

INTERNATIONAL ASSOCIATION  
OF ASTACOLOGY  
I.A.A.



# NEWSLETTER

## IAA VI

The sixth conference of the Association will meet in August, 1984, in Lund, Sweden, and a planning board for this meeting is presently functioning. Further details regarding this meeting will appear in future issues of this newsletter.

### Officers and Board of the Association

Results of the election of officers given at the Business Meeting on August 20 were as follow:

President:	A. Stellan Karlsson Sweden
President-Elect:	Pierre J. Laurent France
Secretary-Treasurer:	James F. Payne U.S.A.

Terms of office shall last until the next meeting in 1984. The Executive Board will consist of the above officers and the following members as appointed by Mr. Karlsson:

D.O. Adegboye-Nigeria	A.S. Habsburgo-Lorena-Spain
J.W. Avault, Jr.-USA	J.V. Huner-USA
Per Brinck-Sweden	J. Kossakowski-Poland
L. De La Bretonne-USA	O. Lindqvist-Finland
C.R. Goldman-USA	R. Spitzey-Austria

Ossi Lindqvist is outgoing president and special recognition and thanks are extended to him at this time. Ossi has devoted considerable time and effort to activities of the IAA and has been an influential guiding force.

## MESSAGE FROM THE NEW PRESIDENT

In Newsletter 4:4 Ossi V. Lindqvist wrote in the "President's message": "One of the future tasks of the Association will be harmonization of the interests and goals, so that crayfish fisheries can be developed in integration with other fisheries and with other uses of natural resources." Indeed this is so, but to be able to work for this we must be more active, and there must be more of us. Of course I don't think that more members automatically means a better organization, and no member of today wishes to see a huge membership.

The close personal contacts we have within IAA is one of the advantages with a small organization. However, more members mean more money, and we depend upon that. Therefore, let us all try to make the Association better and encourage interested individuals to join the ranks. Together with my fellow officers, I will try hard to make the membership worthwhile. The first and most apparent sign on this will be improvements of the Newsletter. We will need your help in this, so please send news items to our secretary!

Last, I would like to see more communication within the Association. News, advice, opinions, questions are welcomed. Write to me or contact the Board member in your region. When we meet in Lund in 1984, I hope to be able to say, "There are more of us, and we are more active!"

#### IAA V

The University of California, Davis was the site of the fifth conference of the International Association of Astacology, and Dr. Charles Goldman, his wife, and many colleagues at Davis coordinated an excellent program for the 72 formal registrants, their accompanying guests, and the numerous visitors to the variety of symposium events. Countries represented at the fifth conference were: Africa, Australia, Canada, Finland, France, Ireland, New Zealand, Spain, Sweden, United Kingdom and the United States. Collectively, six sections featured 52 scientific presentations on various aspects of crayfish biology and aquaculture; in addition, six titles and abstracts submitted by colleagues in the U.S.S.R. were read and an exceptional film on the life history and behavior of *Astacus astacus* in Germany was shown. A more detailed outline of the symposium titles appears later in this issue.

The beautiful and spacious Davis campus and the fine weather provided many opportunities for participants to renew friendships and exchange ideas on research problems. Participants enjoyed an all day, mid-conference tour to the Napa Valley where we toured two wineries and picnicked in the town of Helena. Among the many food items were two types of smoked salmon prepared by Professor Goldman. Following adjournment of the final paper session, participants were transported to the Sacramento River and boarded boats where Darlene McGriff and Steve Shimizu demonstrated commercial trapping techniques for *Pacifastacus leniusculus*. The final day's activities concluded in Old Sacramento as small groups of participants dispersed to find a place for dinner. Our sincere appreciation and congratulations to Charles Goldman for organizing an excellent meeting.

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COMMUNICATIONS FROM MEMBERS

Horton HOBBS, Jr. reports that Sr. Ernesto Campanos Gonzalez, Apto. Post. 732, San Nicolas de los Garza, Nuevo Leon, Mexico, has initiated a study of the taxonomy and biology of the crayfishes of Nuevo Leon. Literature citations for this work will follow in subsequent newsletters.

Darlene MCGRIFF requests: Information on microsporidian parasitism in crayfish from North America. I found three *Pacifastacus leniusculus leniusculus* in the Stanislaus River in California heavily infected with *Thelohania contejeani*. I have found only two references in the literature to any microsporidian parasites in North American crayfish. *Thelohania* sp. in *Cambarellus shufeldti* and *Plistophora* sp. in *Cambarellus puer* in Louisiana (Sogandares-Bernal 1962. The Journal of Parasitology. 48(3): 493.); and *Thelohania cambari* in *Cambarus bartoni* in streams along the Georgia-North Carolina border (Sprague 1950. The Journal of Parasitology Sec 2 Supplement. 36(6): 46.). I appeal to the membership for any recorded observations of microsporidian parasitism. Please send any information to: Darlene McGriff, California Department of Fish and Game, 1701 Nimbus Road, Suite C, Rancho Cordova, California 95670 USA.

Jay HUNER has sent information concerning the Louisiana Crawfish Farmers Association, which held its annual meeting in September, 1981, at Baton Rouge, Louisiana. Over 350 individuals attended the meeting where topics included pesticide usage in rice-crawfish culture and reports on production levels in many areas.

Horton HOBBS, Jr. and C.W. HART, Jr. are compiling a computerized bibliography of all information relating to the crayfishes of the world. The bibliography will be cross-indexed by subject matter including, but not limited to, systematics, distribution, ecology, aquaculture, pest control, evolution, life histories, physiology (neuromuscular, endocrine, etc.), morphology, embryology, commensals and parasites, behavior, and histology.

Although a cut-off date has not yet been decided upon, we plan to publish the initial compilation and update the computer file annually.

In gathering information we are consulting Zoological Record, Biological Abstracts, Current Contents, and DIALOG Information Retrieval Service, and other extensive bibliographic resources available to us.

They request copies of anyone's list of publications and/or bibliographies relating to any aspect of crayfish biology or exploitation.

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RECENT PUBLICATIONS

- Ameyaw-Akumfi, C. 1981. Courtship in the crayfish *Procambarus clarkii*. *Crustaceana*, 40:57-64.
- Arrignon, J. 1981. *L'Ecrevisse Et Son Elevage*. Gauthier-Villars, Paris. 336p.  
to order this book:  
International Standard Book Number 2-04-012081-5  
Gauthier-Villars (Dept. DEC)  
17 rue Remy Dumoncel  
75014 Paris (France)  
price/copy-120 F.F.
- Bechler, D.L. 1981. Copulatory and maternal offspring behavior in the hypogean crayfish *Orconectes inermis inermis* Cope and *Orconectes pellucidus* (Tellkamp). *Crustaceana*, 40:136-143.
- Capelli, G. (in press). Displacement of native crayfish by *Orconectes rusticus* in northern Wisconsin. *Limnology and Oceanography*.
- Capelli, G. and B. Munjal (in press). Aggressive interactions and resource competition in relation to species displacements among crayfish of the genus *Orconectes*. *Journal of Crustacean Biology*.
- Franz, R. and D.S. Lee (in press). Distribution and evolution of Florida's troglobitic crayfish. *International Journal of Speleology*.
- Grow, L. and H. Merchant. 1981. The burrow habit of the crayfish *Cambarus diogenes diogenes* (Girard). *American Midland Naturalist*, 103:231-237.
- Hobbs, H.H., Jr. 1981. *The Crayfishes of Georgia*. Smithsonian Contributions to Zoology, 318:vii + 549 pages.
- Waterman, T.H. and W.B. Piekos. 1981. Light and time correlated migration of invasive hemocytes in the crayfish compound eye. *Journal of Experimental Zoology*.

NEWS ABOUT MEMBERS

In 1982 The Crustacean Society will meet with the American Society of Zoologists in Louisville, Kentucky. This meeting will feature a symposium entitled "Crayfish Distribution Patterns" organized by J.F. PAYNE. The symposium will consist of 14 presentations and will be dedicated to Dr. Horton H. HOBBS, Jr. at the time of his retirement from the Smithsonian Institution and his formal work on the systematics and evolution of crayfish. An outline of this symposium will appear in the next issue of this newsletter.

Also for the Louisville meeting in 1982, A.J. PROVENZANO, Jr. has organized a workshop entitled "Crayfish Culture." Topics and presenters for this workshop will appear in a future issue of this newsletter.

Walter MOMOT will spend a sabbatical year at Louisiana State University working with James AVAULT, Robert ROMAIRE, and others on various aspects of production of *Procambarus clarkii*.

## MISCELLANEOUS ITEMS

Proceedings of the IAA symposia are published under the title of "Freshwater Crayfish," and these volumes collectively represent a significant body of knowledge. The current status of each volume is as follows:

Freshwater Crayfish I: (Hinterthal, Austria meeting)  
Order from Stellan Karlsson

Freshwater Crayfish II: (Baton Rouge, Louisiana meeting)  
(presently out of print)

Freshwater Crayfish III: (Kuopio, Finland meeting)  
(out of print; plans are to reprint at a later date)  
inquiries should be directed to Dr. O.V. Lindqvist,  
University of Kuopio, P.O. 138, 70101, Kuopio, Finland.

Freshwater Crayfish IV: (Thonon, France meeting)  
60 Swiss Francs to: Pierre Laurent, I.N.R.A.  
F 74203  
Thonon, France

Freshwater Crayfish V: (Davis, California)  
(announcement of availability and price to come in subsequent  
announcements via this newsletter)

The Crustacean Society, a relatively new organization, meets annually with the American Society of Zoologists. The quarterly publication of this society, *Journal of Crustacean Biology*, first appeared in February, 1981, and is now in its third number. Membership in the Society is open to anyone interested in Crustacea. Annual dues are \$25.00 for North America, \$30.00 for other than North America, and \$12.50 for students; these dues include subscription to the journal. Correspondence concerning membership should be sent to: The Crustacean Society, c.o. R.B. Manning, IZ-NHB-W323, Smithsonian Institution, Washington, D.C. 20560, USA.

In addition to the previously announced symposium and workshop, The Crustacean Society announces the following:

Dallas, Texas, 1981:  
Symposium: "Phylogeny Within the Crustacea"  
(Frederick R. Schram, convener)

Workshop: "SEM Application to Crustacean Morphology"

Louisville, Kentucky, 1982:  
Symposium: "Factors Influencing Crustacean Growth"  
(A.M. Wenner, convener)

Contributed paper sessions on crustaceans, some of which will supplement symposia or workshops are planned. For further information, contact: Dr. Patsy A. McLaughlin, Program Chairman

The Crustacean Society  
 Department of Biological Sciences  
 Florida International University  
 Miami, Florida 33199 USA.

The Louisiana Crawfish Farmers Association assists members in obtaining the best and most recent information on crawfish farming. Membership is open to all pond crawfish farmers, processors, retailers, and fishermen. Selected special projects of this Association include: securing funds for crawfish research at the University of Southwestern Louisiana and Louisiana State University, attending a National Aquaculture Workshop at Washington, D.C., helping develop a National Aquaculture Plan, publishing a newsletter to inform members about upcoming meetings, and industry information. For information concerning membership, contact: Louisiana Crawfish Farmers Association, 202 A Knapp Hall, Louisiana State University, Baton Rouge, LA 70803 USA.

A seven-page list of publications dealing with various aspects of crayfish biology (primarily *Procambarus clarkii*) is available from Publications Clerk, 249 AG Center, Louisiana State University, Baton Rouge, LA 70803 USA. Information on Proceedings from the World Mariculture Society along with a list of mariculture and related publications are available from the above address.

A summary of aquaculture research conducted at Southern University, Baton Rouge, Louisiana, is available from Dr. J.V. HUNER, Department of Biological Sciences. Zip Code 70813.

#### IAA MEMBERSHIP

Membership in the International Association is open to all who share a common interest in crayfish biology. Membership fee extends from conference to conference; thus, renewal or new membership will extend from now until August, 1984! Fees for this period include a quarterly *Newsletter* and miscellaneous communications and announcements. Membership Fees (payable to the secretary-treasurer in U.S. dollars) are as follow:

Regular: \$20.00  
 Student: \$10.00  
 Business: \$50.00 (firms listed in Newsletter on request).

An enameled membership pin is available for five additional U.S. dollars. The pin is oval (ca 15 X 8 mm) and features the IAA logo in dark brown on blue, with silver outlines. These pins are very nice, and a limited number is available. When ordering, please specify if you wish a pin with mounted attaching device or one without and in the form of a flat plate that can be mounted as desired. The pins were brought to the Thonon and Davis meetings where demand was strong. Order yours now with your membership renewal or new membership. Checks payable to the International Association of Astacology and sent to: James F. Payne

Department of Biology  
 Memphis State University  
 Memphis, TN 38152 USA

Please join now for we need your support.

## NEWSLETTER

The *IAA Newsletter* is issued quarterly and all items submitted to the secretary will be considered for inclusion. Success depends upon your support and cooperation. To insure receiving your copy, please remit dues promptly to the Secretary-Treasurer.

## SOME REFLECTIONS ON IAA V AT DAVIS



The IAA meetings are certainly unique and hold a strong interest for many of us. Some of my reflections are given below; send me yours if you wish and I will print them.

High quality of the presentations, so many bicycles in one place, old friends and new ones, effects of acid rain, banquet ice sculptures of crayfish, California Jays and olive trees, fresh melon and cheese in the Commons, Captain Crawdad's Cap (MOMOT) and his unique slide presentation of data; dinner in "Old Sac," a banquet toast with aquavit, outstanding sunset on the Sacramento River as Darlene and Steve retrieved traps filled with *Pacifastacus*, "hemolymph parameters," GOLDMAN's precise coordination, how much we missed Horton HOBBS, Jr. AND Professor KOSSAKOWSKI, oenology, ADEGBOYE's attire upon arrival, Ossi's arrival despite the controller's strike, calcium homeostasis, Reinhard SPITZY, the private life of *Astacus* in Germany, an international "sing" at the banquet, John MASON not being there, oenology, Per BRINCK's eloquent address and my having to follow, the beautiful Davis swimming pool, crayfish production figures from Spain and Vermont, Dr. AYALA's toast, crayfish and rice growing together as well as being eaten together, *Astacus* gut microflora, crayfish "butter," and perhaps also oenology.

If you wish to add to the list, send your reflections to me. If you weren't there, join now so you too can have such reflections.

## SECTIONS, TITLES, AND PRESENTERS OF PAPERS: IAA V

### SECTION 1: General Physiology and Biology of Crayfish

On the sex dimorphism and condition index in the crayfish, *Astacus astacus*. E. Lahti and O.V. Lindqvist.

Dimorphism in *A. pallipes*. W.J. Thomas.

On the reproductive cycle of the crayfish, *Astacus astacus*. O.V. Lindqvist and E. Lahti.

A method to estimate food consumption in juvenile and adult crayfish (*Pacifastacus leniusculus*) with applications to crayfish feeding and behavior. J.C. Rundquist and C.R. Goldman.

Indications of age dependent metabolism of calcium in the crayfish (Crustacea, Decapoda). J.O.D. Adegboye.

Respiratory requirements of *Orconectes limnosus*. P.J. Laurent

#### SECTION 2: Acidification Problems of Crayfish

Response of acid stress upon the oxygen uptake in eggs of the crayfish *Astacus astacus* L. M.A.P. Appelberg.

Physiological responses to sublethal acid exposure in crayfish. B.R. McMahon and D.O. Morgan

Effects of hypoxia on the hemolymph of the freshwater crayfish, *Astacus astacus*, in neutral and acid water during the intermolt period. T. Jarvenpaa, M. Nikinmaa, K. Westman, and A. Solvio.

Response of the crayfish, *Orconectes virilis*, to experimental whole-lake acidification in the Experimental Lakes Area, N.W. Ontario. R.L. France.

#### SECTION 3: Cation Physiology of Crayfish

Traces of Mg<sup>++</sup> ion in the exoskeleton of the crayfish *Procambarus acutus acutus* (Decapoda, Crustacea). J.O.D. Adegboye.

The respiratory responses of the western North American crayfish *Pacifastacus leniusculus* to hypersaline exposure. M.G. Wheatly and B.R. McMahon.

Calcium homeostasis in the crayfish (Crustacea, Decapoda, Astacidae). J.O.D. Adegboye

The crayfish condition factor: a tool in crayfish research. J.O.D. Adegboye.

The relationship between medium calcium and hemolymph calcium concentrations of the crayfish during the mid-intermolt stage. J.O.D. Adegboye.

#### SECTION 4: Ecology of Crayfish

Sture Abrahamsson Memorial Lecture: An ecologist's approach to dealing with the loss of *Astacus astacus*. Per Brinck.

Studies of the life history and ecology of *Orconectes palmeri palmeri* (Faxon). J.F. Payne and J.O. Price.



The bioenergetics of *Orconectes virilis* in two pothole lakes, West Lost and North Twin, Michigan. P.D. Jones and W.T. Momot

Estimates of growth, reproduction, density and production on a sampled population of the crayfish *Pacifastacus leniusculus* in the Sacramento River. S. Shimizu.

Production of the red swamp crayfish, *Procambarus clarkii*, as influenced by environmental conditions in southeastern Louisiana. R. Paille.

Population of the crayfish *Atlanto-astacus pallipes pallipes* Lereb. in a brook of Corsica, France. J.C.V. Arrignon.

Climate and stream as limiting factors in the distribution of *Astacus astacus*. M. Furst and B. Eriksson.

A portable hydraulic, diver-operated, dredge-sieve for sampling juvenile crayfish. C-O.T. Odelstrom.

On the non-existence of indigenous species of crayfish (Crustacea, Reptantia, Astacidae) on the continent of Africa. J.O.D. Adegbeye.

#### SECTION 5: Pathology and Toxicology of Crayfish

Frequency of visible symptoms of the crayfish plague fungus *Aphanomyces astaci* on the American crayfish *Pacifastacus leniusculus* in natural populations in Finland. V. Nylund and K. Westman.

Susceptibility of *Orconectes limnosus* Raff. to the crayfish plague, *Aphanomyces astaci* Schik. A. Vey, K. Soderhall and R. Ajaxon.

*Pacifastacus leniusculus* and its resistance to the crayfish plague parasite, *Aphanomyces astaci*. M. Persson and K. Soderhall.

Epizootology of the crayfish plague (Aphanomycosis) in Spain. L. Cuellar and M. Coll.

The occurrence of crayfish diseases and their significance in Ireland. C. O'Keeffe and J.D. Reynolds.

Fungal infections of the integument caused by *Fusarium* sp. in crayfish. A. Vey.

On the fine structure and taxonomic position of the crayfish parasite *Psorospermium haeckeli* Hilgendorf. V. Nylund, K. Westman, and K. Lounatmaa.

Effects of rice pesticides on *Procambarus clarkii* in a rice/crawfish pond model. S.B. Ekanem, J.W. Avault and J.B. Graves.

Toxicity of selected rice herbicides to red swamp crayfish *Procambarus clarkii* (Girard). C.G. Lutz and R.P. Romaine.

## SECTION 6: Production Problems of Crayfish

Crawfish (*Procambarus clarkii*) growth and dispersal in a small south Louisiana pond planted with rice, *Oryza sativa*. J.F. Witzig.

Culture of *Procambarus clarkii* in Louisiana rice fields. L. de la Bretonne.

Effects of flooding dates and type of disposal of rice straw on the initial survival and growth of caged juvenile crayfish. Y.H. Chien and J.W. Avault, Jr.

A comparison of delta duck potatoe (*Sagittaria platyphylla*) and rice (*Oryza sativa*) as cultured red swamp crayfish (*Procambarus clarkii*) forages. W.B. Johnson, Jr. and J.W. Avault, Jr.

Feeds and forages for red swamp crayfish, *Procambarus clarkii*: 15 years research at LSU reviewed. J.W. Avault, Jr., R.P. Romaine and M.R. Miltner.

An appropriate food delivery system for low-levee pond culture of *Procambarus clarkii*, the red swamp crayfish. M.R. Miltner and J.W. Avault, Jr.

Crawfish, *Procambarus* spp., production from flooded experimental ponds to culture prawns, *Macrobrachium rosenbergii*, and/or channel catfish, *Ictalurus punctatus*, in South Louisiana. J.V. Huner, M. Miltner and J.W. Avault, Jr.

Predation by *Anax junicus* (Odonata: Aeschnidae) naiads on young crayfish. J.F. Witzig, J.W. Avault, Jr., and J.V. Huner.

An evaluation of selected crayfish traps and trapping techniques used in Louisiana. V. Pfister and R.P. Romaine.

Research methodology at the University of Southwestern Louisiana Crawfish Research Center. D. Gooch.

Substrate preferences by *Pacifastacus leniusculus* (Dana). B.J. Klosterman and C.R. Goldman.

The commercial fishery for *Pacifastacus leniusculus* (Dana) in the Sacramento-San Joaquin delta and its management. D.A. McGriff.

The potential for harvest of ricefield crayfish in California. T. Sommer and C.R. Goldman.

Commercialization of Vermont crayfish species (*Orconectes immunis* and *Orconectes virilis*): putting theory into practice. J.R. Nolfi.

Some observations on crayfish farming in Spain. A. Lorena Salvador Hapsburgo.

The introduction of the signal crayfish into the United Kingdom and its development as a farm crop. K.J. Richards.

Production of one-summer-old crayfish (*Astacus astacus*) juveniles in ponds with natural food and in plastic basins with feeding. T. Jarvenpaa, M. Pursiainen and K. Westman.

Social/economic aspects of the crayfish industry in Spain. A. Lorena Salvador Hapsburgo.

Crayfish species plan for the United States - Aquaculture. J.W. Avault, Jr.

