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THE NESTING BIOLOGY OF PALEOSUCHUS TRIGONATUS: SOURCES OF HEAT FOR NESTS, SURVIVORSHIP AND SEX RATIOS. M. Yamakoshi, W. E. Magnusson and J.M. Hero (intro. by G.H. Dalrymple) Florida International University, Miami, and Instituto Nacional de Pesquisas da Amazônia, Manaus, AM, Brazil.

Temperatures in nests of Paleosuchus trigonatus are maintained by termite colonies, metabolic heat of embryos and possibly by metabolism of roots incorporated in the nest. The warmest nests encountered were associated with active termite mounds but were placed on top of nests from previous years. At temperatures of 31°C or less only females are produced. At 32°C only males are produced. Survivorship is reduced below 27°C.

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ALLOZYME VARIATION IN A NATURAL POPULATION OF THE NILE CROCODILE IN ZIMBABWE. R. Lawson, C. P. Kofron* and H. C. Dessauer. California Academy of Sciences, San Francisco, Louisiana State Univ., Baton Rouge and Louisiana State Univ. Medical Center, New Orleans.

Blood samples were collected for allozyme studies from 92 Crocodylus niloticus from the Runde River in Gonarezhou National Park, southern Zimbabwe. Two (glucose phosphate isomerase and erythrocyte acid phosphatase) of 27 protein coding loci were polymorphic when examined by starch-gel electrophoresis. This amount of variability is similar to that found in another crocodylian, Alligator mississippiensis and is not unusually low as has been found in a number of large vertebrates. In a single semi-isolated population, allele frequencies at both polymorphic loci were in Hardy-Weinberg equilibrium suggesting a random mating pattern with no severe bottle-neck effect in the founding of this population.

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THE PHEROMONAL SUPPRESSION OF PRE-DIFFERENTIATION HEMOLYMPH JUVENILE HORMONE BINDING PROTEINS IN THE TERMITE Reticulitermes flavipes. M. Mohamed and G.D. Prestwich State Univ. of New York at Stony Brook, N.Y.

The regulation of caste differentiation in termites is mediated by primer pheromones. A juvenile hormone (JH) analog, methoprene, was used to induce the molt of worker to presoldier. Developmental protein profiles during this transition, using a combination of the photoactivable JH analog [10-³H] epoxyfarnesyl diazoacetate, sodium dodecyl sulfate-polyacrylamide gel electrophoresis, and fluorography, allowed the identification of two JH binding proteins (JHBP) at 210 and 220 kDa. Workers were induced to molt in the presence of a live soldier, or soldier and nymph, resulting in the disappearance of these two JHBPs and their subsequent replacement with new JHBPs at lower masses prior to the presoldier molt. *In vivo* assays of methoprene-treated workers in the presence of a soldier or soldier and nymph showed significantly fewer presoldier molts than controls. An inhibitory pheromone was established with its effect on the biochemistry/physiology of the organism.

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ECDYSTEROID SECRETION BY THE PROTHORACIC GLANDS OF MANDUCA SEXTA: INVOLVEMENT OF A MEMBRANE-ASSOCIATED cAMP-DEPENDENT PROTEIN KINASE. M.S. Healy and W.A. Smith. Northeastern Univ., Boston, MA.

In insect prothoracic glands (PG), ecdysteroid secretion is stimulated by a cerebral neuropeptide, prothoracicotrophic hormone (PTTH). The involvement of cyclic AMP (cAMP)-dependent protein kinase in this response was examined using the photo-affinity cAMP analog, 8-Azido-[³²P]cAMP. An increase in occupancy of the regulatory subunits of cAMP-dependent protein kinase by endogenous cAMP leads to a decrease in incorporation of labeled cAMP, which can be observed by SDS-PAGE and autoradiography. When the PG were stimulated by PTTH, a significant decrease in labeled cAMP (increase in endogenous cAMP occupancy) was observed in a membrane-associated cell fraction as compared to non-stimulated PG. The labeled cAMP bound specifically to a single protein of approximately 54 kDa which corresponds to the vertebrate type II regulatory subunit. The results suggest that the action of cAMP as a second messenger in response to PTTH is via a membrane-associated type II cAMP-dependent protein kinase. (Supported by NIH Grant DK37435).