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#### CONTRIBUTION TO A BIBLIOGRAPHY OF RECENT TEXAS MAMMALS, 1961-1970

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Raun's bibliography of the literature on Recent mammals of Texas (Bull. Texas Mem. Mus., 3:xi + 1-81, 1962) has proved to be a useful resource for mammalogists and others wishing an entrée to theriological information relating to that state. Although there is no statement in Raun's work as to a terminal year beyond which citations were not included, the most recent references therein are dated 1960, and we thus have assumed that coverage was intended through at least part of that year. The current bibliography covers the decade 1961 through 1970, but includes some citations dated 1960, for which year the previous compilation was incomplete, as well as a few from other years that evidently were overlooked. Our list is intended to complement and supplement the existing bibliographic data dealing with mammals of a large and zoogeographically important region.

Several organizational features of import are: 1) processed literature ordinarily is excluded as are articles from nontechnical sources, excepting important references from Texas Fish and Game (name changed to Texas Parks and Wildlife in fourth number of volume 23 for 1965); 2) publications listed (aside from some in the section entitled General References) are only those in which there is a clear reference to Texas; 3) citations to the serial literature include only volume and pagination unless individual numbers of volumes are separately paged; 4) references to publications on fossil mammals are included only when Recent material also was recorded or used in comparisons; 5) citations ordinarily appear exactly as published (with the exception that only proper nouns are capitalized), excepting that an occasional punctuation mark has been added for clarity; 6) only papers actually published in 1970 or earlier are included (if a volume

or number of a serial publication *for* 1970 actually appeared later than that year, it was not canvassed for articles).

The bibliography is organized in 12 sections: one including general references; one encompassing faunal studies, regional lists, and zoogeographic works; eight sections headed by a mammalian ordinal name; one on parasites and diseases; and a terminal section for miscellaneous papers in which Texas mammals are mentioned. Because the bibliography is relatively short, we have not attempted to cross-list citations. For example, a paper involving distributional notes on two or more species belonging to different orders has been treated as a "regional list," whereas a similar one involving comments on several different species of Rodentia will appear in the section having that ordinal heading. A publication on ectoparasites of the white-tailed deer will be found in the section dealing with parasites and diseases, not included under Artiodactyla. Thus, we have attempted to list references in the section most appropriate to the subject matter. Virtually all titles have been checked personally by one of the authors; the few not seen were taken from citations found in other works. Despite all efforts, some papers that should have been included almost certainly have been overlooked.

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#### GENERAL REFERENCES

- ANDERSON, S., J. K. DOUTT, AND J. S. FINDLEY. 1963. Collections of mammals in North America. *J. Mamm.*, 44:471-500.
- ANDERSON, S., AND J. K. JONES, JR. (EDS.). 1967. Recent mammals of the world—a synopsis of families. Ronald Press Co., New York, viii + 453 pp.
- ASDELL, S. A. 1964. Patterns of mammalian reproduction. Comstock, Cornell Univ. Press, Ithica, 2nd ed., xiv + 670 pp.
- BERRY, R. J., AND H. N. SOUTHERN (EDS.). 1970. Variation in mammalian populations. *Symp. Zool. Soc. London*, 26:xvi + 1-403.
- BLAIR, W. F., A. P. BLAIR, P. BRODKORB, F. R. CAGLE, AND G. A. MOORE. 1967. Vertebrates of the United States. McGraw-Hill Book Co., New York, ix + 616 pp.
- BOOTH, E. S. 1961. How to know the mammals. Wm. C. Brown Co., Dubuque, Iowa, 2nd ed., 203 pp.
- BURT, W. H., AND R. P. GROSSENHEIDER. 1964. A field guide to the mammals. Boston, Houghton Mifflin Co., 2nd ed., xxiii + 284 pp.
- CARAS, R. A. 1967. North American mammals. . . . Galahad Books, New York, xiii + 578 pp.

- COCKRUM, E. L. 1962. Introduction to mammalogy. Ronald Press Co., New York, viii + 455 pp.
- DAVIS, D. E., AND F. B. GOILEY. 1963. Principles in mammalogy. Reinhold Publ. Corp., New York, xiii + 335 pp.
- DORT, W., JR., AND J. K. JONES, JR. (EDS.). 1970. Pleistocene and Recent environments of the Central Great Plains. Univ. Press Kansas, Lawrence, x + 433 pp.
- HALL, E. R. 1965. Names of species of North American mammals north of Mexico. Misc. Publ. Mus. Nat. Hist., Univ. Kansas, 43:1-16.
- MAYER, W., AND R. VAN GELDER (EDS.). 1963. Physiological mammalogy. Academic Press, New York, 1:xii + 1-381 and 2:xii + 1-326.
- ROWLANDS, I. W. (ED.). 1966. Comparative biology of reproduction in mammals. Symp. Zool. Soc. London, 15:xxi + 1-559.
- WALKER, E. P., ET AL. 1964. Mammals of the World. Johns Hopkins Press, Baltimore, 1:xlvi + 1-646, 2:viii + 647-1500, and 3:xii + 1-769.

#### FAUNAL STUDIES, REGIONAL LISTS, AND ZOOGEOGRAPHY

- ALVAREZ, T. 1963. The Recent mammals of Tamaulipas, Mexico. Univ. Kansas Publ., Mus. Nat. Hist., 14:363-473.
- BOWERS, J. H., AND F. W. JUDD. 1968. Notes on the distribution of *Didelphis marsupialis* and *Citellus spilosoma* in western Texas. Texas J. Sci., 20:277.
- DALQUEST, W. W. 1962. A human skull and an associated fauna from Foard County, Texas. Trans. Kansas Acad. Sci., 65:76-79.
- . 1964. A new Pleistocene local fauna from Motley County, Texas. Trans. Kansas Acad. Sci., 67:499-505.
- . 1965. New Pleistocene formation and local fauna from Hardeman County, Texas. J. Paleontol., 39:63-79.
- . 1967. Mammals of the Pleistocene Slaton local fauna of Texas. Southwestern Nat., 12:1-30.
- . 1968. Mammals of north-central Texas. Southwestern Nat., 13:13-22.
- DALQUEST, W. W., AND C. W. HIBBARD. 1965. 1,350-year-old vertebrate remains from Montague Co., Texas. Southwestern Nat., 10:315-316.
- DALQUEST, W. W., E. ROTH, AND F. JUDD. 1969. The mammal fauna of Schultze Cave, Edwards County, Texas. Bull. Florida St. Mus., Biol. Sci., 13:205-276.
- DAVIS, W. B. 1961. Vanished [a commentary on the extinct and threatened mammals of Texas]. Texas Game and Fish, 19(12):15-22.
- . 1966. The mammals of Texas. Bull. Texas Parks and Wildlife Dept., 41:1-267.
- FINDLEY, J. S. 1969. Biogeography of southwestern boreal and desert mammals. Misc. Publ. Mus. Nat. Hist., Univ. Kansas, 51:113-128.
- HALLORAN, A. F. 1961. The carnivores and ungulates of the Aransas National Wildlife Refuge, Texas. Southwestern Nat., 6:21-26.
- HARRIS, A. H. 1968. Mammals of the El Paso area. Pp. 51-55, in Geology of the El Paso area, Texas and New Mexico, El Paso Geol. Soc. and Permian Basin Sec. Eco. Paleontol. Mineral., 55 pp.
- JONES, J. K., JR., AND H. H. GENOWAYS. 1969. Holotypes of Recent mammals in the Museum of Natural History, The University of Kansas. Misc. Publ. Mus. Nat. Hist., Univ. Kansas, 51:129-146.

- JONES, J. K., JR., AND M. R. LEE. 1962. Three species of mammals from western Texas. *Southwestern Nat.*, 7:77-78.
- JUDD, F. W. 1967. Notes on some mammals from Big Bend National Park. *Southwestern Nat.*, 12:192-194.
- JUDD, F. W., AND D. J. SCHMIDLY. 1969. Distributional notes for some mammals from western Texas and eastern New Mexico. *Texas J. Sci.*, 20:381-383.
- KUNATH, C. E., AND A. R. SMITH (EDS.). 1968. The caves of the Stockton Plateau. *Texas Speleol. Surv.*, 3(2):1-111.
- LUNDELIUS, E. L. 1967. Late-Pleistocene and Holocene faunal history of central Texas. Pp. 287-319, *in* Pleistocene extinctions... (P. S. Martin and H. E. Wright, Jr., eds.). Yale Univ. Press, New Haven and London, x+453 pp.
- MCKENZIE, D., AND J. R. REDDELL (EDS.). 1964. The caves of Bell and Coryell counties. *Texas Speleol. Surv.*, 2(4):1-63.
- MILSTEAD, W. W. 1961. Observations of the activities of small animals (Reptilia and Mammalia) on a quadrat in Southwest Texas. *Amer. Midland Nat.*, 65:127-138.
- OLSON, R. E. 1966. A heretofore unnoted collection of Texas mammals. *Texas J. Sci.*, 18:225-226.
- PACKARD, R. L. 1961. Additional records of mammals from eastern Texas. *Southwestern Nat.*, 6:193-195.
- PACKARD, R. L., AND H. W. GARNER. 1964. Records of some mammals from the Texas High Plains. *Texas J. Sci.*, 16:387-390.
- PACKARD, R. L., AND F. W. JUDD. 1968. Comments on some mammals from western Texas. *J. Mamm.*, 49:535-538.
- PATTON, T. H. 1963. Fossil vertebrates from Miller's Cave, Llano County, Texas. *Bull. Texas Mem. Mus.*, 7:1-41.
- RAUN, G. G. 1960. Barn owl pellets and small mammal populations near Mathis, Texas, in 1956 and 1959. *Southwestern Nat.*, 5:194-200.
- RAUN, G. G., AND L. J. ECK. 1967. Vertebrate remains from four archeological sites in the Amistad Reservoir area, Val Verde County, Texas. *Texas J. Sci.*, 19:138-150.
- REDDELL, J. R. (ED.). 1963. The caves of Val Verde County. *Texas Speleol. Surv.*, 1(7):1-53.
- . 1964. The caves of Comal County. *Texas Speleol. Surv.*, 2(2):1-60.
- . 1967. The caves of Medina County, Texas. *Texas Speleol. Surv.*, 3(1):1-58.
- REDDELL, J. R. 1967. A checklist of the cave fauna of Texas. III. Vertebrata. *Texas J. Sci.*, 19:184-226.
- . 1970. A checklist of the cave fauna of Texas. VI. Additional records of Vertebrata. *Texas J. Sci.*, 22:139-158.
- REDDELL, J. R., AND R. FINCH (EDS.). 1967. The caves of Williamson County. *Texas Speleol. Surv.*, 2(1):1-61.
- REDDELL, J. R., AND W. H. RUSSELL (EDS.). 1963. The caves of Northwest Texas. *Texas Speleol. Surv.*, 1(8):1-56.
- REDDELL, J. R., AND A. R. SMITH (EDS.). 1965. The caves of Edwards County. *Texas Speleol. Surv.*, 2(5-6):1-70.
- SELANDER, R. K., R. F. JOHNSTON, B. J. WILKS, AND G. G. RAUN. 1962. Vertebrates from the barrier island of Tamaulipas, Mexico. *Univ. Kansas Publ., Mus. Nat. Hist.*, 12:309-345.



- SEMKEN, H. A., JR. 1961. Fossil vertebrates from Longhorn Cavern, Burnet County, Texas. *Texas J. Sci.*, 13:290-310.
- . 1967. Mammalian remains from Rattlesnake Cave, Kinney County, Texas. *Texas Mem. Mus., Pearce-Sellards Ser.*, 7:1-11.
- SLAUGHTER, B. H. 1966. The Moore Pit local fauna; Pleistocene of Texas. *J. Paleontol.*, 40:78-91.
- . 1967. Animal ranges as a clue to late-Pleistocene extinction. Pp. 155-167, *in* *Pleistocene extinctions. . .* (P. S. Martin and H. E. Wright, Jr., eds.), Yale Univ. Press, New Haven and London, x+453 pp.
- SLAUGHTER, B. H., AND A. B. HOOVER. 1963. Sulphur River Formation and the Pleistocene mammals of the Ben Franklin local fauna. *J. Grad. Res. Center, Southern Methodist Univ.*, 31:132-148.
- SLAUGHTER, B. H., AND W. L. MCCLURE. 1965. The Sims Bayou local fauna: Pleistocene of Houston, Texas. *Texas J. Sci.*, 17:404-417.
- SLAUGHTER, B. H., AND R. RITCHIE. 1963. Pleistocene mammals of the Clear Creek local fauna, Denton County, Texas. *J. Grad. Res. Center, S. Methodist Univ.*, 31:117-131.
- SMITH, A. R., AND J. R. REDDELL (EDS.). 1965. The caves of Kinney County. *Texas Speleol. Surv.*, 2(7):1-34.

#### INSECTIVORA

- BAKER, R. J., AND T. S. HSU. 1970. Chromosomes of the desert shrew, *Notiosorex crawfordi* (Coues). *Southwestern Nat.*, 14:448-449.
- CHOATE, J. R. 1970. Systematics and zoogeography of Middle American shrews of the genus *Cryptotis*. *Univ. Kansas Publ., Mus. Nat. Hist.*, 19:195-317.
- HALLORAN, A. F. 1966. Third specimen of the plumbeous short-tailed shrew. *Southwestern Nat.*, 11:302.
- RAUN, G. G. 1965. *Cryptotis parva* from Coahuila, Mexico, and comments on the taxonomy of least shrews in Texas. *Southwestern Nat.*, 10:214-218.

#### CHIROPTERA

- ADAMS, D. B., AND G. M. BAER. 1966. Cesarean section and artificial feeding device for suckling bats. *J. Mamm.*, 47:524-525.
- AXTELL, R. W. 1961. An additional record for the bat *Tadarida molossa* from Trans-Pecos Texas. *Southwestern Nat.*, 6:52-53.
- BAKER, J. K. 1962. The manner and efficiency of raptor predation on bats. *Condor*, 64:500-504.
- BAKER, R. H. 1964. *Myotis lucifugus lucifugus* (LeConte) and *Pipistrellus hesperus maximus* Hatfield in Knox County, new to north-central Texas. *Southwestern Nat.*, 9:205.
- BAKER, R. J. 1970. Karyotypic trends in bats. Pp. 65-96, *in* *Biology of bats* (W. A. Wimsatt, ed.), Academic Press, New York and London, 1:xii+1-406.
- BAKER, R. J., AND E. L. COCKRUM. 1966. Geographic and ecological range of the long-nosed bats, *Leptonycteris*. *J. Mamm.*, 47:329-331.
- BAKER, R. J., AND J. T. MASCARELLO. 1969. Chromosomes of some vespertilionid bats of the genera *Lasiurus* and *Plecotus*. *Southwestern Nat.*, 14:249-251.

- BAKER, R. J., AND J. L. PATTON. 1967. Karyotypes and karyotypic variation of North American vespertilionid bats. *J. Mamm.*, 48:270-286.
- BARBOUR, R. W., AND W. H. DAVIS. 1969. *Bats of America*. Univ. Press Kentucky, Lexington, 286 pp.
- COCKRUM, E. L. 1960. Distribution, habitat and habits of the mastiff bat, *Eumops perotis*, in North America. *J. Arizona Acad. Sci.*, 1:79-84.
- . 1969. Migration in the guano bat, *Tadarida brasiliensis*. *Misc. Publ. Mus. Nat. Hist., Univ. Kansas*, 51:303-336.
- CONSTANTINE, D. G. 1961. Locality records and notes on western bats. *J. Mamm.*, 42:404-405.
- . 1967. Activity patterns of the Mexican free-tailed bat. *Univ. New Mexico Publ. Biol.*, 7:1-79.
- . 1970. Bats in relation to the health, welfare, and economy of man. Pp. 319-449, in *Biology of bats* (W. A. Wimsatt, ed.), Academic Press, New York and London, 2:xv+1-477.
- CREEL, G. C. 1963. Bat as a food item of *Rana pipiens*. *Texas J. Sci.*, 15:104-106.
- DALQUEST, W. W., AND E. L. ROTH. 1970. The pallid bat (*Antrozous*) of the Edwards Plateau. *Southwestern Nat.*, 15:395-396.
- DAVIS, R. B., C. F. HERREID, II, AND H. L. SHORT. 1962. Mexican free-tailed bats in Texas. *Ecol. Monogr.*, 32:311-346.
- DAVIS, W. B., AND D. C. CARTER. 1962. Notes on Central American bats with description of a new subspecies of Mormoops. *Southwestern Nat.*, 7:64-74.
- EASTERLA, D. A. 1968. First records of the pocketed free-tailed bat for Texas. *J. Mamm.*, 49:515-516.
- . 1970. First records of the spotted bat in Texas and notes on its natural history. *Amer. Midland Nat.*, 83:306-308.
- . 1970. First record of the pocketed free-tailed bat for Coahuila, Mexico, and additional Texas records. *Texas J. Sci.*, 22:92-93.
- EASTERLA, D., AND P. EASTERLA. 1969. America's rarest mammal. *National Wildlife Mag.*, 7(5):15-18.
- FENTON, M. B. 1969. The carrying of young by females of three species of bats. *Canadian J. Zool.*, 47:158-159.
- FINDLEY, J. S., AND C. JONES. 1964. Seasonal distribution of the hoary bat. *J. Mamm.*, 45:461-470.
- . 1967. Taxonomic relationships of bats of the species *Myotis fortidens*, *M. lucifugus*, and *M. occultus*. *J. Mamm.*, 48:429-444.
- FINDLEY, J. S., AND G. L. TRAUT. 1970. Geographic variation in *Pipistrellus hesperus*. *J. Mamm.*, 51:741-765.
- HALL, E. R., AND J. K. JONES, JR. 1961. North American yellow bats, "Dasypterus," and a list of the named kinds of the genus *Lasiurus* Gray. *Univ. Kansas Publ., Mus. Nat. Hist.*, 14:73-98.
- HAYWARD, B. J. 1970. The natural history of the cave bat *Myotis velifer*. *WRI-SCI* (Western New Mexico Univ. Research in Science), 1(1):1-74.
- HENSHAW, R. E. 1960. Responses of free-tailed bats to increases in cave temperature. *J. Mamm.*, 41:396-398.
- HERREID, C. F., II. 1961. Snakes as predators of bats. *Herpetologica*, 17:271-272.

- . 1961. Notes on the pallid bat in Texas. *Southwestern Nat.*, 6:13-20.
- . 1963. Metabolism of the Mexican free-tailed bat. *J. Cell. Comp. Physiol.*, 61:201-207.
- . 1963. Temperature regulation and metabolism in Mexican freetail bats. *Science*, 142:1573-1574.
- . 1963. Temperature regulation of Mexican free-tailed bats in cave habitats. *J. Mamm.*, 44:560-573.
- . 1967. Temperature regulation, temperature preference and tolerance, and metabolism of young and adult free-tail bats. *Physiol. Zool.*, 40:1-22.
- . 1967. Mortality statistics of young bats. *Ecology*, 48:310-312.
- HERREID, C. F., II, AND R. B. DAVIS. 1966. Flight patterns of bats. *J. Mamm.*, 47:78-86.
- HERREID, C. F., II, R. B. DAVIS, AND H. L. SHORT. 1960. Injuries due to bat banding. *J. Mamm.*, 41:398-400.
- JAMES, P., AND A. HAYSE. 1963. Sparrow hawk preys on Mexican free-tailed bat at Falcon Reservoir. *J. Mamm.*, 44:574.
- KRUTZSCH, P. H., AND S. E. SULKIN. 1958. The laboratory care of the Mexican free-tailed bat. *J. Mamm.*, 39:262-265.
- LAVAL, R. K. 1970. Intraspecific relationships of bats of the species *Myotis austroriparius*. *J. Mamm.*, 51:542-552.
- MICHAEL, E. D., AND J. B. BIRCH. 1967. First Texas record of *Plecotus rafinesquii*. *J. Mamm.*, 48:672.
- MICHAEL, E. D., R. L. WHISENNAND, AND G. ANDERSON. 1970. A recent record of *Myotis austroriparius* from Texas. *J. Mamm.*, 51:620.
- MITCHELL, R. W. 1970. Total number and density estimates of some species of cavernicoles inhabiting Fern Cave, Texas. *Ann. Spéléologie*, 25:73-90.
- MOLLHAGEN, T. R. 1970. A key to the bats of Texas and adjacent regions, with an annotated list. *Texas Speleol. Surv.*, 3(4):1-26.
- MORSE, R. C., AND B. P. GLASS. 1960. The taxonomic status of *Antrozous bunkerii*. *J. Mamm.*, 41:10-15.
- PACKARD, R. L. 1966. *Myotis austroriparius* in Texas. *J. Mamm.*, 47:128.
- PEARSALL, J. 1965. Super sonic acrobat. *Texas Parks and Wildlife*, 23(10): 26-27, 31.
- RAUN, G. G. 1961. The big free-tailed bat in southern Texas. *J. Mamm.*, 42:253.
- REDELLE, J. R. 1968. The hairy-legged vampire, *Diphylla ecaudata*, in Texas. *J. Mamm.*, 49:769.
- ROTH, E. L. 1970. Silver-haired bat at Wichita Falls, Texas. *Southwestern Nat.*, 14:449-450.
- SHORT, H. L. 1961. Age at sexual maturity of Mexican free-tailed bats. *J. Mamm.*, 42:533-536.
- . 1961. Growth and development of Mexican free-tailed bats. *Southwestern Nat.*, 6:156-163.
- SLAUGHTER, B. H., AND D. W. WALTON (EDS.). 1970. About bats. Southern Methodist Univ. Press, Dallas, vii + 339 pp.
- TINKLE, D. W., AND I. G. PATTERSON. 1965. A study of hibernating populations of *Myotis velifer* in northwestern Texas. *J. Mamm.*, 46:612-633.

- VILLA-R., B. 1967. Los murciélagos de México. Inst. Biol., Univ. Nac. Autónoma México, xvi + 491 pp.
- VILLA-R., B. AND E. L. COCKRUM. 1962. Migration in the guano bat *Tadarida brasiliensis mexicana* (Saussure). J. Mamm., 43:43-64.
- WALTON, D. W., AND J. D. KIMBROUGH. 1970. *Eumops perotis* from Black Gap Wildlife Refuge. Southwestern Nat., 15:134-135.
- WALTON, D. W., AND N. J. SIEGEL. 1966. The histology of the parahinal glands of the pallid bat, *Antrozous pallidus*. J. Mamm., 47:357-360.
- WERNER, H. J. 1966. Observations on the facial glands of the guano bat *Tadarida brasiliensis mexicana* (Saussure). Proc. Louisiana Acad. Sci., 29:156-160.
- WILKS, B. J., AND H. E. LAUGHLIN. 1961. Roadrunner preys on a bat. J. Mamm., 42:98.
- WISEMAN, J. S. 1963. Predation by the Texas rat snake on the hoary bat. J. Mamm., 44:581.

#### EDENTATA

- CLEVELAND, A. G. 1970. The current geographic distribution of the armadillo in the United States. Texas J. Sci., 22:90-92.
- JONES, R., G. LARKE, AND H. D. BROWING. 1966. Luteal and luteotropic activity in the pituitary of the armadillo, *Dasypus novemcinctus*. Texas J. Sci., 18:106 (abstract).
- SLAUGHTER, B. H. 1961. The significance of *Dasypus bellus* (Simpson) in Pleistocene local faunas. Texas J. Sci., 13:311-315.

#### LAGOMORPHA

- HOFFMEISTER, D. F., AND M. R. LEE. 1963. Revision of the desert cottontail, *Sylvilagus audubonii*, in the Southwest. J. Mamm., 44:501-518.
- PACKARD, R. L. 1963. Distribution of the black-tailed jackrabbit in eastern Texas. Texas J. Sci., 15:107-110.
- RAUN, G. G. 1965. The subspecific status of the cottontail, *Sylvilagus floridanus*, in northern Coahuila, Mexico. J. Mamm., 46:519-521.

#### RODENTIA

- ANDERSON, S. 1966. Taxonomy of gophers, especially *Thomomys* in Chihuahua, Mexico. Syst. Zool., 15:189-198.
- . 1969. Taxonomic status of the woodrat, *Neotoma albigula*, in southern Chihuahua, Mexico. Misc. Publ. Mus. Nat. Hist., Univ. Kansas, 51:25-50.
- BACCUS, J. T. 1968. Two noteworthy records of rodents from Baylor County. Southwestern Nat., 13:362.
- BAKER, R. H. 1969. Cotton rats of the *Sigmodon fulviventris* group. Misc. Publ. Mus. Nat. Hist., Univ. Kansas, 51:177-232.
- BAKER, R. J., AND J. T. MASCARELLO. 1969. Karyotypic analyses of the genus *Neotoma* (Cricetidae, Rodentia). Cytogenetics, 8:187-198.
- BAKER, R. J., J. T. MASCARELLO, AND R. G. JORDAN. 1970. Polymorphism in the somatic chromosomes of *Neotoma micropus* Baird, the plains woodrat. Experientia, 26:426-428.

- BALLARD, P. D., C. R. FERGUSON, AND E. D. WILSON. 1966. A study of baculum growth and estrous cycle of the nutria. *Texas J. Sci.*, 18:120 (abstract).
- BALLARD, P. D., AND E. D. WILSON. 1964. Body and os penis growth rate in nutria from birth to sexual maturity. *Texas J. Sci.*, 16:477 (abstract).
- BOLEY, R. B., AND T. E. KENNERLY, JR. 1969. Cellulolytic bacteria and rein-gestion in the plains pocket gopher, *Geomys bursarius*. *J. Mamm.*, 50:348-349.
- BRADSHAW, W. N. 1965. Species discrimination in the *Peromyscus leucopus* group of mice. *Texas J. Sci.*, 17:278-293.
- . 1968. Progeny from experimental mating tests with mice of the *Peromyscus leucopus* group. *J. Mamm.*, 49:475-480.
- CADIEUX, C. 1961. Swamp menace [nutria]. *Texas Game and Fish*, 19 (3):22-23.
- CHIPMAN, R. K. 1966. Cotton rat age classes during a population decline. *J. Mamm.*, 47:138-141.
- CHOATE, J. R., C. J. PHILLIPS, AND H. H. GENOWAYS. 1967. Taxonomic status of the brush mouse, *Peromyscus boylii cansensis* Long, 1961. *Trans. Kansas Acad. Sci.*, 69:306-313.
- COTTAM, C., AND M. CAROLINE. 1965. The black-tailed prairie dog in Texas. *Texas J. Sci.*, 17:294-302.
- CREEL, G. C., AND W. A. THORNTON. 1970. Extensions of known ranges of two species of Texas mammals. *Texas J. Sci.*, 21:481.
- DALQUEST, W. W., AND G. COLLIER. 1964. Notes on *Dipodomys elator*, a rare kangaroo rat. *Southwestern Nat.*, 9:146-150.
- DESHA, P. G. 1967. Variation in a population of kangaroo rats, *Dipodomys ordii medius* (*Rodentia: Heteromyidae*) from the High Plains of Texas. *Southwestern Nat.*, 12:275-289.
- DEVINEY, G. T. 1964. The unique mammary system of the nutria. *Texas J. Sci.*, 16:481-482 (abstract).
- ELLER, R. R. 1969. Myocardial modifications in *Peromyscus leucopus* induced temperature acclimation. *Texas J. Sci.*, 20:294 (abstract).
- DUNN, L. C., A. B. BEASLEY, AND H. TINKER. 1960. Polymorphisms in populations of wild house mice. *J. Mamm.*, 41:220-229.
- FERGUSON, C., AND E. D. WILSON. 1963. Induced ovulation in nutria (*Myocastor coypu*). *Texas J. Sci.*, 15:424-425 (abstract).
- FINDLEY, J. S., AND C. J. JONES. 1960. Geographic variation in the yellow-nosed cotton rat. *J. Mamm.*, 41:462-469.
- . 1962. Distribution and variation of voles of the genus *Microtus* in New Mexico and adjacent areas. *J. Mamm.*, 43:154-166.
- FLEHARTY, E. D. 1960. The status of the gray-necked chipmunk in New Mexico. *J. Mamm.*, 41:235-242.
- GARNER, H. W. 1967. An ecological study of the brush mouse, *Peromyscus boylii*, in western Texas. *Texas J. Sci.*, 19:285-291.
- GLASS, B. P. 1970. The type locality of *Dipodomys ordii richardsoni*. *Southwestern Nat.*, 15:497-499.
- GOODRUM, P. D. 1961. The gray squirrel in Texas. *Bull. Texas Game and Fish Comm.*, 42:1-44.
- HAINES, H. 1961. Seasonal changes in the reproductive organs of the cotton rat, *Sigmodon hispidus*. *Texas J. Sci.*, 13:219-230.

- . 1963. Geographical extent and duration of the cotton rat, *Sigmodon hispidus*, 1958-1960 fluctuation in Texas. *Ecology*, 44:771-772.
- HALE, B. R., AND E. D. WILSON. 1963. Size dimorphism in the sperm of *Myocastor coypu*. *Texas J. Sci.*, 15:425-426 (abstract).
- HALL, E. R., AND H. H. GENOWAYS. 1970. Taxonomy of the *Neotoma albigula*-group of woodrats in central Mexico. *J. Mamm.*, 51:504-516.
- HANSELKA, C. W., J. M. INGLIS, AND H. G. APPLGATE. 1970. Parturition in the desert pocket mouse. *Texas J. Sci.*, 21:307-308.
- HARVEY, M. J., AND R. L. PACKARD. 1967. Cotton rats fail to damage southern pine seedlings. *J. Forestry*, 65:495-496.
- HOFFMEISTER, D. F. 1964. Unusual sex ratios in winter and spring-taken pocket mice (*Perognathus*) in the Southwest. *Southwestern Nat.*, 9:252-254.
- HOFFMEISTER, D. F., AND L. DE LA TORRE. 1961. Geographic variation in the mouse *Peromyscus difficilis*. *J. Mamm.*, 42:1-13.
- HOFFMEISTER, D. F., AND M. R. LEE. 1967. Revision of the pocket mice, *Perognathus penicillatus*. *J. Mamm.*, 48:361-380.
- HSU, T. C., AND F. E. ARRIGHI. 1968. Chromosomes of *Peromyscus* (Rodentia, Cricetidae). I. Evolutionary trends in 20 species. *Cytogenetics*, 7:417-446.
- HUDSON, J. W., AND J. A. RUMMEL. 1966. Water metabolism and temperature regulation of the primitive heteromyids, *Liomya salvani* [sic] and *Liomya irroratus*. *Ecology*, 47:345-354.
- JAMES, P., AND A. HAYSE. 1963. Albinism in the spotted ground squirrel. *J. Mamm.*, 44:574-575.
- JONES, J. K., JR., AND B. MURSALOĞLU. 1961. Geographic variation in the harvest mouse, *Reithrodontomys megalotis*, on the Central Great Plains and in adjacent regions. *Univ. Kansas Publ., Mus. Nat. Hist.*, 14:9-27.
- JUDD, F. W. 1970. Geographic variation in the deer mouse, *Peromyscus maniculatus*, on the Llano Estacado. *Southwestern Nat.*, 14:261-282.
- KENNERLY, T. E., JR. 1963. Gene flow pattern and swimming ability of the pocket gopher. *Southwestern Nat.*, 8:85-88.
- . 1964. Microenvironmental conditions of the pocket gopher burrow. *Texas J. Sci.*, 16:395-441.
- KILGORE, D. L. 1970. The effects of northward dispersal on growth rate of young, size of young at birth, and litter size in *Sigmodon hispidus*. *Amer. Midland Nat.*, 84:510-520.
- KING, J. A. (ED.). 1968. Biology of *Peromyscus* (Rodentia). *Spec. Publ. Amer. Soc. Mamm.*, 2:xiii + 1-593.
- LONG, W. R. 1966. Portrait of the Texas nutria. *Texas Parks and Wildlife*, 24(4):18-19, 27.
- MARTIN, R. A. 1968. Further study of the Friesenhahn Cave *Peromyscus*. *Southwestern Nat.*, 13:253-266.
- MCCARLEY, H. 1963. Distributional relationships of sympatric populations of *Peromyscus leucopus* and *P. gossypinus*. *Ecology*, 44:784-788.
- . 1964. Ethological isolation in the cenospecies *Peromyscus leucopus*. *Evolution*, 18:331-332.
- . 1964. Behavior in *Peromyscus* as an isolating mechanism. *Texas J. Sci.*, 16:496-497 (abstract).

- . 1966. Annual cycle, population dynamics and adaptive behavior of *Citellus tridecemlineatus*. *J. Mamm.*, 47:294-316.
- . 1970. Differential reproduction in *Spermophilus tridecemlineatus*. *Southwestern Nat.*, 14:293-296.
- MCCULLOCH, C. Y., AND J. M. INGLIS. 1961. Breeding periods of the Ord kangaroo rat. *J. Mamm.*, 42:337-344.
- MCKOWN, R., AND E. D. WILSON. 1964. Population distribution and litter size of nutria captured at the Sheldon Reservoir, Houston, Texas. *Texas J. Sci.*, 16:488 (abstract).
- MERRIAM, H. G. 1966. Reproductive potential of prairie dogs. *Texas J. Sci.*, 18:417-419.
- MORHARDT, J. E., AND J. W. HUDSON. 1966. Daily torpor in white-footed mice, *Peromyscus*. *Texas J. Sci.*, 18:120 (abstract).
- PACKARD, R. L. 1960. Speciation and evolution of the pygmy mice, genus *Baiomys*. *Univ. Kansas Publ., Mus. Nat. Hist.*, 9:579-670.
- . 1965. Geographic variation and evolution of High Plains fox squirrel populations. *Yearbook Amer. Phil. Soc. (for 1964)*, pp. 288-290.
- . 1968. An ecological study of the fulvous harvest mouse in eastern Texas. *Amer. Midland Nat.*, 79:68-88.
- . 1969. Taxonomic review of the golden mouse, *Ochrotomys nuttalli*. *Misc. Publ. Mus. Nat. Hist., Univ. Kansas*, 51:373-406.
- PACKARD, R. L., AND H. GARNER. 1964. Arboreal nests of the golden mouse in eastern Texas. *J. Mamm.*, 45:369-374.
- PATTON, J. L. 1967. Chromosome studies of certain pocket mice, genus *Perognathus* (Rodentia: Heteromyidae). *J. Mamm.*, 48:27-37.
- POWELL, J. 1968. Rodent numbers on different brush control treatments in South Texas. *Texas J. Sci.*, 20:69-76.
- PRATT, D. R. 1966. Range of the kangaroo rat (*Dipodomys ordii*) on Padre Island. *Texas J. Sci.*, 18:129 (abstract).
- RAMSEY, P. R., AND C. J. CARLEY. 1970. Additions to the known range and ecology of three species of *Dipodomys*. *Southwestern Nat.*, 14:351-353.
- RAUN, G. G. 1963. Fluctuations in rodent populations in southern Texas, 1958-1963. *Texas J. Sci.*, 15:442 (abstract).
- . 1966. A population of wood rats (*Neotoma micropus*) in southern Texas. *Bull. Texas Mem. Mus.*, 11:1-62.
- . 1966. Rectal body temperatures of the woodrat (*Neotoma micropus*) in southern Texas. *Southwestern Nat.*, 11:467-475.
- RAUN, G. G., AND B. J. WILKS. 1964. Natural history of *Baiomys taylori* in southern Texas and competition with *Sigmodon hispidis* in a mixed population. *Texas J. Sci.*, 16:28-49.
- RUSSELL, R. J. 1968. Evolution and classification of the pocket gophers of the subfamily Geomyinae. *Univ. Kansas Publ., Mus. Nat. Hist.*, 16:473-579.
- . 1968. Revision of pocket gophers of the genus *Pappogeomys*. *Univ. Kansas Publ., Mus. Nat. Hist.*, 16:581-776.
- . 1969. Intraspecific population structure of the species *Pappogeomys castanops*. *Misc. Publ. Mus. Nat. Hist., Univ. Kansas*, 51:337-371.
- SCHMIDLEY, D. J., AND R. L. PACKARD. 1967. Swimming ability in pocket mice. *Southwestern Nat.*, 12:480-482.

- SELANDER, R. K. 1970. Biochemical polymorphism in populations of the house mouse and the old field mouse. Pp. 73-91, in *Variation in mammalian populations* (R. J. Berry and H. N. Southern, eds.), Symp. Zool. Soc. London, 26:xvi+1-403.
- SMITH, H. K. 1970. A method of analyzing for fox squirrel stomach contents. Texas Parks and Wildlife Dept., Tech. Ser., x+75 pp.
- STEPHENSON, G. K., P. D. GOODRUM, AND R. L. PACKARD. 1963. Small rodents as consumers of pine seed in East Texas uplands. *J. Forestry*, 61:523-526.
- TAMSITT, J. R. 1961. Mating behavior of the *Peromyscus truei* species group of white-footed mice. *Amer. Midland Nat.*, 65:501-507.
- . 1961. Tests for social discrimination between three species of the *Peromyscus truei* species group of white-footed mice. *Evolution*, 15:555-563.
- . 1961. Morphological comparison of P<sub>1</sub> and F<sub>1</sub> generations of three species of the *Peromyscus truei* species group of mice. *Texas J. Sci.*, 13:206-218.
- TAYLOR, R. J. 1963. Vertical distribution of *Peromyscus leucopus* and *P. gossypinus* under experimental conditions. *Southwestern Nat.*, 8:107-108.
- THOMPSON, J. N., JR. 1969. Variations in the interparietal of the kangaroo rat, *Dipodomys ordii*. *Amer. Midland Nat.*, 82:625-628.
- WANG, L., AND J. W. HUDSON. 1966. Physiology of daily torpor in *Perognathus hispidus*. *Texas J. Sci.*, 18:120-121 (abstract).
- WILKS, B. J. 1963. Some aspects of the ecology and population dynamics of the pocket gopher (*Geomys bursarius*) in southern Texas. *Texas J. Sci.*, 15:241-283.
- WILLIAMS, P. K. 1968. Social tendencies in *Perognathus hispidus*. *Texas J. Sci.*, 20:95-96.
- WILSON, E. D., AND W. D. GIBBS. 1963. Thyroid uptake and whole body retention of I<sup>131</sup> in nutria (*Myocastor coypu*). *Texas J. Sci.*, 15:433-434 (abstract).
- ZIMMERMAN, E. G. 1970. Karyology, systematics and chromosomal evolution in the rodent genus, *Sigmodon*. *Publ. Mus. Michigan St. Univ., Biol. Ser.*, 4:389-454.

#### CETACEA

- JAMES, P., F. W. JUDD, AND J. C. MOORE. 1970. First western Atlantic occurrence of the pigmy killer whale. *Fieldiana: Zool.*, 58:1-3.
- MOORE, J. C. 1966. Diagnoses and distributions of beaked whales of the genus *Mesoplodon* known from North American waters. Pp. 32-61, in *Whales, dolphins, and porpoises* (K. S. Norris, ed.), Univ. California Press, 789 pp.
- RAUN, G. G., H. D. HOESE, AND F. MOSELEY. 1970. Pygmy sperm whales, genus *Kogia*, on the Texas coast. *Texas J. Sci.*, 21:269-274.

#### CARNIVORA

- CREEL, G. C., AND W. A. THORNTON. 1970. A note on the distribution and specific status of the fox genus *Vulpes* in West Texas. *Southwestern Nat.*, 15:402-404.



- DAVIS, W. B. 1961. The female of *Mustela frenata texensis*. J. Mamm., 42:273.
- . 1962. Cats of Texas. Texas Game and Fish, 20(8):4-7.
- EDDLEMAN, C. D., AND W. A. AKERSTEN. 1966. Margay from the post-Wisconsin of southeastern Texas. Texas J. Sci., 18:378-385.
- GLASS, B. P. 1959. Status of the kit fox, *Vulpes velox*, in the High Plains. Proc. Oklahoma Acad. Sci., 37:162-163.
- LINHART, S. B., H. H. BRUSMAN, AND D. S. BALSER. 1968. Field evaluation of an antifertility agent, stilbestrol, for inhibiting coyote reproduction. Trans. N. Amer. Wildlife and Nat. Res. Conf., 33:316-327.
- MANVILLE, R. H. 1963. Dental anomalies in North American lynx. Z. Säugetierk., 28:166-169.
- MCCARLEY, H. 1962. The taxonomic status of wild Canis (Canidae) in the south central United States. Southwestern Nat., 7:227-235.
- MICHAEL, E. D. 1968. Unusual pelage and skeleton of a raccoon. Southwestern Nat., 13:105.
- PACKARD, R. L. 1965. Range extension of the hooded skunk in Texas and Mexico. J. Mamm., 46:102.
- PACKARD, R. L., AND J. H. BOWERS. 1970. Distributional notes on some foxes from western Texas and eastern New Mexico. Southwestern Nat., 14:450-451.
- PARADISO, J. L. 1965. Recent records of red wolves from the Gulf coast of Texas. Southwestern Nat., 10:318-319.
- . 1968. Canids recently collected in East Texas, with comments on the taxonomy of the red wolf. Amer. Midland Nat., 80:529-534.
- PIMLOTT, D. H., AND P. W. JOSLIN. 1968. The status and distribution of the red wolf. Trans. N. Amer. Wildlife and Nat. Res. Conf., 33:373-389.
- RAUN, G. G., AND B. J. WILKS. 1961. Noteworthy records of the hog nosed skunk (*Conepatus*) from Texas. Texas J. Sci., 13:204-205.
- SLAUGHTER, B. H. 1961. A new coyote in the late Pleistocene of Texas. J. Mamm., 42:503-509.
- VERTS, B. J. 1967. The biology of the striped skunk. Univ. Illinois Press, Urbana, vii + (5) + 218 pp.
- WRIGHT, T., AND E. LUNDELIUS, JR. 1963. Post-Pleistocene raccoons from central Texas and their zoogeographic significance. Texas Mem. Mus., Pierce-Sellards Ser., 2:1-21.

#### ARTIODACTYLA

- ANON. (ED.). 1968. Introduction of exotic animals: ecologic and socio-economic considerations. Texas A&M Univ., College Station, 25 pp.
- ANON. 1970. Arrival of the bighorn babes. Texas Parks and Wildlife, 28(3): 6-9.
- ALEXANDER, B. G. 1968. Movements of deer in northeast Texas. J. Wildlife Mgt., 32:618-620.
- BUECHNER, H. K. 1960. The big horn sheep in the United States, its past, present, and future. Wildlife Monogr., 4:1-174.
- CARPENTER, C. 1961. Climb high for elk. Texas Game and Fish, 19(2):8-9, 29.
- . 1961. Muleys west of the Pecos. Texas Game and Fish, 19(2):16-17.

- . 1961. Black Gap bighorns. *Texas Game and Fish*, 19(10):16-19.
- CARROLL, T. D. 1960. Assay of Texas game . . . and the dollar worth of deer. *Texas Game and Fish*, 18(3):10-11.
- CHAMRAD, A. D., AND T. W. BOX. 1964. A point frame for sampling rumen contents. *J. Wildlife Mgt.*, 28:473-477.
- . 1968. Food habits of white-tailed deer in South Texas. *J. Range Mgt.*, 21:158-164.
- DALQUEST, W. W. 1961. Two species of Bison contemporaneous in early Recent deposits in Texas. *Southwestern Nat.*, 6:73-78.
- DAVIS, R. B., AND C. K. WINKLER. 1968. Brush vs. cleared range as deer habitat in southern Texas. *J. Wildlife Mgt.*, 32:321-329.
- DRAWE, D. L. 1968. Mid-summer diet of deer on the Welder Wildlife Refuge. *J. Wildlife Mgt.*, 21:164-166.
- ELEFThERIOU, B. E., K. W. BOEHLKE, A. ZOLOVICK, AND F. KNOWLTON. 1966. Free plasma estrogens in the deer. *Proc. Soc. Exp. Biol. Med.*, 121:88-90.
- ELLISOR, J. E. 1969. Mobility of white-tailed deer in South Texas. *J. Wildlife Mgt.*, 33:220-222.
- ELLISOR, J. E., AND W. F. HARWELL. 1969. Mobility and home range of colored peccary in southern Texas. *J. Wildlife Mgt.*, 33:425-427.
- GLAZENER, W. C. 1969. An unusual antler-drop schedule in the white-tailed deer. *J. Mamm.*, 50:156.
- GOODRUM, P. D., AND V. H. REID. 1962. Browsing habits of white-tailed deer in the western Gulf region. *Proc. White-tailed Deer Disease Symp.*, pp. 9-14.
- HAILEY, T. L. 1964. Status of transplanted bighorns in Texas. *Trans. Desert Bighorn Council, Las Vegas, Nevada*, pp. 113-116.
- HAILEY, T. L., J. W. THOMAS, AND R. M. ROBINSON. 1966. Pronghorn die-off in Trans-Pecos Texas. *J. Wildlife Mgt.*, 30:488-496.
- HALLS, L. K. (ED.). 1969. White-tailed deer in the southern forest habitat. *Nacogdoches, Texas*, 130 pp.
- HALLS, L. K., C. E. BOYD, D. W. LAY, AND P. D. GOODRUM. 1965. Deer fence construction and costs. *J. Wildlife Mgt.*, 29:885-888.
- INGLIS, J. M. 1966. The behavior of white-tailed deer around barbed wire fences. *Texas J. Sci.*, 18:128-129 (abstract).
- JACKSON, A. W. 1967. Present numbers of bison in Texas. *J. Mamm.*, 48:145-146.
- KNOWLTON, F. F., AND W. C. GLAZENER. 1965. Incidence of maxillary canine teeth in white-tailed deer from San Patricio County, Texas. *J. Mamm.*, 46:352.
- KNOWLTON, F. F., E. D. MICHAEL, AND W. C. GLAZENER. 1964. A marking technique for field recognition of individual turkeys and deer. *J. Wildlife Mgt.*, 28:167-170.
- LAY, D. W. 1965. Fruit utilization by deer in southern forests. *J. Wildlife Mgt.*, 29:370-375.
- . 1967. Deer range appraisal in eastern Texas. *J. Wildlife Mgt.*, 31:426-432.
- . 1967. Importance of variety to southern deer. *Proc. Ann. Conf. Southeastern Assoc. Game and Fish Comm.*, 18:57-62.

- . 1969. Foods and feeding habits of white-tailed deer. Pp. 8-13, *in* White-tailed deer in the southern forest habitat (L. K. Halls, ed.), Nacogdoches, Texas, 130 pp.
- MARBURGER, R. G., AND R. M. ROBINSON. 1970. Deer abnormalities. *Texas Parks and Wildlife*, 28(8):11-15.
- MARBURGER, R. G., R. M. ROBINSON, AND J. W. THOMAS. 1966. A pseudo-hermaphroditic white-tailed deer. *J. Mamm.*, 47:711-712.
- . 1967. Genital hypoplasia of white-tailed deer. *J. Mamm.*, 48:674-676.
- MARBURGER, R. G., AND J. W. THOMAS. 1965. A die-off in white-tailed deer of the central mineral region of Texas. *J. Wildlife Mgt.*, 29:706-716.
- MARBURGER, R. G., J. W. THOMAS, AND B. D. LOVING. 1966. A tale of teeth. *Texas Parks and Wildlife*, 24(11):21-23.
- MCMAHAN, C. A. 1964. Comparative food habits of deer and three classes of livestock. *J. Wildlife Mgt.*, 28:798-808.
- . 1966. Suitability of grazing enclosures for deer and livestock research on the Kerr Wildlife Management Area, Texas. *J. Wildlife Mgt.*, 30:151-162.
- MICHAEL, E. D. 1964. Birth of white-tailed deer fawns. *J. Wildlife Mgt.*, 28:171-173.
- . 1965. Movements of white-tailed deer on the Welder Wildlife Refuge. *J. Wildlife Mgt.*, 29:44-52.
- . 1965. Characteristics of shed antlers from white-tailed deer in South Texas. *J. Wildlife Mgt.*, 29:376-380.
- . 1967. Behavioral interactions of deer and some other mammals. *Southwestern Nat.*, 12:156-162.
- . 1968. Aggressive behavior of white-tailed deer. *Southwestern Nat.*, 13:411-420.
- . 1968. Playing by white-tailed deer in South Texas. *Amer. Midland Nat.*, 80:535-537.
- . 1970. Sex ratio and group composition in white-tailed deer. *Proc. Ann. Conf. Southeastern Assoc. Game and Fish Comm.*, 24:51-56.
- . 1970. Activity patterns of white-tailed deer in South Texas. *Texas J. Sci.*, 21:417-428.
- PALMER, F. A., AND N. WALLACE. 1966. Home on their range. *Texas Parks and Wildlife*, 24(7):11-13.
- PEARSON, H. A. 1965. Rumen organisms in white-tailed deer from South Texas. *J. Wildlife Mgt.*, 29:493-496.
- RAMSEY, C. 1967. Texotic lineup. *Texas Parks and Wildlife*, 25:(4):3-7.
- REES, J. W. 1969. Morphologic variation in the mandible of the white-tailed deer (*Odocoileus virginianus*): a study of populational skeletal variation by principal component and canonical analyses. *J. Morph.*, 128:113-130.
- ROBINSON, R. M., AND R. G. MARBURGER. 1969. The mystery of antler development. *Texas Parks and Wildlife*, 27(12):12-17.
- . 1969. What the hunter should know about...deer parasites. *Texas Parks and Wildlife*, 27(11):24-27.
- ROBINSON, R. M., J. W. THOMAS, AND R. G. MARBURGER. 1965. The reproductive cycle of male white-tailed deer in central Texas. *J. Wildlife Mgt.*, 29:53-59.

- SAMUEL, W. M., AND W. C. GLAZENER. 1970. Movement of white-tailed deer fawns in South Texas. *J. Wildlife Mgt.*, 34:959-961.
- SANDERS, C. L., JR. 1963. Habitat preference of the white-tailed deer and several exotic ungulates in South Texas. *Ecology*, 44:803-806.
- SCHUSTER, J. L., AND L. K. HALLS. 1963. Timber overstory determines deer forage in shortleaf-loblolly pine-hardwood forests. *Proc. Soc. Amer. Foresters* (for 1962), pp. 165-167.
- SHORT, H. L. 1969. Physiology and nutrition of deer in southern upland forest. Pp. 14-18, *in* White-tailed deer in the southern forest habitat (L. K. Halls, ed.), Nacogdoches, Texas, 130 pp.
- SHORT, H. L., E. E. REMMENA, AND C. E. BOYD. 1969. Variations in rumino-reticular contents of white-tailed deer. *J. Wildlife Mgt.*, 33:187-191.
- SHORT, H. L., C. A. SEGELQUIST, P. D. GOODRUM, AND C. E. BOYD. 1969. Rumino-reticular characteristics of deer on food of two types. *J. Wildlife Mgt.*, 33:380-383.
- SINCLAIR, R. 1970. Payoff in bucks. *Texas Parks and Wildlife*, 28(2):24-27.
- SITTLER, O. D. 1964. A possible method for estimating deer population from automatically-collected data. *Texas J. Sci.*, 16:498 (abstract).
- . 1965. Theoretical basis for estimating deer population from automatically collected data. *J. Wildlife Mgt.*, 29:381-387.
- TAYLOR, D. O. N., J. W. THOMAS, AND R. G. MARBURGER. 1964. Abnormal antler growth associated with hypogonadism in white-tailed deer in Texas. *Amer. J. Vet. Res.*, 25:179-185.
- TEER, J. G. 1963. Texas deer herd management, problems and principles. *Bull. Texas Parks and Wildlife Dept.*, 44:1-69.
- TEER, J. G., AND N. K. FORREST. 1968. Bionomic and ethical implications of commercial game harvest programs. *Trans. N. Amer. Wildlife and Nat. Res. Conf.*, 33:192-204.
- TEER, J. G., J. W. THOMAS, AND E. A. WALKER. 1965. Ecology and management of white-tailed deer in the Llano Basin of Texas. *Wildlife Monogr.*, 15:1-62.
- THOMAS, J. W., AND R. G. MARBURGER. 1964. Mortality in deer shot in the thoracic area with the cap-chur gun. *J. Wildlife Mgt.*, 28:173-175.
- . 1965. Quantity vs. quality. Part 1—Symptoms of deer overpopulation. *Texas Parks and Wildlife*, 23(10):14-17, 33.
- THOMAS, J. W., R. M. ROBINSON, AND R. G. MARBURGER. 1964. Hypogonadism in white-tailed deer of the central mineral region in Texas. *Trans. N. Amer. Wildlife and Nat. Res. Conf.*, 29:225-236.
- . 1965. Social behavior in a white-tailed deer herd containing hypogonadal males. *J. Mamm.*, 46:314-327.
- . 1966. Aggressive behavior in the deer herd. *Texas Parks and Wildlife*, 24(3):15-18.
- . 1970. Studies in hypogonadism in white-tailed deer of the central mineral region of Texas. *Texas Parks and Wildlife Dept., Tech. Ser.*, vi+50 pp.
- THOMAS, J. W., J. G. TEER, AND E. A. WALKER. 1964. Mobility and home range of white-tailed deer on the Edwards Plateau in Texas. *J. Wildlife Mgt.*, 28:463-472.

## PARASITES AND DISEASES

- BAER, G. M., AND D. B. ADAMS. 1970. Rabies in insectivorous bats in the United States, 1953-65. *Public Health Repts.*, 85:637-645.
- BAER, G. M., AND D. F. WOODALL. 1966. Bat salivary gland virus carrier state in a naturally infected Mexican freetail bat. *Amer. J. Trop. Med. Hygiene*, 15:769-771.
- BOWERS, J. H., R. O. HAYES, AND T. B. HUGHES. 1969. Studies on the role of mammals in the natural history of western encephalitis in Hale County, Texas. *J. Med. Entomol.*, 6:175-178.
- BRENNAN, J. M. 1959. Synonymy of *Odontacarus* Ewing, 1929, and *Acomatacarus* Ewing, 1942, with redescriptions of *O. dentatus* (Ewing) and *O. australis* (Ewing), also descriptions of three new species from southern United States (Acarina: Trombiculidae). *Ann. Entomol. Soc. Amer.*, 52:1-6.
- . 1965. Two new species and other records of chiggers from Texas (Acarina: Trombiculidae). *Acarologia*, 7:79-83.
- BRENNAN, J. M., AND J. S. WHITE. 1960. New records and descriptions of chiggers (Acarina: Trombiculidae) on bats in Alabama. *J. Parasitol.*, 46:346-350.
- BURNS, K. F., D. F. SHELTON, AND E. W. GROGAN. 1958. Bat rabies: experimental host transmission studies. *Ann. New York Acad. Sci.*, 70:452-466.
- CHITWOOD, M. B., AND M. CORDERO DE CAMPILLO. 1966. *Texicospirura turki* gen. et sp. n. (Nemotoda: Spiruroidea) from the stomach of the pecary in the United States, and a key to the genera of Ascaropsinae. *J. Parasitol.*, 52:307-310.
- CLARK, K. A., R. M. ROBINSON, R. G. MARBURGER, L. P. JONES, AND J. H. ORCHARD. 1970. Malignant catarrhal fever in Texas cervids. *J. Wildlife Diseases*, 6:376-383.
- CLIFFORD, C. M., G. M. KOHLS, AND D. E. SONENSHINE. 1964. The systematics of the subfamily Ornithodorinae (Acarina: Argasidae). I. The genera and subgenera. *Ann. Entomol. Soc. Amer.*, 57:429-437.
- CONSTANTINE, D. G. 1962. Rabies transmission by non bite route. *Public Health Repts.*, 77:287-289.
- . 1966. Transmission experiments with bat rabies isolates: reaction of certain carnivora, opossum, and bats to intramuscular inoculation of rabies virus isolated from free-tailed bats. *Amer. J. Vet. Res.*, 27:16-19.
- . 1967. Rabies transmission by air in bat caves. *Publ. Public Health Serv.*, 1617:ix+1-51.
- . 1967. Bat rabies in the southwestern United States. *Public Health Repts.*, 82:867-888.
- CONSTANTINE, D. G., AND D. F. WOODALL. 1964. Latent infection of Rio Bravo virus in salivary glands of bats. *Public Health Repts.*, 79:1033-1039.
- COOK, R. S., W. C. GLAZENER, AND D. O. TRAINER. 1969. White-tailed deer, a new host for *Amblyomma inornatum*. *Bull. Wildlife Disease Assoc.*, 5:108.
- COOK, R. S., AND D. O. TRAINER. 1969. Experimental exposure of deer to California encephalitis virus. *Bull. Wildlife Disease Assoc.*, 5:3-7.

- COOK, R. S., D. O. TRAINER, W. C. GLAZENER, AND B. D. NASSIF. 1965. A serological study of infectious diseases of wild populations in South Texas. *Trans. N. Amer. Wildlife and Nat. Res. Conf.*, 30:142-155.
- CULLEY, D. D., JR., AND H. G. APPLGATE. 1967. Pesticides at Presidio. IV. Reptiles, birds, and mammals. *Texas J. Sci.*, 19:301-310.
- DAVIS, J. W., L. H. KARSTAD, AND D. O. TRAINER (EDS.). 1970. Infectious diseases of wild mammals. Iowa State Univ. Press, Ames, xi+421 pp.
- EADS, R. B. 1960. Two new fleas (Hystrichopsyllidae) from the kangaroo rat and pocket mouse. *J. Parasitol.*, 46:213-218.
- EADS, R. B., H. A. TREVIÑO, AND E. G. CAMPOS. 1965. Ectoparasites of the spiny pocket mouse, *Liomys irroratus texensis* Merriam. *Southwestern Nat.*, 10:17-21.
- EMERSON, R. H. 1969. A comparison of parasitic infestations of white-tailed deer (*Odocoileus virginianus*) from central and East Texas. *Bull. Wildlife Disease Assoc.*, 5:137-139.
- ENRIGHT, J. B. 1956. Bats and their relation to rabies. *Ann. Rev. Microbiol.*, 10:369-392.
- FAY, L. D. 1961. The current status of brucellosis in white-tailed and mule deer in the United States. *Trans. N. Amer. Wildlife and Nat. Res. Conf.*, 26:203-211.
- GLAZENER, W. C., AND F. F. KNOWLTON. 1967. Some endoparasites found in Welder Refuge deer. *J. Wildlife Mgt.*, 31:595-597.
- HELD, J. R., E. S. TIERKEL, AND J. H. STEELE. 1967. Rabies in man and animals in the United States, 1946-1965. *Public Health Repts.*, 82:1009-1018.
- HUMPHREY, G. L., G. E. KEMP, AND E. G. WOOD. 1960. A fatal case of rabies in a woman bitten by an insectivorous bat. *Public Health Repts.*, 75:317-326.
- ISSEL, C. J., G. L. HOFF, D. O. TRAINER, AND W. H. THOMPSON. 1970. Serologic evidence of Bunyamwera group arbovirus infections in Wisconsin and Texas deer. *J. Wildlife Diseases*, 6:479-482.
- JOHNSON, P. T. 1962. The species of *Fahrentholzia* Kellogg and Ferris from spiny pocket mice (Anoplura: Hoplopleuridae). *Ann. Entomol. Soc. Amer.*, 55:415-528.
- KARSTAD, L., AND D. O. TRAINER. 1969. Sarcosystis in white-tailed deer. *Bull. Wildlife Disease Assoc.*, 5:25-26.
- KENT, J. R., AND S. M. FINEGOLD. 1960. Human rabies transmitted by the bite of a bat (with comments on the duck-embryo vaccine). *New England J. Med.*, 263:1058-1065.
- KOHL, G. M., AND M. CLIFFORD. 1964. *Ixodes eadsi*, a new species of tick from rodents in southern Texas (Acarina: Ixodidae). *J. Parasitol.*, 50:466-470.
- KOHL, G. M., D. E. SONENSHINE, AND C. M. CLIFFORD. 1965. The systematics of the subfamily Ornithodorinae (Acarina: Argasidae). II. Identification of the larvae of the Western Hemisphere and descriptions of three new species. *Ann. Entomol. Soc. Amer.*, 58:331-364.
- LOOMIS, R. B., AND D. A. CROSSLEY, JR. 1963. New species and new records of chiggers (Acarina, Trombiculidae) from Texas. *Acarologia*, 5:371-383.

- McDANIEL, B. 1965. The subfamily Listrophorinae Gunther with a description of a new species of the genus *Listrophorus* Pagenstecher from Texas (Acarina, Listrophoridae). *Acarologia*, 7:704-712.
- . 1967. A new species of the genus *Blarinobia* Jameson and a new subspecies of *Protomyobia claparedei* (Poppe) (Acarina: Myobiidae). *Acarologia*, 9:602-607.
- . 1968. A new species of *Fahrenheitia* (Anoplura: Hoplopleuridae) from Texas, with a key to the species of the genus and a list of their known hosts. *Ann. Entomol. Soc. Amer.*, 61:402-405.
- McDANIEL, B., AND R. F. LAWRENCE. 1964. A redescription of the genus *Olabidocarpus* Lawrence, with a description of a new species from Texas (Acarina: Listrophoridae). *Acarologia*, 6:163-169.
- McLEAN, R. G. 1970. Wildlife rabies in the United States: recent history and current concepts. *J. Wildlife Diseases*, 6:229-235.
- MEADOWS, J. A. 1969. Seasonal aspects of parasitism related to host density in selected rodents (*Baiomys*, *Sigmodon*, *Perognathus*). *Texas J. Sci.*, 20:301 (abstract).
- PHILLIPS, C. J., J. K. JONES, JR., AND F. J. RADOVSKY. 1969. Macronyssid mites in oral mucosa of long-nosed bats: occurrence and associated pathology. *Science*, 165:1868-1869.
- RADOVSKY, F. J. 1967. The Macronyssidae and Laelapidae (Acarina: Mesostigmata) parasitic on bats. *Univ. California Publ. Entomol.*, 46: viii + 1-288.
- RADOVSKY, F. J., AND D. P. FURMAN. 1963. The North American species of *Steatonyssus* (Acarina: Dermanyssidae). *Ann. Entomol. Soc. Amer.*, 56:268-276.
- ROBINSON, R. M., T. L. HAILEY, C. W. LIVINGSTON, AND J. W. THOMAS. 1967. Bluetongue in the desert bighorn sheep. *J. Wildlife Mgt.*, 31:165-168.
- ROBINSON, R. M., R. J. HIDALGO, W. S. DANIEL, D. W. RIDEOUT, AND R. G. MARBURGER. 1970. Salmonellosis in white-tailed deer fawns. *J. Wildlife Diseases*, 6:389-396.
- ROBINSON, R. M., K. L. KUTTLER, H. R. EMERSON, L. P. JONES, AND R. G. MARBURGER. 1968. Blood parasites in Texas deer. *Trans. N. Amer. Wildlife and Nat. Res. Conf.*, 33:359-364.
- ROBINSON, R. M., K. L. KUTTLER, J. W. THOMAS, AND R. G. MARBURGER. 1967. Theileriasis in Texas white-tailed deer. *J. Wildlife Mgt.*, 31:455-459.
- RUDNICK, A. 1960. A revision of the mites of the family Spinturnicidae (Acarina). *Univ. California Publ. Entomol.*, 17:157-283.
- SAMUEL, W. M., AND W. A. LOW. 1970. Parasites of the collared peccary from Texas. *J. Wildlife Diseases*, 6:16-23.
- SAMUEL, W. M., AND D. O. TRAINER. 1970. *Pulex porcinus* Jordan and Rothschild, 1923 (Siphonaptera: Pulicidae), an occasional parasite of white-tailed deer from the Welder Refuge in southern Texas. *J. Wildlife Diseases*, 6:182-183.
- . 1970. *Amblyomma* (Acarina: Ixodidae) on white-tailed deer, *Odocoileus virginianus* Zimmermann), from South Texas with implications for theileriasis. *J. Med. Entomol.*, 7:567-574.
- SCHOLTENS, R. G., AND E. S. TIERKEL. 1963. Incidence of animal rabies in the United States. *J. Amer. Vet. Med. Assoc.*, 143:52-56.
- STAIR, E. L., R. M. ROBINSON, AND L. P. JONES. 1968. Spontaneous bluetongue in Texas white-tailed deer. *Path. Vet.*, 5:164-175.

- STOJANOVICH, C. J., AND H. D. PRATT. 1961. *Fahrenholzia texana*, new species, with a key to the United States species of *Fahrenholzia* (Anoplura: Hoplopleuridae). *Ann. Entomol. Soc. Amer.*, 54:693-696.
- STRANDTMANN, R. W. 1962. *Nycteriglyphys bifolium* n. sp., a new cavernicolous mite associated with bats (Chiroptera) (Acarina: Glycyphagidae). *Acarologia*, 4:623-631.
- SULKIN, S. E. 1962. The bat as a reservoir of viruses in nature. Pp. 157-207, *in* Progress in medical virology (E. Berger and J. L. Melnick, eds.), S. Karger, New York and Basel, 4:viii+1-303.
- . 1962. Bat rabies: experimental demonstration of the "reservoiring mechanism." *Amer. J. Public Health*, 52:489-498.
- SULKIN, S. E., R. ALLEN, AND R. A. SIMS. 1960. Lipotropism in pathogenesis of encephalitis viruses in insectivorous bats. *Virology*, 11:302-306.
- SULKIN, S. E., R. ALLEN, R. A. SIMS, P. H. KRUTZSCH, AND C. KIM. 1960. Studies on the pathogenesis of rabies in insectivorous bats. II. Influence of environmental temperature. *J. Exp. Med.*, 112:595-617.
- SULKIN, S. E., R. ALLEN, R. A. SIMS, AND S. K. TAYLOR. 1965. Bats in relation to arthropod-borne viruses: an experimental approach with speculations. *Amer. J. Public Health*, 55:1376-1385.
- SULKIN, S. E., K. F. BURNS, D. F. SHELTON, AND C. WALLIS. 1962. Bat salivary glands virus: infection of man and monkey. *Texas Rept. Biol. Med.*, 20:113-127.
- SULKIN, S. E., P. H. KRUTZSCH, R. ALLEN, AND C. WALLIS. 1959. Studies on the pathogenesis of rabies in insectivorous bats. I. Role of brown adipose tissue. *J. Exp. Med.*, 110:369-388.
- SULKIN, S. E., P. KRUTZSCH, C. WALLIS, AND R. ALLEN. 1957. Role of brown fat in pathogenesis of rabies in insectivorous bats (*Tadarida b. mexicana*). *Proc. Soc. Exp. Biol. Med.*, 96:461-465.
- SULKIN, S. E., R. A. SIMS, AND R. ALLEN. 1966. Isolation of St. Louis encephalitis virus from bats (*Tadarida b. mexicana*) in Texas. *Science*, 152:223-225.
- SULKIN, S. E., C. WALLIS, AND R. ALLEN. 1956. Relationship of bat salivary gland virus to St. Louis encephalitis group of viruses. *Proc. Soc. Exp. Biol. Med.*, 93:79-81.
- SUNDMAN, J. A., AND E. O. MORRISON. 1966. A new host record for *Rhipicephalus sanguineus* (Acarina: Ixodidae). *J. Kansas Entomol. Soc.*, 39:354.
- TIERKEL, E. S. 1958. Recent developments in the epidemiology of rabies. *Ann. New York Acad. Sci.*, 70:445-451.
- TRAINER, D. O. 1970. The use of wildlife to monitor zoonoses. *J. Wildlife Diseases*, 6:397-401.
- TRAINER, D. O., AND R. P. HANSON. 1969. Serologic evidence of arbovirus infections in wild ruminants. *Amer. J. Epidemiol.*, 90:354-358.
- TRAINER, D. O., AND F. F. KNOWLTON. 1968. Serological evidence of diseases in Texas coyotes. *J. Wildlife Mgt.*, 32:981-983.
- WEBB J. P., JR., AND R. B. LOOMIS. 1970. A new subgenus of intranasal chiggers of the genus *Microtrombicula* from North America and Korea. *J. Med. Entomol.*, 7:655-663.
- WISEMAN, J. S., B. L. DAVIS, AND J. E. GRIMES. 1962. Rabies infection in the red bat, *Lasiurus borealis borealis* (Muller), in Texas. *J. Mamm.*, 43:279-280.



## OTHER STUDIES

- DILLON, L. S. 1964. The heritability of certain mammalian heart structures. *Texas J. Sci.*, 16:193-201.
- ROSS, P. V., AND D. J. SMITH. 1970. Notes of the ecology of the burrowing owl, *Speotyto cunicularia*, in the Texas High Plains. *Texas J. Sci.*, 21:479-480.
- SEALANDER, J. A. 1964. The influence of body size, season, sex, age and other factors upon some blood parameters in small mammals. *J. Mamm.*, 45:598-616.
- SELANDER, R. K. 1970. Behavior and genetic variation in natural populations. *Amer. Zool.*, 10:53-66.
- TINKLE, D. W., D. MCGREGOR, AND S. DANA. 1962. Home range ecology of *Uta stansburiana stejnegeri*. *Ecology*, 43:223-229.
- WHITE, M., AND C. COTTAM. 1966. Barn owl nesting on the Welder Wildlife Refuge in 1965. *Texas J. Sci.*, 18:128 (abstract).

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**HISTOLOGICAL AND SCANNING ELECTRON  
MICROSCOPIC STUDIES OF TOOTH STRUCTURE AND  
THEGOSIS IN THE COMMON VAMPIRE BAT,  
DESMODUS ROTUNDUS**

CARLETON J. PHILLIPS AND BARRY STEINBERG

Vampire bats, particularly the species *Desmodus rotundus*, have been studied in considerable detail in recent years. It is not surprising that the restricted sanguivorous feeding habit of these bats is reflected in their highly specialized morphological characteristics and physiological capabilities (for example, Forman, 1972; DiSanto, 1960; Horst, 1968). The dentitions of *Desmodus* and related *Diphylla ecaudata* have attracted considerable attention, primarily because of a marked reduction in number of permanent teeth (20) and obvious specializations in coronal morphology and occlusal pattern (Villa-R., 1966; Slaughter, 1970; Miller, 1896; Birney and Timm, 1975; Greenhall, 1972).

When teeth of *Desmodus* are examined grossly they always are impressively sharp; indeed, even in old individuals they are nearly razorlike. Maintenance of sharp cutting edges, especially on the upper and lower canines and large upper incisors, clearly is of importance to survival of individual vampire bats. Considering that individual *Desmodus rotundus* possibly live 10 or more years, the mechanisms of tooth-sharpening and replacement of dental tissues are of obvious interest if we are to understand the evolutionary biology of this species. The authors recently have had an opportunity to investigate these aspects of dentition of *Desmodus rotundus* as a part of general studies of chiropteran oral biology.

