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NEWSLETTER

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SEVENTH CONGRESS OF ASTACOLOGY--Place: Lausanne, Switzerland. **Date:** 3-5 August 1987. A post congress excursion for 6-8 August will involve points of interest to astacologists in German-speaking Switzerland, France (Alsace), and West Germany (Bavaria). Presentations will involve pathology, ecology, ethology, physiology, zoogeography, morphology and taxonomy, and aquaculture. For more details contact: Professor Pierre Goeldlin, Directeur du musee Zoologique, 6 Place de la Riponne, CH-1005, Lausanne, Switzerland.

RED SWAMP CRAYFISH FISHERY IN LOUISIANA--The catch of wild red swamp crayfish, *Procambarus clarkii*, in Louisiana varies from year to year. This has been the first good year in several years. Most are caught in the Atchafalya Basin floodway which is the major distributary of the Mississippi River during April and May although the season may last 5 months. A newspaper article ("Belle River crayfish craze unforgettable", Bob Searce, Sunday Advocate, Baton Rouge, Louisiana, May 3, 1987) notes that some fishermen may gross \$40,000 during the 5 month season. It is hard work as the referenced fishermen had to run 2,500 traps and sell the crayfish for about \$0.90 per kg.

NEW CRAYFISH HARVESTING DEVICE DEVELOPED IN LOUISIANA--A wheeled vehicle called the "Hydroscop" has been devised to harvest crayfish from Louisiana's shallow aquaculture ponds. In an article by Bruce Schultz ("Hydroscop designed to harvest crayfish", Sunday Advocate, Baton Rouge, Louisiana, May 24, 1987) the hydroscop is described as being "a four-wheeled contraption using hydraulics, powered by a 44-horsepower, air-cooled diesel engine. The vehicle, which weighs 4,200 pounds, requires a driver in the front and a sorter in the rear." The crayfish are apparently confined by a trawl-like device and carried onto the machine by a conveyor belt. Inventors are Donald Gooch and Al George. There is a patent pending on the machine which will cost \$30,000-50,000. It is said to be cost effective when compared to use of conventional traps and boats.

LOUISIANA CRAYFISH; PERSPECTIVES OF A NEW WORLD TRAVELER--This unique museum exhibit was first shown at the Lafayette (Louisiana) Nautical History Museum and has just ended a stay at Louisiana Nature and Science Center in New Orleans. It is now traveling to Europe with the first stop being the Musee de Zoologie in Lausanne, Switzerland in time for the Seventh Congress of Astacology in August. With the demise of the Turkish crayfish fishery, Louisiana is the only major source of crayfish for the European market. It is anticipated that the exhibit will help to provide Europeans with a better understanding of the nature of the crayfish industry in Louisiana as well as the basic importance of crayfishes in natural ecosystems. The exhibit is being sponsored by Seafood, Inc. and KSM Corporation. The exhibit will be shown in France and Belgium after leaving Switzerland and may be presented in Sweden later. Information may be obtained from Mr. Jim Whelan, Lafayette Nautical History Museum, 637 Girard Park Drive, Lafayette, Louisiana 70503-2896 USA.

ASTUDY OF CRAYFISH PRODUCTION PRACTICES AND YIELDS IN ST. LANDRY PARISH, LOUISIANA, 1984-85--This is a M.S. thesis by W. D. Landreneau for the Dept. of Agricultural Extension and International Education at Louisiana State University, Baton Rouge, Louisiana 70803 USA. The major purpose of the study was to determine crayfish yields of St. Landry Parish farmers and to compare differences in yields per acre to selected production and marketing practices as a basis for developing a sound educational program for the parish. The thesis was completed in 1986.

ESTIMATED INVESTMENT REQUIREMENTS, PRODUCTION COSTS, AND BREAKEVEN PRICES FOR CRAYFISH IN LOUISIANA, 1987--This is the title of a Dept. of Agricultural Economics and Agribusiness, Louisiana State University, Baton Rouge, Louisiana 70803 USA, Research Report (No. 670-February 1987). Authors are L. E. Dellenbarger, L. R. Vandever, and T. M. Clarke. The foreword notes: "This report presents estimated investment requirements, production costs and breakeven prices for crayfish production. The enterprise estimates in this report are for both crayfish and rice-crayfish production systems using well water as a source. Production scenarios for a 10, 20, 40, and 2-40 acre crayfish production systems are presented. Break-even prices are presented for different sized systems and crayfish yields. Estimates are presented for both southwest and northeast areas of Louisiana."

SOFT-SHELLED CRAYFISH PRODUCTION IN LOUISIANA--"Soft Crayfish, A New Crust for an Old Crustacean" is the title of an article about soft-shelled crayfish production in Louisiana (RE: Aquanotes-Louisiana Sea Grant College Program, Louisiana State University, Baton Rouge, Louisiana 70803 USA-Vol.16, No. 1, March 1987). According to researcher Dudley Culley, about 2700 kg was produced in 1986 but 9500 kg is expected in the current 1987 season. Most are produced by holding intermolt crayfish in shallow trays until they shed their shells. Inquiries about soft-shelled crayfish production methods should be directed to the publishers of Aquanotes. Prices for the crayfish is about \$15 per kg compared to \$1 per kg for intermolt crayfish.

RED SWAMP CRAYFISH RESPONSIBLE FOR MAJOR EXCAVATION IN ZAMBIA--IAA member C.J. Grubb (Livingstone, Zambia) wrote recently to note that he needed 3 tons of top soil to fill a hole beneath a concrete furrow where a number of *Procambarus clarkii* had excavated burrows. Although this is an annoyance, Mr. Grubb is quite satisfied with the commercial value of his crayfish.

RED SWAMP CRAYFISH PRODUCTION IN PEOPLE'S REPUBLIC OF CHINA--Shu Xinya (Hubei

Fisheries Science Research Institute, No. 18, Donghu Road, Wuhan, PRC) writes that in recent years the production of *Procambarus clarkii* has been about 1000 tons per year. The crayfish is usually polycultured with carps with production of 1000-1500 kg per ha (fish production is 3000 kg per ha).

MARRON STATUS IN NEW ZEALAND--The March 1987 issue of Fish Farming International reported that a permit had been granted for the experimental cultivation of marron, *Cherax tenuimanus*, in New Zealand. IAA member Brian Jones (Fisheries Res. Div., P.O. Box 297, Wellington, New Zealand) writes (April 14, 1987) that no permits had been issued and that the press release was premature.

NEW MARRON VENTURE IN WESTERN AUSTRALIA--IAA member Simon Bennison writes that he has recently developed a marron company, Commercial Freshwater Lobsters Limited, after culturing marron for some years for Greenbushes Tin Mine. He may be contacted at P.O. Box 348, Claremont 6010, Western Australia, Australia.

NEW MARRON FARMING BOOKLET--Annette Davies has been good enough to send a copy of "Marron Farming", a 165 page, full color booklet on marron farming. Sections include, General Biology, Identification, Predators, Reproduction, Sexing, Injury & Disease, and levels of marron culture. The cost is \$4.00 Australian, and the booklet may be ordered from the Margaret River Marron Farm, P.O. Box 105, Margaret River, Western Australia 6285 Australia. The color reproductions are quite good and the book should be a welcomed addition to any astacologist's reference collection.

AN INTRODUCTION TO THE CRAYFISH OF MISSOURI--This article appeared in the April 1987 issue of the Missouri Conservationist. Author is W. L. Pflieger, Senior Research Biologist, Missouri Dept. of Conservation, 1110 College Ave., Columbia, Missouri 65201 USA. It pictures, in full color, 28 species of crayfish found in the state of Missouri. It provides detailed information about distribution and life cycles. Dr. Pflieger notes that copies of the article are available. There are at least 32 species in the state which can be divided into four aquatic regions, prairie, ozark, lowland, and big river. The color plates show clearly the beauty of crayfishes.

CRAYFISH TOXICOLOGY--There is considerable concern about the toxicity of many pesticides to crayfishes. The E.I. Du Pont de Nemours & Company determines the toxicity of its products before they are released. IAA member Mike Edwards (E.I. Du Pont de Nemours & Company, 400 Perimeter Center Terrace, Suite 249-A, Atlanta, Georgia 30346-1294, USA) sent 96-hour LC-50 values for a number of recently released herbicides with the following trade names "Harmony", greater than 79 mg/l; "Ally"/"Escort", greater than 178 mg/l; "Londax", greater than 71 mg/l; "Assure", greater than 1.4 mg/l; "Classic", greater than 1000 mg/l; and "Oust", greater than 5000 mg/l.

CRAYFISH CULTURE IN MISSOURI--IAA member Bart McCartney (El Dorado Springs Fisheries, Route 3, Box 373, El Dorado Springs, Missouri 64744 USA) has been raising various species of *Orconectes* and *Procambarus* for some years now. He has recently completed (with Jack W. Garrett) a 36 page manual entitled, "Temperate Crayfish Culture". Price is \$6.00 plus \$0.75 for postage and handling. Most North American crayfish culture publications deal almost exclusively with *Procambarus clarkii*. The McCartney/Garrett manual deals primarily with several hardy, widely distributed *Orconectes* spp. including *O. nais*, *O. virilis*, *O. longidigitus*, and *O. immunis*.

BRIAN McMAHON IN AUSTRALIA--IAA member Brian McMahon writes that he has taken a

sabbatical post in Australia (School of Zoology, Univ. of New South Wales, P.O. Box 1, Kensington, New South Wales, Australia 2033). He is working on the physiology of the coconut crab, *Birgus latro*.

HUNGARIAN ASTACOLOGIST SEEKS ASSISTANCE--Miklos Thuranszky (25. Belgrad rkp., 1056 Budapest, Hungary) is a student at the Agricultural University of Godollo from which he will graduate next year. He is engaged in studying freshwater crayfish and believes that they have a good future in his country. He is very interested in noble crayfish, *Astacus astacus*, and in introductions of the signal crayfish, *Pacifastacus leniusculus*.

CRAYFISH TAXONOMIST IN ARKANSAS USA--Henry Robison is a biologist at Southern Arkansas University in Magnolia, Arkansas. His work was featured in an article entitled "You show him your crawfish and he'll show you his" which appeared in the May 1987 issue of the Arkansas Times. One species, *Bourcardina robinsoni* has been named for him.

CRAYFISH PHYSIOLOGY STUDIES IN FLORIDA USA--IAA member Michele Wheatly (Dept. of Zoology, Univ. of Florida, Gainesville, Florida 32611 USA) has studied crayfish physiology for some years now. Dr. Wheatly is studying physiological responses of crayfishes to different oxygen tensions and also different calcium levels. In recent years she has become very interested in how the kidney works and in acid-base regulation via ion exchange at the gills. She is also interested in investigating the changes in the physiology of the crayfish during ontogenetic development as well as analyzing responses of crayfishes to water deprivation especially in burrowing forms.

DALLA TURCHIA CAMMINANDO ALL'INDIETRO--This article by IAA member Alessandro Mancini and Enrico Gelosi appears in *Scienza Veterinaria E Biologica*, Vol. 3, No 3, May/June 1984. In Italian, it provides considerable information about crayfishes in Europe and has a number of extremely good color plates emphasizing pathology of developing crayfish embryos. The principal thrust of the article is crayfish pathology and it deals with European species, both native astacids and introduced astacids and cambarids.

UPCOMING MEETINGS DEALING WITH CRAYFISH--(1) National Aquaculture Conference, October 22-23, 1987, Memphis Agricenter International, Memphis, Tennessee USA (contact Mr. Richard White); (2) Fish Farming Expo, November 21-23, 1987, New Orleans, Louisiana (Contact: Public Relations Group, Inc., 3801 Canal Street, Suite 208, New Orleans, Louisiana 70119 USA).

IAA MEETING, NEW ORLEANS, LOUISIANA DECEMBER 1987--The annual meeting of the American Society of Zoologists, American Microscopical Society, Animal Behavior Society, the Crustacean Society, International Association of Astacology, and Society of Systematic Zoology will be held December 27-30, 1987 in New Orleans, Louisiana USA. IAA has participated in this joint meeting of North American zoologists for the past several years now. Local arrangements are being handled by Jay Huner (P.O. Box 11170, Southern University, Baton Rouge, Louisiana 70813 USA) and Jim Payne (Dept. of Biology, Memphis State University, Memphis, Tennessee 38152). Although there is no specific IAA paper session, IAA members will be interested in the crustacean egg session which will include several papers about crayfishes.

AN INTERDISCIPLINARY BIBLIOGRAPHY OF FRESHWATER CRAYFISHES (ASTACOIDEA AND CRUSTACOIDEA) FROM ARISTOTLE THROUGH 1985--Authors of this Smithsonian Contributions to Zoology, Number 455, 1987, are C. W. Hart, Jr. and Janice Clark

of the Smithsonian Institution, Washington, DC 20560 USA. More than 11,000 citations are listed that pertain to freshwater crayfishes of the world in some way. The bibliography is very easy to use.

RECENT LITERATURE--

1. Beach, D. and P. Talbot. 1987. Ultrastructural comparison of sperm from the crayfishes *Cherax tenuimanus* and *Cherax albidus*. J. Crustacean Biol. 7:205-210.
2. Bagatto, G. and M. A. Alikhan. 1987. Copper, cadmium, and nickel accumulation in crayfish populations near copper-nickel smelters a Sudbury, Ontario, Canada. Bull. Environ. Contam. Toxicol. 38:540-545.
3. Rincon, F., G. Zurera, and R. Pozo-Lora. 1987. Size and mercury concentration relationships as contamination index. Bull. Environ. Contam. Toxicol. 38:515-522.
4. Hobbs, H. N., Jr. and A. G. Grubbs. 1986. Notes on the crayfish *Procambarus (Orimannicus) xilitlas* (Decapoda: Cambaridae). Proc. Biol. Soc. Wash. 99:735-738.
5. Hobbs, H. N., Jr. 1987. On the identity of *Astacus (Cambarus) mexicanus* Erichson (1846) and *Cambarus aztecus* Saussure (1857) (Decapoda: Cambaridae) with the description of *Procambarus olmeorum*, new species, from Veracruz, Mexico. Proc. Biol. Soc. Wash. 100:198-215.
6. Hobbs, H. N., Jr. 1987. A review of the crayfish genus *Astacoides* (Decapoda: Parastacidae). Smithsonian Contrib. to Zool. 443:1-50.
7. Richards, K. 1986. Co-operation opens the door (describes development of crayfish industry in UK). Fish Farmer, July/August 1986:22-23.
8. Attard, J. and N. Pasteur. 1984. Variabilité et différenciation génétiques chez cinq espèces d'écrevisses Astacidae. Biochem. Systematics Ecol. 12:109-117.
9. Carpenter, S. R. and D. M. Lodge. 1986. Effects of submerged macrophytes on ecosystem processes. Aquat. Bot. 26:341-370.
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11. Lodge, D. M., K. M. Brown, S. P. Klosiewski, R. A. Stein, A. P. Covich, B. K. Leathers, and C. Bronsark. 1987. Distribution of freshwater snails: spatial scale and the relative importance of physicochemical and biotic factors. Am. Malacological Bull. 5:73-84.
12. Johnson, J. E. 1986. Inventory of Utah crayfish with notes on current distribution. Great Basin Nat. 46:625-631.
13. Taylor, E. W., R. Tyler-Jones, and M. G. Wheatly. 1987. The effects of aerial exposure on the distribution of body water and ions in the freshwater crayfish *Austropotamobius pallipes* (Lereboullet). J. exp. Biol. 128:307-322.
14. Traub, H., G. Gellissen, and K-D. Spindler. 1987. 20 (OH) ecdysone-induced transition from intermolt to premolt biosynthesis patterns in the hypodermis of the crayfish, *Astacus leptodactylus*, in vitro. Gen. Comp. Endocrinol. 65:469-477.
15. Furst, M. and K. Söderhall. (In Press). Report on the crayfish *Astacus leptodactylus* in Turkey. Diseases and present distribution of the crayfish plague *Aphanomyces astaci*. FAO Publication/Report. (M.F. Inst. Freshwater Res., S-170 11 Drottningholm, Sweden).
16. Barrociere, L. J. and C. B. Coburn. 1987. The ecological assessment and distribution status of the Nashville crayfish, *Orconectes shoupi*. ASB Bull. 34(2):114 (abstract).
17. Hart, C. W., Jr. and J. Clark. 1987. An interdisciplinary bibliography of freshwater crayfishes (Astacoides and Parastacoides) from Aristotle through 1985. Smithsonian Contrib. Zool. 455:1-437.
18. Anonymous. 1987. Marron culture. *Austasia Aquaculture* 1(6):12-13.
19. Wilson, J. L. (ed.) 1986. S-168 Annual Report 1985. Warmwater Aquaculture. Southern Region Project Special Report October 1986. (contact Dr. Wilson at University of Tennessee, Knoxville, Tennessee USA -- This report includes summaries of culture related crayfish research at most southern USA colleges and universities as well as lists of publications from those institutions.)

Crayfish Publications from Proceedings of the Louisiana Aquaculture Conference 1987, May 1, 1987, Baton Rouge, Louisiana (editor R. Reigh, School of Forestry,

Wildlife and Fisheries, Louisiana State University, Baton Rouge, Louisiana 70803 USA):

-Production of softshell crawfish, D. Culley, pp. 56-60. -Starting a crawfish pond, L. de la Bretonne, Jr., pp. 65-69. -Pumps and pumping efficiency, F. Baker, pp. 70-73. -Water quality in crawfish ponds, T. Hymel, pp. 74-76. -Crawfish forages: an overview, M. Brunson, pp. 77-81. -Crawfish harvesting, R. Romaine, pp. 82-87. -Crawfish packaging, freezing and storage, M. Moody, pp. 88-89.

MEMBERSHIP, INTERNATIONAL ASSOCIATION OF ASTACOLOGY--Membership is open to all individuals interested in astacology. Dues are \$20 US, regular, or \$10 US, student, for the period between international symposia, 2 or 3 years. A quarterly newsletter is provided to all members in good standing. Send money or inquiries to:

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FRESHWATER CRAYFISH VI - The proceedings of the 1984 Lund IAA Congress are available. Cost is \$30 US plus \$5 US postage and handling. Order the proceedings from Professor Per Brink, Ecology Building, S-223 62 Lund, Sweden.

ADDITIONAL LITERATURE CITATIONS--

- Laurent, P.J. 1987. Petit A B C ... Sur L'Ecrevisse et L'Astaciculture. (Adaptation-in French-d'un travail redige en 1985 par C. G. Hammarlund et S. A. Karlsson: "Litet A B C ... om Krefoldling", avec la bienveillante autorisation des auteurs). L'Astaciculteur de France 10:2-9.
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