

Ellipsaria

Winter 2000 - Volume 2 - Issue 1

The Official Newsletter of the Freshwater Mollusk Conservation Society

FMCS Outreach Workshop April 4 - 5, 2000 in Sheperdstown, West Virginia

The Freshwater Mollusk Conservation Society (FMCS) and U.S. Fish and Wildlife Service (USFWS) are pleased to present a 2-day workshop directed towards outreach techniques for use by watershed conservation groups to increase their effectiveness. Additionally, the workshop will address the specific outreach challenges faced by freshwater mollusks - North America's most imperiled animals. As with other small freshwater animals, freshwater mollusks are an important biodiversity issue, and conservation strategies developed for these animals may be applied to other imperiled faunal groups. The workshop will be held April 4 - 5, 2000, at the USFWS National Conservation and Training Center in Sheperdstown, West Virginia. The workshop will provide the participants with information on outreach techniques and address threats to native mollusks based on the U.S. Fish and Wildlife Service-One Step at a Time Outreach Workbook.

FMCS Outreach Workshop Agenda

Tuesday - April 4, 2000

- 8:00 a.m. Registration
- 8:45 a.m. Welcome
- 9:00 a.m. Opening Address - Lesley Colley, The Nature Conservancy, Duck River Alliance, Columbia, TN
- 9:15 a.m. Status of Native Freshwater Mollusks - Steve Ahlstedt, USGS, Knoxville, TN
- 9:45 a.m. Outreach - What Is your Audience, Linda Morse, USFWS, Concord, NH

10:15 a.m. Break

10:30 a.m. One Step At A Time - Overview - Linda Morse, USFWS, Concord, NH

11:45 a.m. Lunch

1:00 p.m. Outreach Case Histories
Steve Ahlstedt, USGS, Knoxville, TN
Janet Butler, USFWS, Parkersburg, WV
Linda Morse, USFWS, Concord, NH
Richy Ruth, TVA, Norris, TN

2:30 p.m. Group Breakouts
Facilitators: Hilary Vinson, USFWS, Asheville, NC
Janet Butler, USFWS, Parkesburg, WV
Lesley Colley, TNC, Columbia, TN
Linda Morse, USFWS, Concord, NH

4:00 p.m. Individual Breakouts

4:30 p.m. Wrap-Up

6:30 p.m. Reception

Wednesday - April 5, 2000

- 8:30 a.m. Overview of previous day's sessions
- 8:40 a.m. Marketing Strategies - Rebecca Harrison
- 9:30 a.m. Legislative Outreach
- 10:30 Break
- 10:45 a.m. Legislative Outreach
- 11:30 a.m. Lunch

1:00 p.m. The role of freshwater mussels in a comprehensive approach to watershed management: the Mill River Project. Laurie Sanders, Univ. of Massachusetts, Amherst, MA.

1:30 p.m. Public education to promote recovery of America's threatened aquatic invertebrates. L. Helfrich and Richard Neves, Virginia Tech, Blacksburg, VA.

2:00 p.m. Riparian habitat restoration: an important tool in the recovery of federally listed riverine species in the southeastern United States. Robert Butler, USFWS, Asheville, NC.

2:30 p.m. Break

3:00 p.m. Rare mussels threaten dredging project: mussels and the media. David McLain and Laurie Saunders, Univ. of Massachusetts, Amherst, MA.

3:30 Freshwater Mollusk Identification Session

4:30 Break

5:00 p.m. Freshwater Mollusk Conservation Society
General Business Meeting

Outreach Workshop Accommodations

Workshop participants will attend presentations at the NCTC, and lunch will be available at the local cafeteria. The cost of lunch at NCTC is about \$8.00. The FMCS is not responsible for workshop attendee's rooms or meals. Rooms for workshop participants have been reserved at the following hotels:

Clarion Hotel, 17 Lowe Drive, Sheperdstown, WV 25443 (304) 876-7000, Reserved under the name Native Mussel Workshop. The cutoff date for the block is February 3, 2000. Rate: \$65.00 plus tax.

Comfort Suites, P.O. Box 6010, Martinsburg, WV(304) 263-8888, Reserved under the name of USFWS/Mussel Workshop. The cutoff date for the block is March 20, 2000. Rate: \$59.00 plus tax.

Holiday Inn, 301 Foxcroft Avenue, Martinsburg, WV 25401 (304) 267-5500, Reserved under the name Mussel Workshop. The cutoff date for the block is March 13, 2000, Rate: \$59.00 plus tax.

Outreach Workshop Travel Information

Direct air service to Sheperdstown, WV is not available. However, the local area is serviced by 3 major airports:

Washington Dulles International Airport, Sterling, VA is 53 miles from the NCTC in Sheperdstown, WV.

Regan National Airport, Arlington, VA is 76 miles from the NCTC in Sheperdstown, WV.

Washington Dulles International Airport, Sterling, Baltimore-Washington D.C. Airport in MD is 91 miles from the NCTC in Sheperdstown, WV.

The NCTC provides shuttle service to and from Washington, Dulles Airport, on Sundays and Fridays for \$30. The NCTC also provides limited shuttle service Monday - Thursday for an additional cost.

For information about NCTC shuttle service or for driving directions please call the NCTC at (304) 876-7476, or examine their web site at:

<http://www.nctc.fws.gov>

Outreach Workshop Registration

Registration for the FMCS Outreach workshop can be completed by mail or at the registration desk. Please complete the attached registration form, enclose a check for the appropriate amount, and mail both the form and check to the FMCS treasurer Heidi Dunn (see address on the registration form). The FMCS will not be able to provide registration refunds for cancellations after **March 21, 2000**.

If you plan on attending the conference, but will be registering at the desk, please inform Rita Villella (USGS-BRD, Leetown Science Center, Kearneysville, WV 25430, Phone (304) 724-4472, rita_villella@usgs.gov). Advance notice of walk-up registrants will help the local organizers plan for the workshop. **Otherwise, registration / workshop materials may be limited to a first come first serve basis.** Other questions about the workshop should be directed to:

Linda Drees, USFWS, 315 Houston Street, Manhattan, KS 66502, (785) 539-3474 ext. 107, e-mail: linda_drees@fws.gov.

Production of USFWS Tri-Annual Unionid Report taken over by *Ellipsaria*

The USFWS's Tri-Annual Unionid Report published by Richard Biggins from the Asheville field office will cease production later this year. The **March 2000** issue of the Tri-Annual report will be released next month, after which production of the report will be taken over by *Ellipsaria*. Additionally, this current copy of *Ellipsaria* is the last large mailing of this newsletter to the freshwater mollusk community at large (many non-members receive this issue gratis). **If you are not a FMCS member, you will not receive the Tri-Annual report, or future copies of *Ellipsaria*.** We are in the process of adding several new features to the newsletter in addition to the items that would normally appear in the Tri-Annual Report. Don't be left out, send in your FMCS registration today! (registration form enclosed).

Election results for FMCS president-elect 2000

Part of the constitutional process of the FMCS is to hold yearly elections for the position of president-elect. Our constitution stipulates that any member can nominate another member for office, and those individuals with the most nominations from the membership, and who agree to be nominated, become an official candidate. The names of the nominees are then placed on a ballot and are then directly elected by the society membership. The winner of this year's election will be president-elect for this year and will become society president in the spring of 2001.

The new FMCS president-elect for 2000 is:

Kevin S. Cummings
of the Illinois Natural History Survey

Our congratulations (and condolences) to Kevin!

Over 50% of the FMCS president-elect ballots that were mailed were also returned by the cut off date. Thanks for the prompt and overwhelming reply to our first direct election.

The FMCS will announce nominations for the 2001 elections later this year. In addition to president-elect, we will also hold elections for the society secretary. The society secretary and treasurer serve 2-year terms. Unlike the presidential office, the secretary and treasurer may succeed themselves for one additional term (2 successive term limit).

FMCS Treasurer's Report

The first year of FMCS was a very good one for your new society. Thanks to all of those who have contributed both time and money to help start this new society. We are starting small, but we already have an adequate financial structure underneath us. The 1999 and projected 2000 FMCS budgets are summarized below.

Income for FMCS Executive Budget (1999)

Auctions	\$1700
Dues	\$4060
Gifts	\$ 15
Workshop reg.	\$ 275
Total income	\$6050

Expenses for FMCS Executive Budget (1999)

Supplies	\$136.39
Legal fees	\$825.00
Total expenses	\$967.99

Total Revenue Executive Budget (1999) \$4974.84

At the executive board meeting last November, it was decided that monies generated by Symposia would be kept in a separate account. This separate account allows for the facilitation of fund transfer to the group coordinating the next symposium. The Chattanooga *Musseling in on Biodiversity* - symposium netted the FMCS \$18,301.26. These moneys will be used to publish the symposium proceedings, with the remainder used as seed money for the 2001 symposium in Pittsburgh.

The budget projections for 2000 are as follows.

Projected Income for FMCS Executive Budget (2000)

Fundraising	\$2000
Membership	\$3500
Total projected income	\$5500

Projected Expenses for FMCS Executive Budget (2000)

Newsletter	\$2000
Supplies	\$500
Seed money for fundraising	\$500
AIBS membership	\$100
Donation to ORVE poster	\$500
Total projected expenses	\$3600

If anyone has any specific questions regarding the FMCS budget, please feel free to contact me at Ecologists@aol.com.

Contributed by Heidi Dunn

FMCS Secretary's Report

The last meeting of the FMCS executive board occurred on November 4 and 5, 1999 at the Kentucky Fish & Game Facility in Crittendon, KY. Wayne Davis of the KY Department of Fish and Wildlife Resources was host. The following is a brief summary of the major highlights of that board meeting. Information about activities associated with individual FMCS committees are detailed below. Detailed minutes of the FMCS board meetings are available from the society secretary.

As of November 1999 there were 113 members of the FMCS. A mass mailing of The National Strategy for the Conservation of Native Freshwater Mussels was completed in October. Anyone wanting to receive a copy of the strategy should contact Rita Vilella at 304-724-4472 or rita_vilella@usgs.gov.

The board approved the society undertaking the following actions:

- 1) Organize an environmental impact workshop inviting regulatory agencies and industry to educate these groups on impacts of dams, gravel dredging, construction, etc. on the fauna.
 - 2) Decided on the locations for the next 2 society symposia (below).
 - 3) Advocacy: the board voted to send a letter to the Commissioner of the Mississippi Dept. of Agriculture and Commerce addressing the implications of introducing black carp into commercial culture facilities on native mollusks. Additionally, another letter is being prepared for Fish and Wildlife Ecosystem Teams that allows both ecological services and state personnel be made aware of the existence of FMCS and the information the society can provide addressing impacts of activities on freshwater mollusks if needed.
 - 4) FMCS has set up an editorial ad hoc committee to explore the feasibility of *Walkerana* becoming the official journal of the society.
 - 5) The board also voted to become a member of AIBS (American Institute of Biological Sciences).
- Contributed by: Rita Vilella*

FMCS Committee Activity Reports

The following reports are intended to keep FMCS members informed of the activities in each of our 9

standing committees. If you are interested in addition information or would like to assist with the duties of an individual committee, please contact the appropriate committee chair.

Mussel Status and Distribution Atlas

Kevin Cummings - Committee Chair
Illinois Natural History Survey, Champaign, IL
Ksc@inhs.uiuc.edu
<http://www.inhs.uiuc.edu/cbd/collections/mollusk.html>

One of the problems faced by systematists, ecologists, conservationists, and industry has been the lack of data on the distribution of North American freshwater mussels. In order to effectively conserve and manage mussel populations it is essential that detailed distributional information be made available. One of the goals of the National Strategy was to develop a mussel distributional atlas similar to that developed for fishes. The overall objective of the atlas project is to summarize the available distributional data on all freshwater mussels in North America and provide an overview of the literature on their biology and conservation status. A "working group" has been formed consisting of scientists from across the country that have experience with and knowledge about mussel distribution and atlas production. The working group met in October 1997 to set up a framework to develop an atlas. To that end we compiled an initial list of regional coordinators, compilers, and species to be included, developed a draft format for the maps and an associated database, developed a budget and targeted potential funding sources, and developed a timetable for completion of the project. A small grant to "jump start" the project was provided by the USFWS this August. This grant will allow us to prepare a few species accounts. Hopefully we can use these examples to generate interest in funding the complete project that will consist of approximately 300 species accounts. In order for this project to be a success many individuals from numerous agencies and institutions will be needed to volunteer their time and services. Anyone wanting to be involved should check-off the appropriate box on the membership form. A call will go out this fall (after the field season) to ask for volunteers to prepare sample accounts.

Gastropod Status and Distribution Atlas

Rob Dillon - Committee Chair, College of Charleston
Charleston, SC
Dillonr@cofc.edu
<http://www.cofc.edu/~dillonr/fwgnahome.htm>

The Freshwater Gastropods of North America project has been moving ahead at a brisk clip. In late August we formed an Editorial Committee: Steve Ahlstedt (Eastern Mississippi), Ken Brown (Western Mississippi), Rob Dillon (Southern Atlantic), Paul Johnson (Eastern Gulf), Bob Hershler (Pacific), Eileen Jokinen (Great Lakes), Bob McMahon (Western Gulf), Dave Strayer (Northern Atlantic) and Shi-Kuei Wu (Pacific). In September we posted an "information resources" page, with current bibliographies and links to museums and on-line resources:

<http://www.cofc.edu/~dillonr/fwgnainfo.htm>

In November, the Editorial Board submitted a \$650 K proposal to the NSF "Biotic Surveys and Inventories" program. The 3-year grant, if funded, would support FWGNA Phase I activities: a survey and compilation of the modern freshwater gastropod records held in 21 North American museums. This will involve the integration of a variety of currently existing database structures, and new data entry initiatives around the United States and Canada. The unified database, totaling approximately 200,000 lots, would be made available via the World Wide Web, searchable by standard query.

Based on a regional sort of this database, the Editorial Committee will design Phase II of the FWGNA project, a schedule of original field surveys. Museum data will also be sorted taxonomically and forwarded, along with all fresh field data, to Taxon Editors who will review each species determination.

In the third "Monographic Phase" of the FWGNA project, Taxon Editors will prepare individual "species accounts." These will be collected into both traditional (paper volume) and web-based information products allowing professional biologists of diverse background to identify all elements of the North American freshwater gastropod fauna. An entering wedge will be offered to the systematics, ecology, general biology, and conservation status of each species. Dot maps will be prepared showing actual current distributions. Based on these data, the FMCS Committee on the Status & Distribution of Gastropods will compile revised and updated lists of threatened species, along with management and recovery options, to forward to natural resources agencies for the purposes of conservation.

Symposium Committee

Committee Chairs

Steve Ahlstedt, USGS-WRD, Knoxville, TN
ahlstedt@usgs.gov

Leroy Koch, USFWS, Abingdon, VA
leroy_koch@fws.gov

Next FMCS Symposium – March 2001 Pittsburgh Pennsylvania

The FMCS will hold its next general symposium March 11-13, 2001 at the Sheraton Hotel and Conference Center in Pittsburgh, Pennsylvania. Tom Proch of the Pennsylvania Department of Environmental Quality will be the local arrangement's coordinator. After Pittsburgh, the next symposium will be held in Chapel Hill, North Carolina in the spring of 2002 or 2003. John Alderman of the North Carolina Division of Wildlife Resources will be the host.

It has yet to be determined if the FMCS will sponsor symposia every year, or if we will stay with our current odd year schedule (symposia every 2 years). Additionally, it has been suggested that we have a general symposium on odd years and a topic oriented workshop on even years (current strategy). The society membership is nearly evenly divided on this issue, and it will not be resolved until the success of the workshop format is evaluated at the general business meeting to be held this spring at the NCTC.

The FMCS Symposium Committee is responsible not only for the selection and oversight of the society symposia, but also for the development of specific symposium criteria. These criteria are being crafted to insure the quality and consistency of society symposia. To all of you who helped us by filling out your symposium evaluation forms at the Chattanooga meeting, thank you. We have taken your suggestions and developed an initial set of criteria to apply to our Pittsburgh symposium. We believe this process will help us develop the type of symposia the membership wants, and will improve their quality over time.

The symposium committee is also involved in assisting with the development of society workshops. The outreach workshop to be held this April, will hopefully be the first of several topic-oriented workshops. If successful, these workshops will serve as a vehicle for society members to engage specialists in other fields about the plight of freshwater mollusks. This approach helps the society to address new audiences about our concern for freshwater mollusks, and allows interaction with a different set of technical experts who may have new ideas or avenues to address our concerns. Workshops now under consideration for future development are:

1. Environmental impact workshop inviting regulatory agencies, engineers, and river navigation industry representatives to educate these groups on impacts of

dams, gravel dredging, construction, etc. on the molluscan fauna.

2. Conservation genetics workshop inviting conservation geneticists that work with other faunal groups (i.e. imperiled birds and mammals), to address population size and viability concerns as artificial propagation and recovery efforts for freshwater mollusks move forward.

If you have a suggestion for a future workshop topic, please contact one of the symposium committee chairs.

Status of the Chattanooga Symposium Proceedings

The editorial process of the *Musseling in on Biodiversity Proceedings* had a temporary setback, but the first set of reviews are now complete. Many contributors have had their manuscripts returned and are now in the process of revising them for publication. The editors would like to offer our sincere apologies to the authors for the unexpected delay in returning their manuscripts.

The delay with the first set of reviews has been a reflection of the quality of several of the manuscripts submitted. These manuscripts required the editorial board to work many extra hours to complete these first reviews. As a result, several of the papers submitted to the proceedings will require extensive revision by the authors, and a few of the manuscripts were not salvageable and were subsequently rejected. Most members of the editorial review board independently expressed serious concerns to the editor about the quality of papers that would go into the proceedings. The concerns were two fold: First, a small number of the submitted papers contained information that was simply incorrect, and the review board did not want the responsibility for perpetuating misinformation in the literature, where it could be quoted by someone else in the future (i.e. a beginning graduate student). Second, we were interested in producing a quality product that other professionals would want to read, and would do justice to most of the authors who submitted quality work. Simply put, we did not want to produce a proceedings, just to put something out and be done with it. So in the end, we decided to "stick-to-our-guns" and produce a higher quality albeit thinner symposium proceedings.

Those of you who submitted abstracts to the symposium, rest assured a complete set of abstracts (presentations and posters) will be printed in the back of the proceedings. The anticipated date for the publication date for the proceedings will be November, 2000.

In order to avoid any confusion and hard feelings about this issue in the future, the symposium committee and the

FMCS executive board will discuss the possibility of eliminating meeting proceedings at the next general business meeting (Outreach Workshop April 5, 2000). It has also been suggested that future symposium proceedings may be published in an expanded abstract format of 2 or 3 pages maximum length (including references). A proceedings in this form would insure greater participation, be easier to edit, cheaper to produce, and quicker to publish. It is unlikely that the proceedings will survive in its current full length form, and currently no published proceedings are planned for the Pittsburgh symposium.

Submitted by Paul Johnson - Musseling in on Biodiversity Lead Editor.

Outreach

Committee Chairs

Linda Drees, USFWS, Manhattan, KS
Linda_Drees@fws.gov

Mike Davis, Minnesota DNR, Lake City, MN
Mike.davis@dnr.state.mn.us

Susan Mangin, USFWS, Arlington, VA
Susan_Mangin@fws.gov

In addition to the spring 2000 workshop (see information above), the FMCS Outreach Committee has a number of ongoing projects.

The Outreach Committee is developing a native mollusks speakers, bureau. This is a group of FMCS members who volunteer their time to speak to local conservation and watershed groups about freshwater mollusks and their special conservation status. If you would like to volunteer, or would like a copy of the list please contact:

Suzi von Oettingen, USFWS, 22 Bridge Street, Unit 1
Concord, NH 03301, Phone: (603) 225-1411
Susi_vonoettingen@fws.gov

Information Exchange

Madeleine Lyttle - Committee Chair
USFWS, Essex Junction, VT
Madeleine_Lyttle@fws.gov

The primary function of the Information Exchange Committee has been the distribution of thousands of copies of the *National Strategy for the Conservation of Native Freshwater Mussels* (Journal of Shellfish Research, 1999, Volume 17, Number 5). With this function

complete, information exchange will now be turning its attention to other duties. The publication and distribution of this newsletter will shortly become the primary function of this committee, and an official editor for the newsletter must be selected. Also, the Information Exchange committee will have the responsibility of maintaining the various address databases used by the society. Additionally, the information exchange committee will oversee the development of the official society web page. Several URLs and locations for the society web page are under examination and the status of the new web page will be discussed at the next FMCS board meeting.

Water Quality, Habitat Alteration and Zebra Mussels

Bob Anderson – Committee Chair
USGS, Pittsburgh, PA
rmanders@usgs.gov

Robert Anderson was appointed the chair of this committee during the November 1999 FMCS Board meeting. The previous chair, Tom Muir, will remain active with the committee but has taken a less involved role in order to meet professional obligations. Four water quality and habitat papers were published in the March 1999 issue of JNABS. Three remaining papers and a summary document from the water quality/mollusk workshop are in preparation or revision. Discussions are ongoing regarding hosting a second workshop on large river mussel habitats, navigation issues, and industrial water users. This workshop may be held in conjunction with the FMCS meeting in 2001 or as a separate meeting.

Propagation, Restoration and Introduction

Committee Chairs

Chris Barnhardt
Southwest Missouri State University
Springfield, MO
mcb095@mail.smsu.edu

Richard Tankersley
Florida Institute of Technology
Melbourne, FL
rtankers@fit.edu

This committee has been in transition during the last few months with Richard Biggins stepping down as co-chair and Chris Barnhardt taking his place. Additionally, Rick Tankersley changed positions earlier this year and has been very busy setting up a new office and laboratory. A task

that Chris Barnhardt would like to develop for this committee is a collection of known information on the husbandry and artificial propagation of freshwater mussels. With many laboratories nation wide experimenting with mussel culture, and a few whom are having some success with different techniques, it has been suggested that this committee should make an effort to compile a list of ongoing activities and how they are accomplished. Over the next year this committee will begin to further define this task.

Also, this committee is charged with developing a criteria that considers issues related to molluscan heritage and genetics concerns in the development of formal artificial propagation and mollusk translocation procedures. The idea is to develop a formal set of guidelines and recommendations that will be used in mollusk translocations, reintroductions, and artificial propagation activities. At the moment, the committee's work is focused exclusively on freshwater mussels, but some reintroduction / augmentation guidelines for freshwater gastropods are being considered. This committee has already developed a set of genetics considerations and is presently working on artificial propagation and translocation guidelines. The intention of this committee is to publish the final list of recommendations in an issue of *Fisheries*, the American Fisheries Society monthly publication.

Guidelines and Techniques

Heidi Dunn – Committee Chair
Ecological Specialists, Inc.
St. Peters, MO
Ecologists@aol.com

This committee held a workshop at the Chattanooga symposium to begin to bring some standardization to several fields of unionid study. Topics of initial interest to the committee are:

- Assessment of the effects of contaminants on unionids
- Guidelines for the captive care of unionids
- Guidelines for the study of molluscan physiology
- Guidelines for mussel sampling strategies
- Guidelines for mussel life-history studies

The rationale behind this strategy is not to prevent experienced investigators from using novel approaches to experimental problems. Rather, this committee wants to develop a set of minimum guidelines in each field, for the beginning investigator. For example, as more is learned about the effects of agricultural pesticides and herbicides on juvenile mussel survivorship, hopefully, there will be more interest in this process by toxicologists who have

never worked with freshwater mussels. When complete, these guidelines would not only give investigators a minimum starting point to develop a proper investigation, but might supply them with a summary of known information and techniques. A summary of the existing guidelines on mussel sampling strategies will appear in the Chattanooga Symposium Proceedings.

Commercial

Steve Ahlstedt – Committee Head
USGS-WRD
Knoxville, TN
Ahlstedt@usgs.gov

Initially, this committee was established to identify states that allow commercial harvest of freshwater mussels. The objective of this was (is) to include license fees, what species and size regulations apply, and restrictions (brailing, diving, hand digging, etc.). However, our committee needs to temporarily shift its focus to more urgent needs. Recent mussel kills in the upper Clinch River, Virginia, and the Ohio River show an urgent need for establishing a monetary value for each mussel species killed by a pollution event or other type of intentional destruction, that may violate existing laws. The American Fisheries Society has calculated these dollar values for fish and this provides individual states with a guidepost for the determination of damages. I feel the development of a dollar value for molluscan resources to be an extremely useful tool for state and government agencies to enforce existing regulations.

If dollar values were in place, in the event of another mussel kill, a value could be placed on what was destroyed and then costs might be assessed as fines that would directly go towards restoring the fauna. This could include the costs of culturing, life-history studies for determining host fish, multiple year-classes reintroduced over-time, and continued monitoring. I feel that this is a direction we need to take as a committee and I recognize the pitfalls of not doing anything. As a start, I would like to place a monetary value on all extant mussel species in North America. Obviously, federally listed species carry a different set of values than non-listed animals. Commercial species may also carry a different monetary value but prices vary from state-to-state. Initially, I would suggest that commercial species carry the same weight as non-commercial and that federally listed species stand alone as to their value. The real costs involved with a monetary settlement would be replacement (restoration) costs. The monetary value of mussels has long been neglected but is of the utmost importance, because until serious fines are imposed by states, the resource will continue to be

undervalued, which in turn would result in more mussel kills in the future. Unfortunately, it appears only the reality of possible stiff fines, will prompt others to notice the value of these animals and hopefully deter future careless or intentional destruction. If anyone has any concerns, ideas, or would like to help with these efforts, please contact members of the FMCS Commercial Mussel Committee.

A Message from the FMCS President

When we think of a natural disaster, we tend to think of earthquakes, tornadoes, hurricanes, land slides, forest fires, or some other catastrophic, sudden event which causes immediate harm to people, their homes or work places, or to other organisms. Some natural disasters, however, are more insidious, impacting humans or other organisms over a longer period of time. Exotic (nonindigenous) species fit into this latter category.

North America is rife with exotic species. Over 4,500 species have been introduced during the past 100 years, including over 2,000 species of plants, 2,000 insects and arachnids, 140 terrestrial vertebrates, 70 fish, 91 mollusks, and 239 plant pathogens. They came to North America through a variety of means, in ballast water, cargo bays, packing crates, attached to plants or other cargo, or tucked into the luggage of an international traveler. A few, such as the honey bee, have been primarily beneficial. Others, such as trout and salmon, resulted in a mixture of benefits and drawbacks, displacing native species while providing recreation for avid anglers seeking the ultimate in angling experiences. Most, however, have provided little benefit while causing various degrees of harm to North America's native species. Included in this group are the gypsy moth, water hyacinth, common carp, and zebra mussels.

In spite of the mostly negative impacts of introduction of nonnative species, the push continues to spread more exotic species across our continent. The most recent push is black carp, an Asian carp which feeds primarily on mollusks. Black carp have been in North American hatcheries for a decade or so. Black carp were imported to control snails in private fish production ponds. Snails serve as vectors for parasites that may impact growth and survival of hatchery-reared fish. Native species such as red-ear sunfish (shell crackers) do just as good a job without the chance of losing an exotic species to the wild.

In November, the Mississippi Department of Agriculture and Commerce approved the stocking of diploid black carp in private ponds. Based on experiences with silver carp, grass carp, and bighead carp, it is likely that black carp will escape to the wild and impact native species,

especially mollusks. Triploid black carp escaped from a hatchery in Missouri during flooding in 1993; had those fish been viable diploids, North American waters may already have established black carp populations. Asian carps already make up a significant portion of the fish biomass in big rivers such as the Mississippi and Missouri. In December the FMCS sent a letter to Lester Spell, Commissioner, of the Mississippi Department of Agriculture and Commerce asking the Commissioner to reconsider their decision.

The recent black carp issue highlights the need for national policy and regulations controlling the import of nonindigenous species. Until such regulation occurs, our aquatic systems will continue to be adversely impacted when one or more states decide to import species that may ultimately harm aquatic systems nationwide. Only with national control of species imports by private and commercial culturists, will the continuum of exotic species natural disasters end.

Al Buchanan

General News and Information

Freshwater mollusks at the Milwaukee Public Museum

With approximately 200,000 mollusk specimens, this collection is roughly 40% freshwater. One of its strengths is the historically important gastropods and unionids from the Wheatley Collection, acquired in 1888 and including material from the eastern U.S. (TN/613 lots, AL/213 lots, NC/186 lots, etc). A second strength is Wisconsin material, including vouchers from early state species lists and unionids from H. A. Mathiak's statewide survey in the 1970s. Inquiries and visitors are welcome. All freshwater lots are entered into a database allowing the retrieval of basic information about the collection. Contact Joan Jass, Assistant Curator, Zoology, Milwaukee Public Museum, 800 W. Wells, Milwaukee WI 53233, email: jass@mpm.edu, phone (414) 278-2761.

National Database of Captive Mussels Developed

Those of you keeping captive, live unionids may wish to participate in my captive freshwater mussel census. If so, please contact me and I will send you the appropriate form. Participants will receive a summary report. For more information please contact: Warren Pryor, Animal Curator, Fort Wayne Children's Zoo, 3411 Sherman Blvd., Fort Wayne, IN 46808, e-mail warrenwp@aol.com, Phone (219) 427-6807 (Fax) 427-6820.

A New Key for African Freshwater Gastropods Published

Several co-authors have been collaborating on a field key to gastropods of Lake Tanganyika, East Africa. To purchase a copy of the key contact: Dr. Ellinor Michel Dept. of Biology/Zoological Museum, University of Amsterdam, P.O. Box 94766, 1090 GT Amsterdam, The Netherlands, Phone+31 20 525 6474, fax: +31 20 525 5402.

Congress of Medical and Applied Malacology to Meet

The international society for medical and applied malacology will sponsor, in cooperation with the congress' local hosts, the sixth international congress on medical and applied malacology, to be held 4-8 September 2000 in Havana, Cuba.

The visa required to enter the country can be obtained, with ease, on arrival at the airport in Havana, or the visa can be obtained at any Cuban embassy in other countries. If participants let us know in advance, their visas will be waiting when they arrive at the Havana airport.

The official language of the Congress will be English (preferred) and Spanish. The abstracts of papers and posters can be submitted in either language. Abstracts should not be more than 300 words in length, and should be SUBMITTED BY E-MAIL to: alfredo@ipk.sld.cu. The deadline for receipt of abstracts is 15 April 2000.

The registration fee for the Congress is US \$160; for accompanying persons US \$60; and for students US \$60. For American participants, the registration fee should be sent to the Society for Medical and Applied Malacology, P.O. Box 2715, Ann Arbor, Michigan 48106, with e-mail to the Cuban ICMAM Congress Committee [alfredo@ipk.sld.cu].

For further information, please contact Dr. Gloria Perera by e-mail [alfredo@ipk.sld.cu] or by fax [537-246051], or contact Dr. J.B. Burch by e-mail [jbburch@umich.edu], fax (734) 763-4080, or telephone (734) 647-2189.

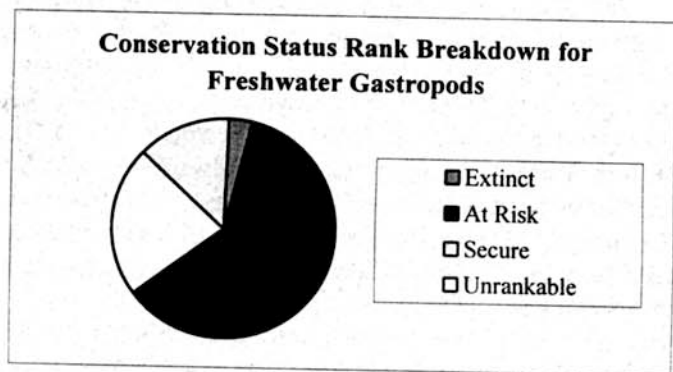
The Nature Conservancy Analyzes Status of Freshwater Gastropods of North America

A preliminary breakdown of the freshwater gastropods that occur in the United States and Canada reveals that 3 percent of the total described fauna are extinct, 60 percent are at risk**, 22 percent are secure, and 13 percent are unrankable with existing information. The percentage of at risk freshwater gastropods closely rivals that for freshwater mussels where 62 percent of all North

American species are at risk, but with half the species. All members in the genera *Gyrotoma*, *Clappia*, *Amphigyra*, and *Neoplanorbis*, are extinct. In other larger genera, such as *Somatogyrus*, *Elimia*, and *Pleurocera*, more than half of the species are at risk with many members likely extinct. Much of the rarity in freshwater gastropods can be attributed to the single site endemism exhibited by many of the snails in the family Hydrobiidae. In this family of 291 described species, 250 are considered at risk or extinct. This pattern becomes evident when you look at Nevada, a state with many isolated spring systems. In Nevada 76 percent of the freshwater gastropod fauna are ranked as at risk or extinct. Not all of these at risk molluscs are naturally rare; factors such as loss of suitable habitat from the impounding of rivers has caused declines. For example, the genus *Gyrotoma* was endemic to the Coosa River system in Alabama and likely disappeared when the shoals it inhabited were flooded by impoundments. In Alabama, the state with the highest diversity, 66 percent of the total freshwater gastropod fauna are at risk or extinct.

*Global Conservation Status Ranks employed by The Nature Conservancy and the Network of Natural Heritage Programs. Species are prioritized using a 1-5 ranking system ranging from critically imperiled (G1) to demonstrably secure (G5). Extinct (GX) and historic (GH) ranks are also assigned.

** Species ranked GH, G1, G2, and G3.



Contributed by Melissa Morrison of The Nature Conservancy, Boston Massachusetts.

Black Carp Invasion

Diploid black carp have been approved for stocking in commercial hatchery ponds in Mississippi by the state Dept. of Agriculture and Commerce (MDAC). This species is being used to control snail populations that provide the intermediate host for a parasitic trematode that is infecting hatchery catfish stocks. Some argue that the native redear sunfish (or shellcracker) could be used for the same purpose, and is being supplied by the state

for this purpose in Missouri. Unfortunately, the shellcracker is not being considered for use by the industry, and once the exotic black carp is released into pond environments it is virtually certain that it will eventually escape to the wild. Experience has proven that to be the case with similar stockings (primarily in Arkansas) of the black carp's Asian cousins: the silver, bighead, and grass carps. The latter three species, released in the 1970s, 80s and early 90's for other aquaculture and pond applications, easily found their way to the wild. They have now achieved huge population numbers, and have migrated throughout the Basin, piling up like "cord wood" below Gavin's Point Dam on the Missouri River, Red Rock Dam on the Des Moines River, Keokuk Dam on the Upper Mississippi, and elsewhere. Norm Stucky, Chief of Fisheries for Missouri, says "The bighead carp has become so abundant at some locations on his state's large rivers that commercial fishermen can't even lift their nets, they are so full of bigheads." Compounding this problem is that fact that the bighead carp is a plankton feeder that competes directly for food with the native, and potentially threatened paddlefish and bigmouth buffalo, as well as with forage species such as the gizzard shad. Also, the bighead has no known human use, since the flesh is not considered desirable for eating by most people. Grass carp and silver carp are fast approaching the numbers achieved by the bighead; and all three species compete directly for food with the larval stages of native game fish, and have the ability to capitalize on degraded habitats not preferred by natives. The later ability gives the Asian carps an even greater "edge" in outcompeting our native fish for survival and proliferation in the "environmentally disturbed" river environments that we know today.

In mid October Chuck Surprenant, U.S. Fish & Wildlife Service (USFWS) biologist in Marion, IL, investigated a fish kill in a levee borrow ditch on the Wilkinson Island Division of the Mark Twain National Wildlife Refuge. The seasonally flooded ditch had dried up, and all that remained were a series of small pools approximately 12 ft. by 40 ft. in size. The site is located approximately 2 miles off the main channel of the Mississippi River, 90 miles south of St. Louis, MO. A near total fish kill had occurred, with only a few common carp and mosquitofish surviving. Surprenant counted all the dead fish and found 5 native and 4 exotic species. The exotics were all carps: 157 silver, 18 bighead, 9 grass, and 30 common carp. Based on potential adult size observed elsewhere on the river, Surprenant said that these were all young or juvenile fish, demonstrating that the Asian carps can and are reproducing in the wild. This is contrary to earlier claims of the persons who originally introduced them into hatchery situations. Surprenant said there were at least 5 other locations nearby, all with fish kills and all with similar species compositions. He believes that this demonstrate the potential for black carp to follow in the

footsteps of its Asian carp cousins as becoming a permanent part of the Mississippi River Basin's fish fauna. large populations of black carp could be devastating to the Basin's already suffering mussel and shellfish resources.

At least seven catfish farmers have applied for and received permits from the MDAC to release diploid black carp into their catfish ponds. The trematode pest has been documented from only 8 of the state's fish farms.

The MDAC has sole regulatory authority for the aquaculture industry in Mississippi, while the Mississippi Dept. of Wildlife, Fisheries & Parks (MDWFP) is left with the responsible for managing the state's wild fish populations. Despite concerns raised and protests made by MDWFP, MDAC approved the permits, strongly recommending the use of triploid black carp (thought to be sterile). However, triploid certification is not required, and diploid fish (thought to be fertile) can be stocked for an entire year until 12/2000 if triploid fish can not be purchased. Facilities must be inspected and approved prior to stocking, and only permitted facilities can legally stock black carp.

The impacts of this decision will reach to the far corners of the Basin, and fisheries authorities in other Basin states are extremely upset. The European or common carp, introduced by German immigrants for food in the late 1800's, is so widespread today that it is considered by most to be part of our native fish fauna. The three species of Asian carps (silver, bighead, and black) are potentially far more threatening because they compete more directly with our native fish and shellfish for food and habitat. However, they too will likely be thought of by our grandchildren as "natives", and our grandchildren may never see or know that species such as the paddlefish, buffalo, and others ever existed - all because of the selfish, self-serving decision made for the benefit of a few people in the late 1900's!

Since the release of species such as these produce such significant impacts, reaching far beyond the area under jurisdiction of the decision making authority, it is perhaps time to declare them as "species of injurious wildlife" that would come under federal jurisdiction (USFWS) of the Lacey Act. This would latter make possession of Asian carps illegal, and allow federal authorities to enter private property to confiscate and destroy any stocks being held in captivity. Such authority, however, would require wide public support, and is deserving of public comment. For more information and to register opinions on any or all parts of this issue, contact: Gene Robertson, MDAC, (601) 359_1120, FAX (601) 254_6001, e_mail: gene@mdac.state.ms.us; Dennis Riecke, MDWFP, (601) 364_2205, FAX (601) 364_2209, e_mail: dennisr@mdwfp.state.ms.us; Hannibal Bolton, USFWS,

(703) 358-1718, FAX (703) 358-2044, e-mail: hannibal_bolton@fws.gov.

Contributed by Jerry Rassmussen of MICRA

FMCS's Black Carp Protest Letter Addressed to Mississippi Commissioner Spell

Lester Spell, Jr., Commissioner
Mississippi Department of Agriculture & Commerce
121 North Jefferson Street
Jackson, MS 39201

Dear Commissioner Spell:

The Freshwater Mollusk Conservation Society (FMCS), created in March, 1999, is comprised of malacologists from throughout North America. The FMCS's primary objective is to promote scientific conservation and management of freshwater mollusks, the most imperiled fauna in North America. Society members include mollusk experts from academia, state and federal natural resource agencies, non-governmental organizations, private consultants, the commercial shelling industry, and people from various occupations who have an interest in protection and management of mollusks. Freshwater mollusks in North America are in jeopardy. During the past century we have lost 35 of the 300 species of freshwater mussels and 42 of the 500 species of freshwater snails native to North America. Additionally, 63 species of freshwater mussels and 144 species of freshwater snails are currently on the U.S. Fish & Wildlife Service candidate list. Still more are in decline. The decline in freshwater mollusks has occurred because of widespread changes in stream habitats in North America, including water pollution, channel alteration, dam construction, and introduction of exotic species. The FMCS is concerned about the invasion of North American waters by black carp. Adult black carp feed almost exclusively on mollusks and for some molluscan species could be the "final nail in the coffin". Experience with past introductions of exotic species suggests that dissemination of black carp into a variety of commercial culture facilities will result in the introduction and establishment of this species in U.S. waters. Similar "experiments" with grass carp, silver carp, bighead carp, and other species has resulted in the release, establishment, and widespread proliferation of these species in North America, resulting in significant impacts to native fauna and their habitats. While black carp may be capable of controlling gastropods in small impoundments, native species such as the redear sunfish are as well or better suited to serve the same function.

The conservation status of freshwater mollusks alone should urge you to reconsider your decision to allow the proliferation of black carp into additional commercial hatcheries and production facilities in Mississippi. However, you may also consider the impacts black carp may have on large commercial mussel shelling industries in neighboring states such as Tennessee and Alabama, imperiled species recovery programs in Alabama, Georgia, Missouri, Tennessee, Virginia, and other states, and region-wide mollusk recovery programs coordinated and sponsored by the U.S. Fish & Wildlife Service.

Exotic species introductions are one of the most serious natural resource issues faced in the United States today. Introduction of exotic species is costing the U.S. taxpayer billions of dollars a year (the zebra mussel alone costs \$3 billion a year to heavy industry (Science 1990)). At a time when fisheries professionals are rethinking not only introductions of new species but transfers of genetic stocks between waters, allowing the dispersal of a species with known potential for impacts on native faunas is ill-advised.

Therefore, the FMCS, for the above reasons and others, urges you to reconsider your decision to allow the introduction of black carp in Mississippi. If the FMCS can assist you in finding another biological control solution for eliminating the unwanted snails in your catfish production ponds, we are ready and willing to help. If you have any

questions about the FMCS or this issue, please contact me (573/882-9880, Ext. 3257).

Thank you.

Sincerely,
Alan C. Buchanan, President
Freshwater Mollusk Conservation Society

Announcements needed for last Tri-Annual Report

The Tri-Annual Unionid Report has issued a call for submissions for the March issue. The submissions are due to the Asheville, NC office of the USFWS (160 Zillico St. Asheville, NC 28801) by February 25, 2000. The **March 2000** issue of the Tri-Annual report will be released next month, after which production of the report will be taken over by *Ellipsaria*. Additionally, this current copy of *Ellipsaria* is the last large mailing of this newsletter to the freshwater mollusk community at large (many non-members receive this issue gratis). **If you are not a FMCS member, you will not receive the Tri-Annual report, or future copies of *Ellipsaria*.** Also, we are in the process of adding new features to the newsletter, in addition to the items that would normally appear in the Tri-Annual Report. Don't be left out, send in your FMCS registration today! (registration form enclosed).

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