GHOOP, C. ROBERT and THOMAS L. DOTY (U. Rhode Island). Inverse correlation of Rana sylvatica and Ambystoma opacum larval survivorship.

Adult and larval population of wood frogs (Rana sylvatica) and marbled salamanders (Ambystoma opacum) were studied over a two year period. The breeding pond was surrounded by a fence with traps along each face. Predation on Rana eggs, embryos, and tadpoles by A. opacum was observed during the first year. High embryo mortality of A. opacum the second year corresponded with an almost 50 fold increase in R. sylvatica survivorship to the dispersal stage. Relative number of other potential Rana predators were similar each year. These data indicate that A. opacum may play a major role in regulation of the R. sylvatica larval population size.

SMITH, GARY C. (Furman Univ.). Ecological energetics of three ectothermic vertebrates.

Comparisons were made of the energy budgets of three ectothermic vertebrates found in Southeastern U.S. The three species studied were Elaphe guttata, Heterodon platyrhinos and Bufo terrestris. Values for assimilation, ingestion, growth, shedding, metabolism and reproduction were converted to caloric units and integrated into energy flow models for each species. Assimilation efficiencies for the three species were 88.9 per cent for E. guttata, 83.9 percent for H. platyrhinos, and 73.7 per cent for B. terrestris. Regression slopes of metabolism per animal hr. for the three species were 0.70 for corn snakes, 0.79 for southern toads, and 1.04 for hognosed snakes. Reserves of fat in the fat bodies were lowest in the spring for all species and coincided with periods of maximal reproduction. Egg clutches comprised approximately 42 per cent of the total caloric value of the females of all three species. Comparisons of energy flow in the three species revealed that ingestion methods (A= I - E) gave significantly higher and more reliable results than production-respiration methods (A= P + R) for all three species.

SPOTILA, JAMES R. and PAUL W. LOMMEN (U. of Michigan). Biophysical Ecology of Large Reptiles: A Mathematical Model for Heat Flow Within the Body.

A mathematical model for heat conduction through large reptiles was developed. The animal was considered to be a large cylinder with a central core surrounded by several layers of insulating muscle and fat. The number and thicknesses of these layers were changed and different conductivity values were used in order to account for the effects of changes in heart rate, vaso -dilation, vaso -constriction, variations in the conductivity of flesh, and other physiological parameters that affect heat flow in real animals. The model relied on an iterative mathematical procedure in which heat in, heat out and heat stored were determined for each layer and the core during a specified time period. This yielded the final temperatures of the core, insulating layers, and outer surface at the end of the time period. A reptile with a central core diameter of 80 cm surrounded by several layers of insulation 10 cm thick, would show a diurnal change in deep body temperature of 0.77°C if exposed to the thermal and radiative environment of a typical mid-July day in south Florida. Such large reptiles would approach the condition of homeothermy due to their large body size. Seasonal changes in the physical environment would be more important than short term changes.

THROCKMORTON, GAYLORD S. (Univ. of Chicago) Digestive Efficiency in the Herbivorous Lizard Ctenosaura pectinata

Food passage rates and digestibility coefficients ($\frac{\text{cal. consumed - cal. excreted}}{\text{cal. consumed}}$ x 100) were determined for four specimens of Ctenosaura pectinata fed sweet potrtoes (Inpomea batatas) over a six week period. Body temperature was recorded continuously for 24-hour intervals at various times throughout the study. The animals were weighed at two-week intervals. Kodak Opaque red pigment was used as a marker to determine the rates of food passage and to mark the beginning and end of collecting periods. Collecting periods averaged seven days. Preliminary results suggest that the apparent digestibility coefficient for Ctenosaura pectinata fed sweet potato is approximately 82%. The animals maintained themselves within an average daytime temperature range between 36° - 39°C. The weight change for the animals in a two-week period was 1-5% of total body weight. The food passage rate under these conditions was four days.

TILLEY, STEPHEN G. (Smith Coll.). Comments on the distribution of Desmognathus fuscus in the southern Appalachian Mountains.

A desmognathine salamander, here referred to Desmognathus fuscus Green, inhabits small streams and seepages at intermediate elevations in the Great Smoky and Unicoi Mountains of North Carolina and Tennessee, and the Whitetop-Mt. Rogers area of Virginia. While it may occur in other ranges along the northwestern border of the southern Blue Ridge, search for it in the Unaka Mountains and ranges southwest of the Unicois has been unsuccessful. It likewise appears to be absent in the interior of the southern Blue Ridge Physiographic Province. It is an abundant salamander in the Great Smoky Mountains, where previous reports of its absence may stem from its similarity to D. ochrophaeus and D. monticola. Experience with D. fuscus in two drainage systems in the Great Smokies indicates that it may be replaced ecologically by D. ochrophaeus at high elevations, while at intermediate elevations it displaces D. ochrophaeus from the types of brooding sites utilized by that species elsewhere in the southern Appalachians. The rarity of D. fuscus at low elevations may result from scarcity of proper habitat, but the factors restricting its general distribution in the southern Blue Ridge are otherwise obscure.

TILLEY, STEPHEN G. AND MARY G. ALTALO (Smith Coll.). Repression of egg-eating behavior in brooding females of Desmognathus ochrophaeus.

The salamander Desmognathus ochrophaeus exhibits oophagy in the laboratory and in the field. Females actively brooding their clutches repress the tendency to consume live eggs, of their own or of foreign clutches. Feeding is not repressed with the onset of brooding behavior, but is restricted by suppression of foraging activity. Repression of oophagy in brooding females is thus not due to a general suppression of feeding activity. The presence of a dead egg in her clutch may incited a brooding female to resume oophagy, which may result in the consumption of a few live eggs after consumption of the dead one. Disturbed females may also consume their eggs. Brooding females discriminate between live eggs and other food, between live and dead eggs, and between newly hatched larvae and other food. The presence of the female's clutch seems to be an important factor in the repression of oophagy. Males, gravid and non-gravid females, brooding females taken from their clutches, and juveniles do not discriminate between any of the above and actively feed upon eggs of their own species.

WAKE, DAVID B. (Univ. of California, Berkeley) and LOMBARD, R. ERIC (Univ. of So. California). Functional aspects of tongue projection mechanisms in plethodontid salamanders.

Mechanisms for rapid, long-distance projection of the tongue have evolved in two groups of plethodontid salamanders, the Hemidactyliini and Bolitoglossini. Both have free tongues, long epibranchial cartilages, large projection muscles and specialized intrinsic tongue musculature. The groups differ from each other in several important ways. Special features of this apparatus in dynamic sequence follow: 1) a bulb-like Subarcualis rectus I muscle squeezes the tapered epibranchial to propel the hyobranchial apparatus and tongue pad out of the mouth; 2) paired tractriform channels passively collapse the expanded hyobranchial apparatus and determine the angle of projection; 3) tendons lock the apparatus in a folded, linearly compact form upon compression; 4) a modified Rectus abdominis muscle, extending uninterruptedly from the pelvis to the tongue, is carried out of a complex coil and contracts to instantly return the apparatus to the mouth. In the hemidactyliines a muscle unlocks the apparatus as it is retracted; this muscle is lacking in the bolitoglossines where unlocking is passive. In bolitoglossines the projection channel is extended anteriorly and forms a muscular cylinder. This acts as an efficient aiming device. Lubrication is provided by serous glands on the ventral surface of the tongue pad (Supported by NSF Grant GB 17112).

WEIGMANN, DIANA L. and RONALD ALTIG (Miss. St. U.) Anoxic tolerances of five species of larval amphibians.

Specimens were subjected to anoxic water for specified periods of time and then removed to water at room conditions for one-half hour. Then the number of dead specimens (ecological plus absolute) were counted. Survival under these conditions was used as an index of ecological tolerances and preferenda of the species tested. Results generally agree with what is known of the ecology of the species, e.g., small Siren intermedia and large Ambystoma maculatum were similar and much more tolerant than tadpoles of Gastrophryne carolinensis, Acris gryllus, or Hyla chrysoscelis.

CURRENT HERPETOLOGICAL TITLES, XVIII: 1970 - 1971

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We have brought to your attention more than 13,000 current titles in the pages of this journal to date.

The titles of papers appearing in our lists were obtained by regular scanning of about 2500 journals directly and over 1000 indirectly, through secondary sources such as Chemical Abstracts Biochemical sections, Current Contents, publishers' catalogs, and several others. Theses in English also appear, coming from such sources as Dissertation Abstracts and various academic publications. Abstracts of papers presented at various meetings and symposia are included. The coverage of books and theses in languages other than English is improving because a larger number of our colleagues bring those titles to our attention. Some copies have been mailed directly to us for inclusion in our lists. However, we would still appreciate being made aware of new books, reports, and non-English theses.

We realize that many of the titles listed are marginal to the field of herpetology as customarily defined. Many are published in journals of physiology, pharmacology, cytology, or embryology. Others are from medical journals, state fish and game publications, or pet animal journals. Thus, they are not aimed at an audience of herpetologists. All of them, however, deal in some way with amphibians and reptiles. As such, they may be of interest to at least some readers of HERPETOLOGICAL REVIEW. It seems better to let the reader make the selection from the list, rather than one of our small group deciding that this paper or that -- or this kind of paper -- is of no interest to anyone.

Our present policy, then, is to list the title of any current paper (e.g., 1970-1971) that is concerned with a member of a Recent order of amphibians or reptiles.

HERPETOLOGICAL REVIEW has appeared bimonthly, beginning in 1971. This means that the titles published here will be even more current. We hope that the added numbers will serve to reduce the titles-per-issue to a more manageable number.

Except for the omission of extinct orders, our list is comparable with that of the Amphibia and Reptilia sections of the Zoological Record, though ours is more comprehensive and considerably more current.

This list contains titles of books and articles that have come to our attention during the period 17 July through 31 August 1971. Periodical title abbreviations follow the American Standard for Periodical Title Abbreviations Z 39.5-1963 (American National Standards Institute, Inc., New York).

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No commercial computer service yet offers all of the facilities that we need and we continue to rely on the advice and aid of James E. Bradley of the University of Rhode Island Computer Laboratory. We are grateful to all of these individuals and institutions for their help.

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