The World section of this newsletter). The bill included regulations for season (April 15-June 30), possession limit (30), capture methods (by hand, snake hook, snake catcher), permits, selling, and reporting. These regulations were hurried through, with the blessings of the Kansas Department of Wildlife and Parks (KDWP), for the May 1993 rattlesnake roundup in Sharon Springs, but KDWP's intent was to develop regulations for 1994 and beyond. Well, subsequently is now.

At the June 1993 Kansas Wildlife and Parks Commission meeting in Emporia, KDWP staff recommended regulations for season (March 1-June 30), possession limit (30, as before, even though participants at the first two roundups averaged only 1.4 snakes each), methods of take (as before), and size limitation (18 inch minimum). However, given objections from herpetologists and other conservationists, Commissioners declined to furnish a consensus regarding issues involving commercialization of rattlesnakes, pending a thorough public hearing ("workshop") of concerns surrounding the problems. This is where *you* come in.

KDWP has extensively sought recommendations from organizers of the rattlesnake roundup for nearly a year now, but herpetologists have rarely been consulted. At hearings of the House Committee on Energy and Natural Resources in Topeka, rattlesnake roundup proponents were given 55 minutes to speak, and opponents were limited to five minutes. KWP Commissioners need your input.

Now is the time to speak up—to express your views regarding rattlesnake roundups and commercialization of prairie rattlesnakes in Kansas. I have testified to the Commission three times this year, so they know what I think. Your testimony is crucial. Particularly important is information on the biology of these animals, including distribution, density, longevity, fecundity, survivorship, breeding (frequency and season), sex ratio, feeding habits, and other aspects of their ecology and behavior. What, if any, research or monitoring needs to be performed? Would the

extent of rattlesnake roundups be limited, in terms of area and/or duration? Information from other states, though not always applicable, could also be helpful. For example, low fecundities with litters spaced several years apart occur in northern populations of rattlesnakes, and Dr. Henry Fitch found only six of 32 (18.7%) potentially mature females prairie rattlesnakes at the May 1993 Sharon Springs roundup had yolked follicles detectable by abdominal palpation. What does this suggest about the sustainability of harvest in Kansas? For more background information, refer to articles published and cited in the past three *Kansas Herpetological Society Newsletters* that suggest that such "roundups" may put rattlesnake populations at biological risk.

This public "workshop" will be held at one of the monthly 1:30 P.M. Wildlife and Parks Commission meetings, most likely in August, September, or October. How do you find out where and when? Take time now to write or call the office of the Secretary of Wildlife and Parks, 900 Jackson Street, Suite 502, Topeka, Kansas 66612-1220 or phone (913)296-2281 and request to be put on the mailing list for information on Commission meetings. Announcement of the date and place usually comes only one to two weeks in advance, so begin putting your thoughts together now. Tell some friends to do the same, and encourage them to go, also. If you cannot attend, write the Wildlife and Parks Commissioners at the above address, and send me a copy so I can reiterate your opinions. If you have questions, don't hesitate to contact me. But hurry, for this is your best (and possibly last) chance to provide input on regulating commercialization of prairie rattlesnakes in Kansas.



NATURAL HISTORY OF THE ALLIGATOR SNAPPING TURTLE (*MACROCLEMYS TEMMINCKII*) IN KANSAS

by

Paul A. Shipman
Box 4050
Emporia State University
Emporia, Kansas 66801

I studied habitat selection and diel/seasonal movements of the only known living wild alligator snapping turtle in Kansas for my Master's degree project at Emporia State University. After an adult female specimen was captured by anglers on 31 May 1991 in Onion Creek, Montgomery County, I fitted this 24.7 kg turtle with two ultrasonic transmitters and released it at the site of capture on 19 June 1991 (Shipman et al. 1991). This turtle had previously been captured and studied by Marty Capron (Capron 1986). Newspaper accounts of the first capture were summarized in the Kansas Herpetological society Newsletter No. 65 (1986).

During my one-year study, the turtle moved 6.5 km upstream, occupying ten different "core sites," or locations where it remained inactive for at least one hour. To assess habitat selection by the turtle, I evaluated hydrological, substratum, structural, and cover aspects of core sites, of 35 other available sites with cover, and of 361 systematically located transect sites in this 6.5 km section of Onion Creek. Transect sites and other sites with cover were sampled to characterize habitat available to the turtle in the creek. I found that habitat used by the turtle was significantly different from that available; thus I demonstrated that this turtle selected habitats in Onion Creek. Core sites had significantly more cover, mud, detritus, and pool habitat than did transect sites, and more mud than other available sites with cover (Shipman 1993).

I concluded my study after I lost contact with the turtle on 16 June 1992. My last contact with the Onion Creek *M. temminckii* was on 27 May 1992. I made three subsequent attempts to relocate the turtle by checking several thousand m upstream and downstream of the last known location. These attempts were unsuccessful.

The transmitters (Sonotronics, Inc., Tucson, Arizona) were an ST-71 standard uncoded tag and a CHP-87 high-power coded tag. The ST-71 has an advertised life expectancy of one year and the CHP-87 has a predicted two-year life expectancy. The transmitters were attached with nichrome wire and nylon tie straps on top of the left posterior carapace in marginal scutes. Two holes that had been drilled by Capron (1986) were used for anchor points. The standard tag lost power on 25 April 1992 and, on 27 May 1991, I noted the output of the high-power tag had

slowed considerably. I contacted Sonotronics and they informed me that the high-power tag CHP-87 has a much shorter life expectancy than originally thought, perhaps as little as 12 months. I was also told that after a noticeable reduction of power, it can be a matter of days until transmitter failure. I am confident that the reason for lost contact is due to unexpected power loss of the high-power transmitter.

NATURAL HISTORY

Reviews of the natural history of *M. temminckii* (George 1988, Pritchard 1989) are not sufficient to provide information required for conservation of this species (U.S Fish and Wildlife Service 1991). I have compiled ecological information about this species in Kansas. I herein review natural history of the alligator snapping turtle, with emphasis on information pertaining to this species in Kansas.

DESCRIPTION

M. temminckii is the largest freshwater turtle in North America and is among the largest freshwater turtles in the world. Several male specimens have weighed over 100 kg (Pritchard 1979a, Ernst and Barbour 1989). *M. temminckii* can be distinguished anatomically from the only other living member of the family Chelydridae, *Chelydra serpentina*, by three to five supramarginal laminae on each side of the carapace between the first three laterals and the marginal scutes, three prominent longitudinal ridges on its carapace, and a pronounced hooked beak. *M. temminckii* has hard plates on top of its head, while *C. serpentina*'s head is covered with soft flesh. Also, the lower side of the tail of *M. temminckii* has numerous small scales, whereas *C. serpentina* has two rows of hard plates on the lower side of its tail (Clarke 1956). The eyes of *M. temminckii* are located more laterally and are surrounded by star-shaped, fleshy, filamentous skin (Pritchard 1979b).

DISTRIBUTION

M. temminckii occurs only in the United States, and historically has been most abundant throughout the south-

eastern coastal area, Mississippi Valley drainages, and Gulf of Mexico-flowing rivers. It becomes increasingly rare north to Illinois and west to Kansas (Pritchard 1989). *M. temminckii* records in Kansas are restricted to south-eastern river drainages. Nineteen captures and sightings of *M. temminckii* have been reported, most of them from the early part of this century (Shipman 1993). Five of these records are documented by voucher specimens of photographs [KU 7406 (photo), KU 20414, KU 46902, 204880 (photo)].

SIZE, GROWTH, AND REPRODUCTION

The heaviest verified mass for *M. temminckii* is 114 kg for a captive male specimen at Chicago's Brookfield Zoo, although unofficial masses exceeding 136 kg have been reported (Pritchard 1989). *M. temminckii* are extremely sexually dimorphic for size, as the largest female recorded is 28 kg. Verified masses from seven previous literature documented Kansas captures are 15.4, 26.8, 26.9, 29.5, 39.9, 47.6, and 60.1 kg (mean=35.2 kg). Hall and Smith (1947) reported seeing a 182 kg specimen taken from the Neosho River, near Chetopa, Cherokee Co., Kansas. Pritchard (1989), after corresponding with Hobart Smith, discounted this weight.

Dobie (1971) noted that growth is rapid but variable for both males and females during their first 11-13 years, by which time they are sexually mature. At this age, males continue to grow to much larger sizes, while female growth rate slows. I found no change in carapace dimensions of the Onion Creek *M. temminckii* after its release by Capron in 1986. The turtle had lost 2.2 kg since 1986, but otherwise appeared to be in good health.

M. temminckii breeding occurs between February and April in Florida, but probably occurs later in the Mississippi Valley (Ernst and Barbour 1989). Nesting takes place from April through June, with nesting in northern latitudes of the species' range occurring later than to the south (Dobie 1971, George 1988). Dobie (1971) found that female *M. temminckii* in Louisiana lay only one clutch per year, with some females laying eggs only once every two years. Despite seasonal nesting, live spermatozoa have been found in *M. temminckii* testes throughout the year (Dobie 1971). Pritchard (1989) suggested fertilization could take place at any time and that females may be able to store viable sperm until nesting season.

In Kansas, Capron (1975) observed a mating pair of *M. temminckii* in early May in the Arkansas River. A captive pair in Florida mated on 28 February, and the female deposited 44 eggs on 20 April (Allen and Neill 1950). Copulation in Florida captives was observed to last five to 25 minutes (Allen and Neill 1950).

Observation of oviposition by Allen and Neill (1950) in Florida included that of a captive female which laid 29

eggs on 3 June, with young first appearing on 11 September. Other reports of oviposition by captive *M. temminckii* in Florida include 15 June (16 eggs), 2 May (17 eggs), 11 June (22 eggs), and 19 eggs on 28 May (Allen and Neill 1950). Dobie described *M. temminckii* eggs as tough, chalky-white, granular in appearance but smooth to the touch, spheroid, and having diameters ranging from 34.0-51.8 mm. Nests in Florida were always on dry land, yet close to water, elevated, and well-drained (Allen and Neill 1950). Ewert (1976) noted *M. temminckii* may travel as far as 72 m from water to nest.

Other than Capron's (1975) observation of a possible mating in the Arkansas River, there is no evidence of a breeding population in Kansas. No instances of oviposition or juveniles in Kansas have been reported. The smallest documented *M. temminckii* in Kansas was 15.4 kg, which suggests that it was sexually mature (Pritchard 1989). The Onion Creek *M. temminckii* was radiographed after both of its captures, and was twice determined not to be gravid (Capron 1986, Shipman et al. 1991). However, a 17.7 kg female captured in Illinois contained 32 eggs (Galbreath 1961); this indicates that the possibility of reproduction in Kansas should not be precluded due to the state's northern latitude.

DIET

An adult captive 42 kg *M. temminckii* was reported by Allen and Neill (1950) to eat fish, beef, pork, frogs, snakes, snails, worms, freshwater mussels, and various aquatic grasses. Allen and Neill (1950) also reported that fecal material of newly captured individuals contained snail and mussel fragments. Stomach contents reported by turtle traps include fish, turtles, crayfish, tupelo fruit, acorns, and remnants of alligators, raccoons, ducks, and beaver (Pritchard 1989). Additionally, captive *M. temminckii* have been observed stalking and eating living turtles of the genera *Deirochelys*, *Kinosternon*, *Graptemys*, *Chelydra*, and *Chrysemys* (Allen and Neill 1950, Ernst and Barbour 1989, Pritchard 1989).

BEHAVIORAL ECOLOGY

Habitat use and movement of the Onion Creek *M. temminckii* was characterized by use of specific core sites, upstream migration, and short-term nocturnal movements (Shipman 1993). The turtle was relatively sedentary. Mean time observed between relocations, discounting an assumed period of dormancy from 11 November 1991-6 March 1992, was 36 days; med.=26 days, max.=54 days, min.=1 day.

The observed activity by the Onion Creek *M. temminckii* concurs with Carr's (1952) hypothesis that this species may use its "lure" reservedly during the day and

stalk prey at night. Capron (1986) noted that the Onion Creek turtle became more active during early morning hours (between 0200-0500 hrs), moving around its tank while in captivity prior to its release. The same observation was made for this turtle while in captivity prior to release for my study.

The turtle was presumably dormant between 11 November 1991 and at least 6 March 1992 near an undercut bank. No movement from the core site was observed during this time. This area was the deepest of the ten core sites that this turtle used during the study. In the southern part of this species' range, winter dormancy may begin in mid-October and last until mid-March (Pritchard 1989). Group hibernacula of up to 15 *M. temminckii* beneath undercut banks have been reported in Georgia (Pritchard 1989).

Observed movement of the Onion Creek *M. temminckii* lends support to the upstream migration hypothesis (Pritchard 1989) that "certain alligator snapping turtles may wander upstream for decades, ultimately arriving in the uppermost reaches of the Mississippi system, by which time they are very large, old, and rare." The recapture of the Onion Creek specimen the upstream migration hypothesis by documenting 7 km movement upstream over five years in the upper reaches of the Mississippi system. In my study, the turtle moved an additional 6.5 km upstream in 11.5 months, without a single instance of downstream migration (total upstream movement in six years = 13.5 km). The only previously published record of migration in *M. temminckii* (Wickham 1922) documented a specimen taken from the Washita River, Oklahoma in 1915. The turtle was held in captivity for 34 months, tagged and released into the Blue River, Oklahoma in 1918, and recaptured 27-29 km upstream in 1921.

CONSERVATION

There have been three attempts to capture Kansas *M. temminckii* in the past nine years. In all three, the species has eluded investigators. Irwin (1985) sampled for *M. temminckii* with an effort of at least 152 trap-nights at three locations in southeast Kansas (one trap-night equals one turtle trap set for one night). Capron (1987) sampled in southeast Kansas with at least 108 trap-nights at five sites. My study (Shipman 1993) was the third recent attempt to find this species in Kansas. My effort of 600 trap-nights at 84 sites yields at total of 860 trap-nights for the three studies. Setlines were used in addition to turtle traps in all three studies.

The latest status review of *M. temminckii* by the U.S. Fish and Wildlife Service (1991) recommends that individual states be responsible for this species' conservation. The Kansas Department of Wildlife and Parks Nongame Task Force recommended against a 1991 petition to list *M.*

temminckii as an endangered species. The species met all criteria to be listed as endangered except that no evidence of breeding population was available (K. Brunson, pers. comm.)

I contend that regardless of the reproductive status of this turtle, *M. temminckii* should be listed as endangered in Kansas. I base my argument on the following grounds: rarity of this species in the state, the possibility that turtles migrating into Kansas, rather than reproduction, is the source of recruitment for the Kansas population, consideration by U.S. Fish and Wildlife Service to give this animal federal protection, and listing this turtle as endangered would give priority to informing Kansans of its status, thus decreasing chances that this rare turtle would be killed mistakenly.

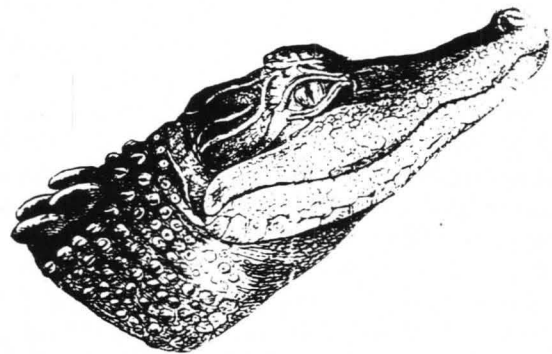
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