

BROWN, WILLIAM S. and WILLIAM S. PARKER (Univ. of Utah). Telemetric study of movements and thermoregulation of the racer, Coluber constrictor mormon, in northern Utah.

Four females migrated 630, 700 and 970 m in 4-9 days from hibernacula to home ranges in spring 1971 and 1972. One individual used a nearly identical migratory path and subsequent home range both years. Mean rate of travel during migration on movement days was 151 m/day. In summer, nine females moved mean distances of 16.3 to 55.7 m between successive locations. Home range moves averaging 25 to 30 m appear typical. Mean body temperatures in four categories of location or activity were: (1) underground, 18.0 to 27.5 C (time-dependent); (2) under rocks, 25.6 C; (3) moving on surface, 33.1 C; and (4) regulating, 33.0 (AM) to 34.6 C (PM). Before solar radiation is effective, body temperatures of snakes underground slightly exceed air and surface substrate temperatures. After emergence, a period of basking is followed by relatively quiescent regulation in the sun-shade mosaic, a behavior pattern apparently unusual among some temperate lizards, but possibly more common among diurnal, heliothermic snakes.

BURY, R. BRUCE (Bureau of Sport Fisheries and Wildlife). The role of basking in the pond turtle, Clemmys marmorata.

Basking is one of the most obvious habits of freshwater turtles, yet little is known about this biological phenomenon. Studies were done on unrestrained C. marmorata to provide information on the major features of basking behavior. This species used aquatic and atmospheric basking strategies. The aquatic basking consists of "sunning" with part of the shell exposed on the surface and of selection of warm waters. The latter behavior comprises a major portion of the daily activities in C. marmorata. Observations on atmospheric basking reveal that: (1) most "sunning" occurs between 0830 and 1130 hrs; (2) sunlight triggers and terminates most basking out of water; (3) long periods of basking take place early in the day; and (4) local habitat conditions greatly influence the length and type of basking. Responses of turtles include changes in orientation and posture, periodic returns to the water, partly wetting the body, use of shade, and combinations thereof. Such responses serve a thermoregulatory function, and indicate that basking is an active, complex behavior in freshwater turtles.

DOWLING, GILBOA, GENNARO, & GENNARO (Amer. Mus. Natur. Hist., & N.Y. Univ.). Microdermatoglyphics: a new tool for reptile taxonomy.

Investigation of the surface structure of reptile epidermal scales by scanning-electron microscopy has shown the characters made visible by this technique to have a high degree of intraspecific similarity.

Epidermal scales of snakes of the genus Crotalus and Bothrops, as well as others, not only show unique patterns and virtual identity for members of the same species, but also have meaningful similarities at the generic level.

Thus, this preliminary survey of a few species indicates that microdermatoglyphics shows great promise of species identification from a single epidermal scale, as well as enhancing our information on reptile phylogeny.

GRATZ, RONALD K. (Univ. of Oklahoma). Some observations on the behavior of captive Ahaetulla prasina praeocularis.

ABSTRACT NOT RECEIVED.

GRATZ, RONALD K. (Univ. of Oklahoma). An analysis of variation of scutellation in Anolis carolinensis carolinensis.

ABSTRACT NOT RECEIVED.

Hailman, Jack P. and Robert G. Jaeger (Univ. of Wisconsin, Madison). Effect of Light- and Dark-adaptation on the Phototactic Responses of Anurans to Intensities and Colors.

Our previous work has shown that frogs under an intermediate state of visual adaptation seek a particular illumination: the "optimum ambient illumination" (O.A.I.), which differs among species. When the illumination is below this optimum, animals move toward "blue" stimuli, but when it is above the O.A.I. they show no true-color preference. We now report that the species' O.A.I. is shifted by the state of adaptation. Animals seek a lower illumination value during dark-adaptation and a higher value during light-adaptation. Not only is this preference for intensity shifted but the cross-over intensity between the blue-preference and the no-color-preference responses to spectral stimuli is similarly shifted. These results indicate that the phototactic preferences for intensity and colors are intimately related, probably both in terms of physiological mechanisms and the function such behavior serves under natural conditions.

JOHN L. HENSEL and EDMUND D. BRODIE, JR. (Clemson University). An Experimental Study of Aposematic Coloration in the Salamander Plethodon jordani.

Three morphs of Plethodon jordani were presented to wild avian predators. These morphs were red-cheeked, red-legged, or with no red coloration. The avian predators (Bluejays, Grackles, and Brown Thrashers) were divided into three groups of ten birds each, each group receiving a different morph. It is known that red-cheeked Plethodon jordani have a secretion that makes them distasteful to wild avian predators, while Desmognathus are not distasteful and will be readily eaten. All birds were fed one of the morphs along with Desmognathus until avoidance of the morph was achieved. Some birds never exhibited avoidance and were eliminated. Totals for the three groups were compared using the chi-square test of independence. They were compared on a survival or non-survival basis between morphs and control Desmognathus. There was a significant difference between the percentage of Plethodon jordani and Desmognathus killed or eaten for all morphs except naturally all black. Red-legged animals were avoided to a significantly greater extent than any of the other groups.

Jaeger, Robert G. and Jack P. Hailman (Univ. of Wisconsin, Madison). Intensity and Spectral Preferences in Anurans: A Model of Phototaxis.

A survey of 121 species of anurans from 16 families indicates that each species has a preference for a particular intensity of white light: the "optimum ambient illumination" (O.A.I.). Individuals experiencing illumination below the O.A.I. move so as to increase the ambient illumination while those experiencing illumination above the O.A.I. move so as to decrease the illumination. It now appears that the much-studied "blue" preference of anurans is really a function of the O.A.I. Frogs presented with spectral cues at intensities below the O.A.I. show the typical preference for the "blue" area of the spectrum, which seems to be a true color preference. However, if the intensity is raised above the O.A.I., the phototactic response resembles a U-shaped spectral threshold curve. In the latter case, high responsiveness to the ends of the visible spectrum (red and violet) and low responsiveness to blue and green appears to be a function of the spectral sensitivity of the anuran's eye and not a true spectral preference.

KIMMER, PATRICIA J. (La. State Univ.). Scanning electron micrographs of snake scales as a taxonomic tool.

A preliminary examination of over 100 species representing 63 genera and 7 families indicates that scale microtopography is a useful systemic guide. Characteristics of varied topographic features enable groupings of species generally agreeing with current taxonomy. Noted discrepancies have been found, for example, in Rhina, Seminatrix and Natrix.

PEABODY, ROBERT B. and EDMUND D. BRODIE, JR. (Clemson Univ.). Effect of Temperature, Salinity, and Photoperiod on the Number of Trunk Vertebrae in Ambystoma maculatum.

The effect of temperature, salinity, and photoperiod on the number of trunk vertebrae in Ambystoma maculatum was studied using field collected eggs from the first through the fourth cleavage stages. Eggs were divided into groups of approximately three hundred and maintained from the stage at collection until after hatching under controlled conditions. Groups were maintained (1) at temperatures of 5, 10, 15, 20, and 25°C using field collected larvae as controls; (2) at salinities of 0.3‰ and 0.6‰ using 0.15‰ as a control; and (3) at photoperiods of 11 and 14 hours of light per day using 12 hours of light per day as a control. Vertebral counts made on 502 cleared and stained animals resulted in a range of 14 to 16 with a mode of 15 trunk vertebrae. Results indicate a significant positive correlation of vertebral number with increased salinity, negative correlation of vertebral number with increased temperature, and no significant correlation of vertebral number with photoperiod. The dependence of vertebral number on each of the three treatments (temperature, salinity, and photoperiod) was tested by a Chi-square test of independence at the 0.01 significance level.

STEWART, GLENN R. (California State Polytechnic Univ.). Scanning electron microscopy of lizard scales.

ABSTRACT NOT RECEIVED.

SWEET, SAMUEL S. (Univ. Calif. Berkeley). Regional patterns of proportional variation in trunk vertebrae of Batrachoseps.

The elongate salamanders of the genus Batrachoseps show absolute and relative changes in vertebral length and breadth regionally along the column. These features vary through ontogeny and among species. Ontogenetic changes include relative length increase, transverse process extension, and enhancement of regional trends with increasing age. Species differ in the number of presacral vertebrae, proportion in the neck and sacral regions, and degree of paedomorphic influence. B. aridus has an elongate atlas, and mid-trunk vertebrae of B. virgatus are considerably longer than other species. B. rufescens, atkinsoni and major are characterized by increasing paedomorphic influence and numbers of trunk vertebrae. B. profligator, simulus and strobilatus resemble one another and can be separated from the members of the virgatus species group. Trends in the genus include proportional changes associated with the transition from a stolid wave towards a travelling wave form of locomotion, and the evolution of a flexible neck in those tongue feeding plathodontids.

TANNER, WILMER W. (Brigham Young Univ.). Ecology of the desert horned lizard, Phrynosoma platyrhinos.

ABSTRACT NOT RECEIVED.

WAKE, DAVID B. and JAMES F. LYNCH (University of California, Berkeley). Observations on patterns of regional distribution of the salamander fauna of northern Central America.

The area between the Isthmus of Tehuantepec and the lowlands of Nicaragua is a major center of salamander diversification. Salamanders occur from sea level to nearly 4000 meters, with the greatest diversity in cloud forests between 1000 and 2000 meters. Highland species are structural and ecological generalists, with broad distribution. Their relatives occur to the north of the Isthmus of Tehuantepec. Intermediate elevations are characterized by endemic species with restricted distributions. These species form groups characterized by allopatry, with close relatives usually being found in immediately adjacent regions. The highly specialized lowland species have broad ranges and low densities. They have both southern and northern relatives. Specific examples are chosen to illustrate the above generalizations as well as faunal distributional patterns on the Guatemalan Plateau, the Sierra Madre of coastal Chiapas and Guatemala, the Pacific volcanic chain, and the major mountain masses of inland Chiapas and Guatemala (supported by NSF grant GB 17112).

WINOKUR, ROBERT M. and JOHN M. LIEGLER (Univ. of Utah). Chelonian mental glands

Mental glands are paired integumentary holocrine glands located between the mandibular ramus. They occur in the Testudinidae and both subfamilies of the Emydidae. All genera but one of the Emydidae (Batrachoseps) and two of the Testudinidae (Pyxis and Acinixys) have been examined. Mental glands were found in all but five genera of the subfamily Batagurinae but in only two genera (Clemmys and Dierochelys) of the subfamily Emydinae. Mental glands are placed in three categories on the basis of histology as follows: Class I -- multilobed and occurring only in Gopherus; Class II -- non-lobed, distinctly glandular, and occurring in various batagurines; Class III -- paired, deep invaginations of the mental skin, lacking distinctly glandular cells and occurring in the Emydinae and some batagurines. Class III glands may be inactive stages or vestiges of Class II glands. It is known that the secretions of mental glands in Gopherus elicit combat behavior in males. The function of mental glands in the Emydidae is unknown; data on sexual and seasonal variation are incomplete and inconclusive.