

## S. DAVID WEBB—PALEONTOLOGIST, SCHOLAR, AND COLLEAGUE

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In this volume we celebrate the career of S. David Webb, who for 40 years was a curator and professor at the Florida Museum of Natural History, University of Florida. The contributions presented below are written by Dave's colleagues and former students and demonstrate a range of breadth that mirror Dave's own research interests.

Dave was born in Culver City on October 31, 1936, and raised in southern California. His interest in the earth sciences and fossils grew naturally out of frequent family camping trips in the Mojave Desert and Great Basin. This interest was further nurtured at the Webb School in Claremont where he was greatly influenced by Raymond Alf, a teacher and mentor to generations of young men, several of whom later went on to become paleontologists like Dave. Dave's undergraduate education began at Deep Springs, a small college in a remote valley north of Death Valley. There he worked as a cowboy during the summers. In 1956 Dave transferred to Cornell University where he majored in Zoology. Dave minored in Geology, which fostered in him the added appreciation of the picturesque gorges and glacial features of the surrounding upstate New York region. From 1959-1964 Dave returned to California where he was a graduate student in the Department of Paleontology at the University of California, Berkeley. There he was influenced greatly by the vertebrate paleontology faculty, including R. A. Stirton, Charles A. Camp, Donald E. Savage, and Joseph T. Gregory. Dave also reminisces fondly of his association with the excellent cohort of Berkeley graduate students of his time, most of whom have remained his colleagues throughout their respective careers. In his final year at Berkeley Dave gained valuable teaching experience as an Instructor in Paleontology. Later in 1964 Dave was hired as a vertebrate paleontology faculty curator at the FLMNH, a post that he held for 40 years until his retirement in 2003.

## RESEARCH ACCOMPLISHMENTS

Dave has made extraordinary research discoveries and

interpretations on New World fossil mammals during his career. His publications are characterized by empirical analyses, particularly of morphology and faunas, with insightful interpretations. His doctoral dissertation dealt with the extraordinarily rich late Miocene Burge and Minnechaduza faunas of northcentral Nebraska; the publication based on this is a classic faunal study (Webb 1969). This study resulted in the concept of the "Clarendonian chronofauna" for a continuously evolving fauna spanning several million years during the late Miocene. Although Dave's more than 100 primary scientific publications span a broad range of topics, in addition to North American faunal studies (an outgrowth of his doctoral research plus his interest in Florida faunas) two other general themes dominate these contributions: the "Great American Biotic Interchange" (e.g., Webb 1976; Stehli & Webb 1985) and artiodactyl phylogeny (e.g., Webb & Taylor 1980), particularly camels. In fact, Dave's first scientific contribution grew out of his Master's thesis on the "Osteology of *Camelops*" and became the first Bulletin of the Los Angeles County Museum, the place where he grew up paleontologically. It was therefore fitting for Dave to go back to the LACM at the end of his career to describe with Dave Whistler a peculiar new camelid from Death Valley (Whistler & Webb 2005). In addition to primary research contributions, Dave edited, or co-edited several books and monographs, including: "Pleistocene Mammals of Florida" (Webb 1974), "The Great American Biotic Interchange" (Stehli & Webb 1985), and "Paleontology and Geology of the Leisey Shell Pits, early Pleistocene of Florida" (Hulbert, Morgan, & Webb 1995). As this current volume is being compiled, Dave is completing an edited monograph on the 20-year-long paleontological and archaeological Aucilla River prehistory project spearheaded by Dave.

## FIELD WORK AND THE VP COLLECTION

As a graduate student of R. A. Stirton at Berkeley, Dave learned the importance of field work and making scientific collections of fossil vertebrates. Dave brought this legacy with him to UF when he began his scientific career at the FLMNH. From the beginning at McGehee

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Figure 1. Dave and Art Poyer (VP Biological Scientist), Dave Lambert (former UF Zoology Ph. D. student of Dave's), and Gary Morgan (former student of Dave and VP Collection Manager from 1981-1994) coaxing a large plaster jacket containing a proboscidean mandible up the hill at the Hemphillian (late Miocene) Moss Acres Racetrack site, Marion County, Florida.

Farm, he started active field investigations and instilled this in his students (Fig. 1). This interest in field work continued throughout his career. One of the delights of Florida is the proximity of the FLMNH to important field localities. Consequently, Dave and the VP staff and students readily availed themselves of this opportunity. Unlike many other VP programs, where much of the field work is done during the summer far from the home institution, Dave pioneered working throughout much of the academic year and took field crews and classes on frequent trips to collect fossils and understand the stratigraphic context of the rich Florida sequence. In addition to traditional collecting techniques, Dave pioneered underwater paleontology along the northern Florida rivers (Fig. 2) and uncovered a vast array of Pliocene and Pleistocene fossil vertebrates. Dave encouraged and expected his students to have a major field component to their research projects and this became part of the graduate experience in VP at the FLMNH.

Although Dave's primary focus at the FLMNH was elucidating the rich late Cenozoic sequence from Florida, he also made major contributions to an understanding of the terra incognita of Central America by working several seasons in the late Miocene through Pleistocene of Honduras (Webb & Perrigo 1984).

J. C. ("Josh") Dickinson once reminisced to me that when he took over as FLMNH Director in 1950s, the sum total of the VP collections were housed in two standard museum "PRIDE" (Florida prison industries) specimen cabinets. Given the wealth of vertebrate fossil localities through Florida, Dr. Dickinson had the vision to build an active VP program, first by hiring Clayton Ray (who later moved to the Smithsonian), and then Dave in 1964. Clayton started active field collecting programs in Florida and the baton was passed to Dave upon his arrival in Gainesville in June 1964. As a result of 40 years of field work, Dave, his students, and the VP staff at the FLMNH built this collection to over a million speci-

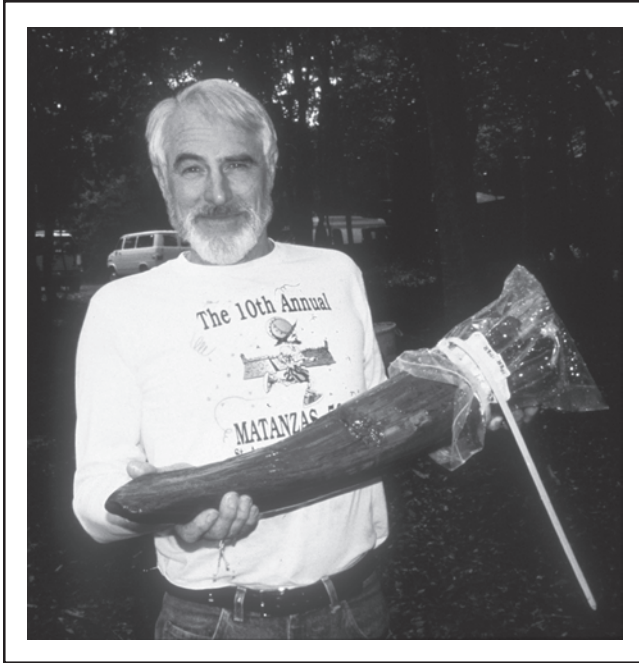


Figure 2. Dave Webb holding a mastodon tusk collected from the Aucilla River, Taylor County. Eugene Rowe photo.

mens ranking in the top 5 nationally (Blum 1991; Fig. 3). Dave either led, or had a major hand in developing prominent research collections from localities including McGehee, Love, Thomas Farm, Inglis, Bone Valley, Leisey, Moss Acres, Haile, and the Santa Fe and Aucilla rivers, all of which together form the foundation of the world-class vertebrate paleontology collection housed today by the FLMNH.

In addition to Dave's fundamental contributions to research and the FLMNH collections, he also helped to bring the program forward by a quantum leap when he was instrumental in acquiring the George Gaylord Simpson Library of Paleontology in the early 1980s. Several years earlier, Dave had been duly appointed as a board member of the SimRoe Foundation (named for George Simpson and his wife Anne Roe), Tucson Arizona. When it came time for Dr. Simpson to look towards an "up and coming" program with research interests similar to his, Dave was both a good role model and ardent advocate for the FLMNH. This library, which consists of some 2,000 books, 30,000 reprints (including many classic monographs and papers), and runs of some two dozen journals, is another cornerstone of the VP research program at the FLMNH.

### TEACHER AND MENTOR

Dave has always loved to teach and contributed greatly to the academic, instructional program at UF. He developed the "Vertebrate Paleontology" course and taught it on a continuing basis for his 40 years at the FLMNH. He also developed an advanced graduate course "Ancient Vertebrate Faunas" taught numerous times during the 1960s and 1970s. When the UF Zoology department requested some paleo expertise in their courses, Dave enthusiastically co-taught and/or assisted in teaching cores courses in evolution and vertebrate zoology. Dave also was an excellent mentor of aspiring young paleontologists, whether they be graduate students enrolled at UF, visitors to the collections from other institutions, undergraduates, or even local school kids from Gainesville. Dave had graduate faculty appointments in both Geology and Zoology and during his career he was major professor to ~50 students and served on innumerable graduate committees. As mentioned above, Dave instilled in his students an enthusiasm for paleontology and an appreciation of the importance of field work coupled with collections-based research.

As a personal reflection—When I came on-board as a neophyte curatorial faculty member of the FLMNH in 1977 Dave was immensely helpful and open with me. He encouraged me to pursue research in Florida and there never was any feeling of me stepping on his toes. Throughout our long association I sought Dave's advice and counsel, particularly when I wanted to be challenged to "think big thoughts," as he did.

### THE COMPLEAT NATURAL HISTORY MUSEUM

Dave understands the importance of the public dimension of natural history museums. He was the principal scientific curator for the paleo part of the "Change" exhibits when the "new" museum building, Dickinson Hall (which now houses Collections and Research) opened in 1970 (Fig. 4). He also was a popular lecturer at the museum and to the numerous state-wide fossil clubs. When the new exhibits were being planned for Powell Hall, Dave was instrumental in the overall concepts to be covered in the fossil exhibits and spent many hours with the staff to assist in making the award-winning "*Hall of Florida Fossils: Evolution of Life and Land*" a reality. The fossils and scientific content on display in that award-winning exhibition are a tribute to Dave's contributions to Florida paleontology (Figs. 5-6). Likewise, when one first enters the FLMNH at Powell Hall,



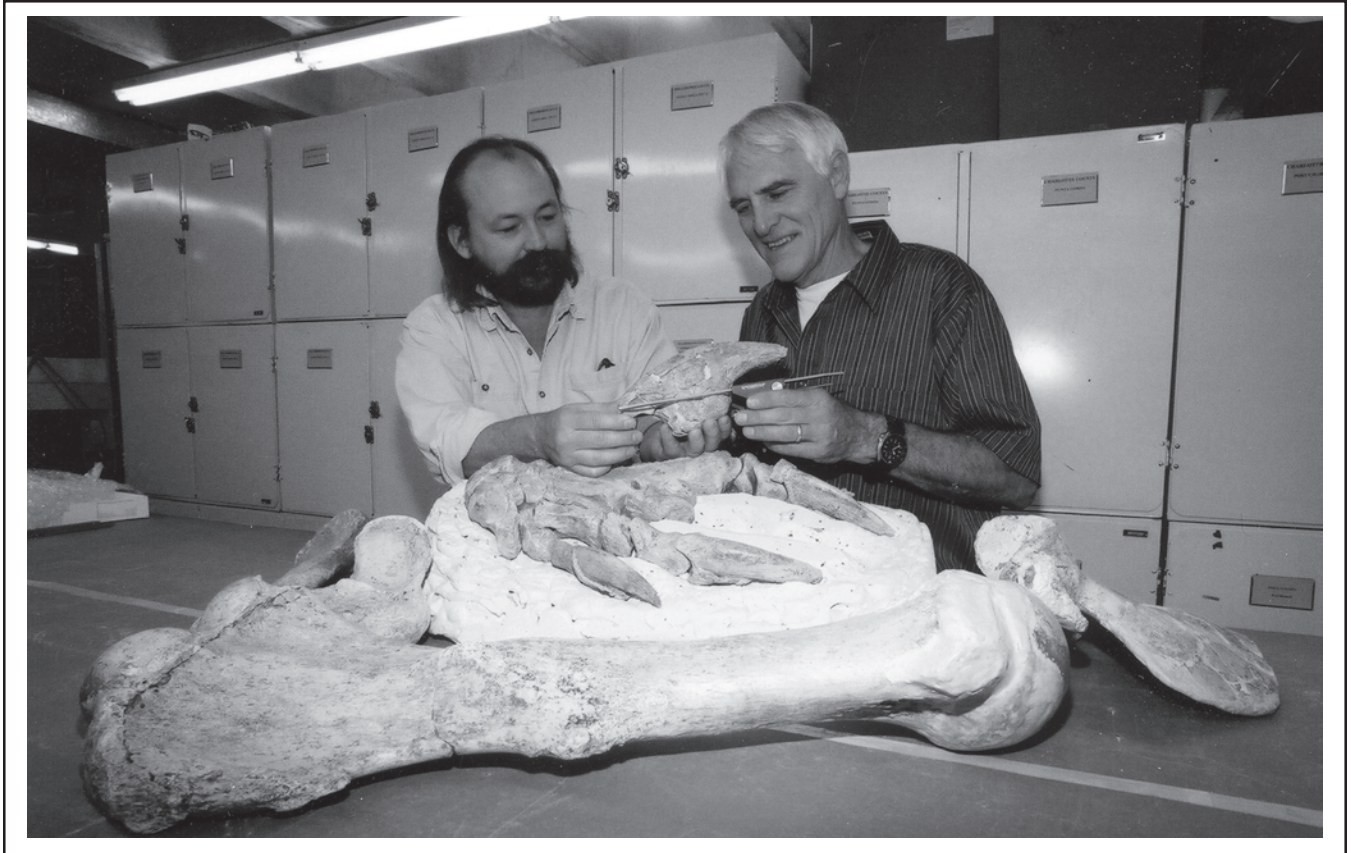


Figure 3. Dave and Matt Smith in VP Collection at the FLMNH studying footbones of the giant sloth *Eremotherium eomigrans* from the late Pliocene Haile 7A Site, Alachua County, Florida.

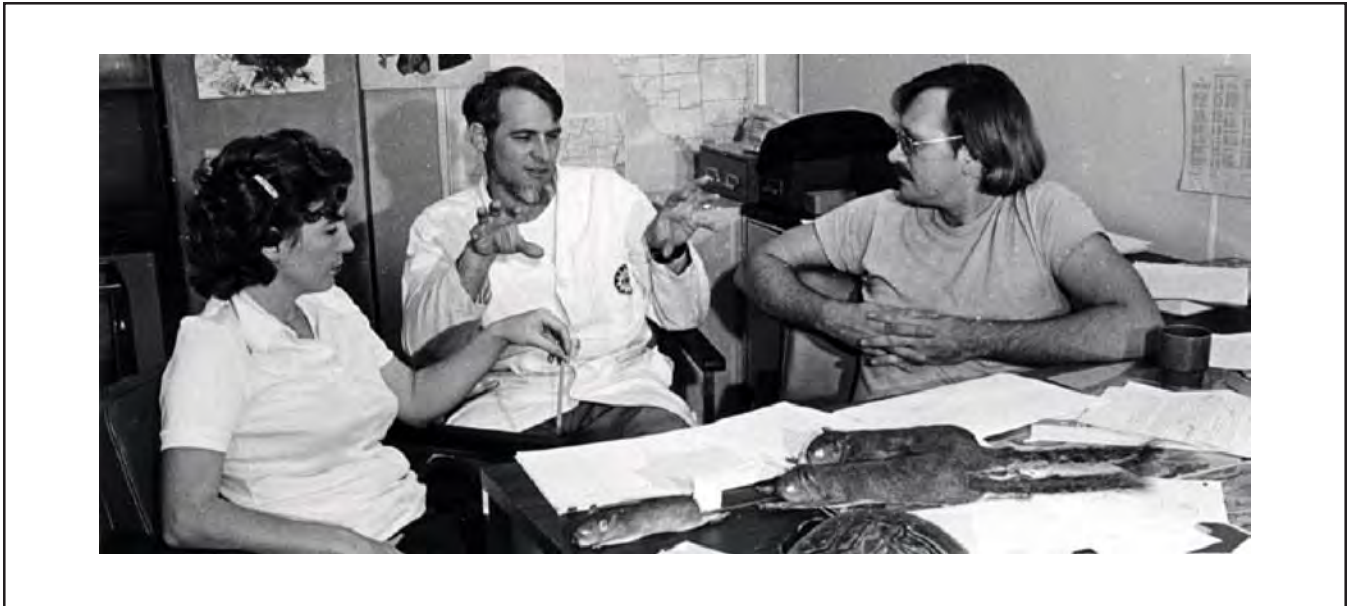


Figure 4. Dave talking with Fran Alshouse and Dick Franz (right) about exhibit design, ca. 1970s.



Figure 5. The *Hall of Florida Fossils: Evolution of Life and Land*, the principal paleo exhibition at the FLMNH that opened to the public in May 2004. Many of the fossils on display were collected by Dave and his students and colleagues. The Miocene sloth *Thinobadistes segnis* in the center was one of the first articulated fossil skeletons placed on display at the FLMNH. This skeleton was completed ca. ~1970 under Dave's supervision.

one is struck by the immense presence of the Columbian Mammoth (*Mammuthus columbi*, Fig. 7) and American Mastodon (*Mammut americanum*) on display in the Central Gallery. Dave was fundamentally responsible for excavating this beautiful mammoth from the north Florida Aucilla River in 1969 and assisted in the FLMNH's acquisition of the companion mastodon collected privately from the same river.

The rich paleontological sequence in Florida has promoted fossil collecting by "amateur" or hobbyist paleontologists throughout the State. Early in his career, Dave understood the benefit of this large cadre of collectors to the VP program and cultivated a long-standing relationship with this constituency. In 1966 Dave

started *The Plaster Jacket*, a series of newsletters written by Dave, staff, students, and others for the popular audience about Florida fossils. Realizing the opportunity for further connections between the FLMNH and State-wide fossil enthusiasts, in 1978 Dave founded the Florida Paleontology Society (Fig. 8), which continues today this educational outreach.

#### PROFESSIONAL SERVICE AND RECOGNITION

In recognition of Dave's stature in the scientific community, Dave was appointed the President of the Society of Vertebrate Paleontology from 1977-1978. In the 1980s he led a very important committee that established the SVP's Romer-Simpson Medal and he even shepherded the details of getting the original medals de-



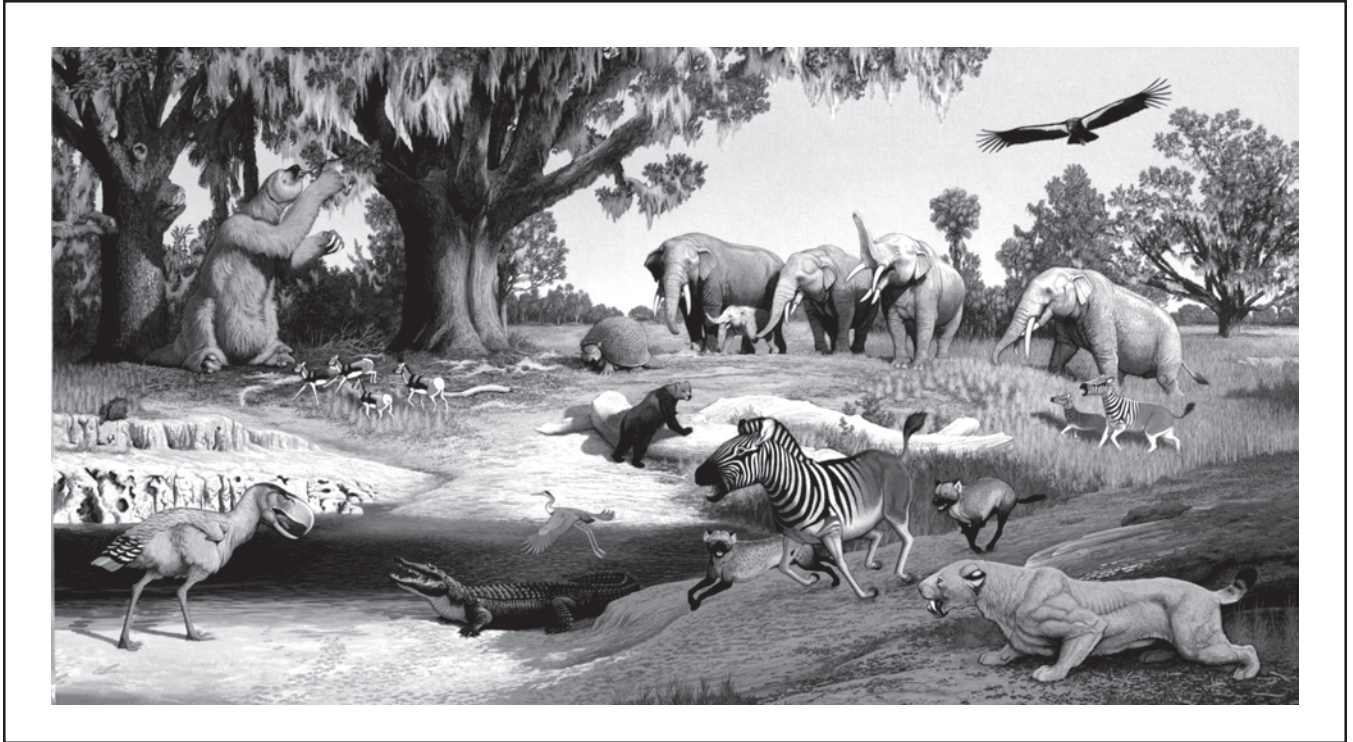


Figure 6. Carl Buell's depiction of Pliocene life in Florida, currently on display in the *Hall of Florida Fossils: Evolution of Life and Land*. Knowledge of this extinct life comes from numerous localities in Florida excavated and studied by Dave, students, and colleagues. Remains of the giant extinct flightless bird *Titanis walleri* (lower left), previously only known from South America, were discovered by amateur paleontologist and long-time friend of Dave, Ben Waller (deceased) of Ocala. These bones were donated to the FLMNH and formed the basis of an important addition to knowledge of these predator birds in North America (Brodkorb 1963). Reproduced with permission.

signed and forged. During the period from 1987 through 1991 Dave was appointed by the National Academy of Sciences to lead a U. S. delegation of Quaternary scientists to an international meeting in the Peoples Republic of China. This required considerable diplomacy as the events at Tiananmen Square in 1989 nearly derailed the meeting. More than once Chinese and US Academy members and representatives hammered out agreements guaranteeing the pre-eminence of science over politics in the planned 1991 meetings. At the time, the actual event was the largest international scientific meeting to have been held in China. Dave held a Guggenheim Fellowship in 1973-74 that allowed him to conduct research in Europe on early artiodactyl phylogeny. Continuing his studies of artiodactyls, Dave subsequently returned to Europe with the support of a German Visiting Scientist Fellowship. In 1976 he was a visiting professor in the Department of Geology and Geophysics at Yale University. Dave is widely traveled and established long-standing professional ties with colleagues in Great Britain,

Germany, Italy, China, the former USSR, Brazil, and Argentina.

#### CLOSING COMMENTS

Not unlike the rest of us, Dave has his foibles. When I was interviewed for the job here at the FLMNH in 1977, remembering some of Dave's then-recent mishaps with museum vehicles, Dr. Dickinson, FLMNH Director, remarked to me: "Son, I hope you are a better driver than Dave!"

I first met Dave at the 1974 Society of Vertebrate Paleontology meeting in Flagstaff, AZ. My initial impressions, which have not changed a quarter century later, were that Dave is easy-going, has that intellectual spark, and is a "heck of a nice guy." After my appointment at the FLMNH in 1977, for more than a quarter century I shared the VP program responsibilities with Dave, and his office was located next door to mine. It was always a pleasure to be on the receiving end of Dave's wonderful smile, upbeat attitude, and great, loud laugh. We also used to take a break during the day and

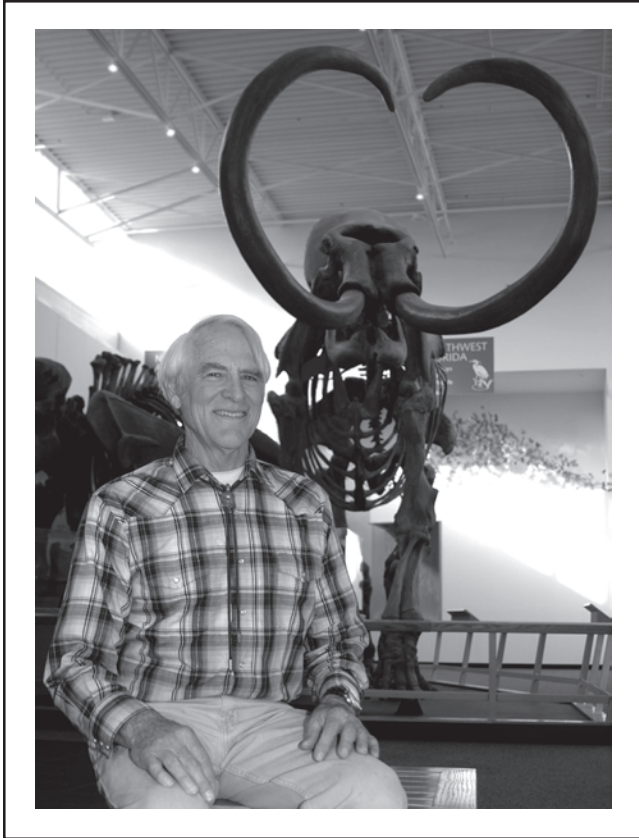


Figure 7. Dave Webb in 2005 with skeleton of 16,000-year-old Columbian mammoth *Mammuthus columbi*, collected in 1969 from the Aucilla River, Taylor County, Florida. Gary Liljegren photo.

jog around the UF campus (frequently with current Director Doug Jones). Those 45-minute breaks away from telephones, meetings, and other distractions were wonderful respites when we talked about all matters arising, including science, football, home improvement, taxes, and politics.

Dave has been an extraordinary scholar and colleague to many of us. We dedicate this volume to him and wish Dave and Barbara continued health and happiness in their new life together in Montana.

#### LITERATURE CITED

- Blum, S. D. 1991. Guideline and standards for fossil vertebrate databases. Society of Vertebrate Paleontology, 129 pp.
- Brodkorb, P. 1963. A giant flightless bird from the Pleistocene of Florida. *Auk* 80:111-115.
- Hulbert, R. C., G. S. Morgan, & S. David Webb, eds. 1995. Paleontology and geology of the Leisey Shell Pits, early Pleistocene of Florida, Parts I and II. *Bulletin of the Florida Museum of Natural History*, 37:1-660.

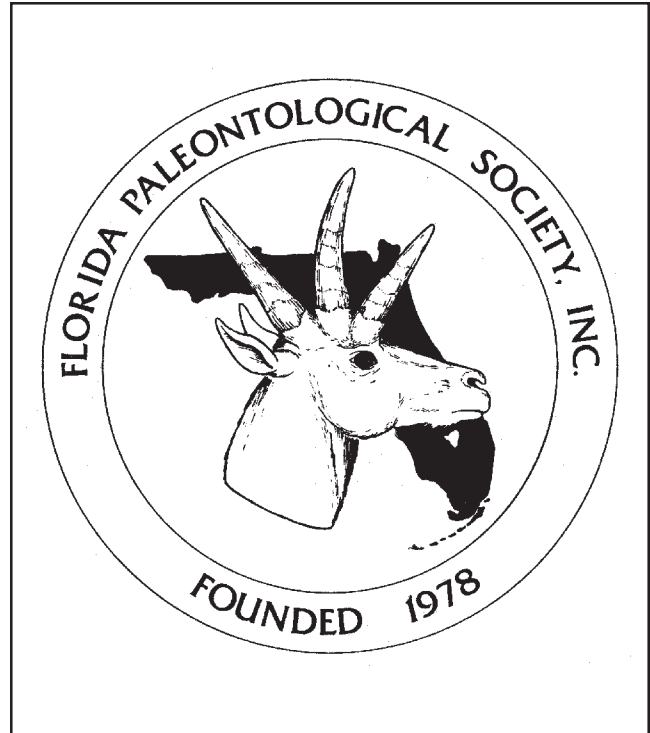


Figure 8. Florida Paleontological Society (FPS) logo, which portrays the reconstructed head of the six-horned antilocaprid *Hexobelomeryx simpsoni* from the late Hemphillian Bone Valley deposits, Polk County (Webb 1973), was designed and drawn by Barbara Webb.

- Stehli, F. G. & S. D. Webb., eds. 1985. *The Great American Biotic Interchange*. Plenum Press, New York, 532 pp.
- Webb, S. D. 1969. The Burge and Minnechadua Clarendonian mammalian faunas of north-central Nebraska. *University of California Publications in Geological Sciences*, 78:1-196.
- Webb, S. D. 1973. Pliocene pronghorns of Florida. *Journal of Mammalogy*, 54:203-221.
- Webb, S. D., ed. 1974. *Pleistocene Mammals of Florida*. University Presses of Florida, Gainesville, 270 p.
- Webb, S. D. 1976. Mammalian faunal dynamics of the great American interchange. *Paleobiology*, 2:220-234.
- Webb, S. D., & S. C. Perrigo. 1984. Late Cenozoic vertebrates from Honduras and El Salvador. *Journal of Vertebrate Paleontology*, 4:237-254.
- Webb, S. D., & B. E. Taylor. 1980. The phylogeny of hornless ruminants and a description of the cranium of *Archaeomeryx*. *Bulletin of the American Museum of Natural History*, 167:117-158.

## PRINCIPAL SCIENTIFIC PUBLICATIONS,

S. DAVID WEBB, 1961-2005

**1961**

- Webb, S. D. The first American record of *Lan-tanottherium* Filhol. *Journal of Paleontology*, 35:1085-1087.

**1965**

- Webb, S. D. The osteology of *Camelops*. *Bulletin of the Los Angeles County Museum*, 1:1-54.

**1966**

- Webb, S. D. A relict species of the burrowing rodent, *Mylogualus*, from the Pliocene of Florida. *Journal of Mammalogy*, 47:401-412.

**1967**

- Pirkle, E. C., W. H. Yoho, & S. D. Webb. Sediments of the Bone Valley Phosphate District of Florida. *Economic Geology*, 62:237-261.
- Webb, S. D., & N. Tessman. Vertebrate evidence of a low sea level in the middle Pliocene. *Science*, 156:379.

**1968**

- Hirschfeld, S. E., & S. D. Webb. Plio-Pleistocene megalonychid sloths of North America. *Bulletin of the Florida State Museum*, 12:213-296.
- Webb, S. D., & N. Tessman. A Pliocene vertebrate fauna from low elevation in Manatee County, Florida. *American Journal of Science*, 266:777-811.

**1969**

- Webb, S. D. The Burge and Minnechaduzza Clarendonian mammalian faunas from north-central Nebraska. *University of California Publications in Geological Sciences*, 78:1-191.
- Webb, S. D. The Pliocene Canidae of Florida. *Bulletin of the Florida State Museum*, 14:273-308.
- Webb, S. D. Extinction-origination equilibria in Late Cenozoic land mammals of North America. *Evolution*, 23:688-702.

**1970**

- Bullen, R. P., S. D. Webb, & B. I. Waller. A worked mammoth bone from Florida. *American Antiquity*, 35:203-205.

**1972**

- Webb, S. D. Locomotor evolution in camels. *Forma et Functio*, 5:99-112.

**1973**

- Webb, S. D. Pliocene pronghorns of Florida. *Journal of Mammalogy*, 54:203-221.

**1974**

- Martin, R. A., & S. D. Webb. Late Pleistocene mam-

mals from the Devil's Den Fauna, Levy County. Pp. 114-145 in S. D. Webb, ed. *Pleistocene Mammals of Florida*. University Presses of Florida, Gainesville.

- Webb, S. D., ed. *Pleistocene Mammals of Florida*. University Presses of Florida, Gainesville, 270 p.

- Webb, S. D. Chronology of Florida Pleistocene mammals. Pp. 5-31 in S. D. Webb, ed. *Pleistocene Mammals of Florida*. University Presses of Florida, Gainesville.

- Webb, S. D. The status of *Smilodon* in the Florida Pleistocene. Pp. 149-153 in S. D. Webb, ed. *Pleistocene Mammals of Florida*. University Presses of Florida, Gainesville.

- Webb, S. D. Pleistocene llamas of Florida, with a brief review of the Lamini. Pp. 170-213 in S. D. Webb, ed. *Pleistocene Mammals of Florida*. University Presses of Florida, Gainesville.

- Webb, S. D., & T. H. Patton. Fossil vertebrates. Pp. 105-107 in C. R. Gilbert, ed. *Catalogue of type specimens in the Department of Natural Sciences, Florida State Museum*. *Bulletin of the Florida State Museum*, 18.

**1976**

- Taylor, B. & S. D. Webb. Miocene Leptomyricidae (Artiodactyla, Ruminantia) and their relationships. *American Museum Novitates*, 2596:1-22.
- Webb, S. D. Mammalian faunal dynamics of the great American interchange. *Paleobiology*, 2:230-234.
- Webb, S. D. Phanerozoic diversity patterns: Discussion. *Journal of Geology*, 84:617-619.
- Webb, S. D. Underwater paleontology of Florida's rivers. *National Geographic Research Reports*, 1968:479-481.

**1977**

- Webb, S. D. Evolution of savanna vertebrates in the New World. Part I: North America. *Annual Review of Ecology and Systematics*, 8:355-380.

**1978**

- Frison, G. C., D. N. Walker, S. D. Webb, & G. M. Zeimens. Paleo-Indian procurement of *Camelops* on the northwestern plains. *Quaternary Research*, 10:385-400.
- Webb, S. D. Evolution of savanna vertebrates in the New World. Part II: South America and the Great Interchange. *Annual Review of Ecology and Systematics*, 9:393-426.
- Webb, S. D. Mammalian faunal dynamics of the Great American Interchange: Reply to an alternative interpretation. *Paleobiology*, 4:206-209.



**1980**

- Webb, S. D., & B. E. Taylor. The phylogeny of hornless ruminants and a description of the cranium of *Archaeomeryx*. *Bulletin of the American Museum of Natural History*, 167:117-158.

**1981**

- Ray, C. E., E. Anderson, & S. D. Webb. The Blancan carnivore, *Trigonictis* (Mammalia: Mustelidae) in the eastern United States. *Brimleyana*, 5:1-36.
- Webb, S. D. *Kyptoceras amatorum*, new genus and species from the Pliocene of Florida, the last protoceratid artiodactyl. *Journal of Vertebrate Paleontology*, 1:357-365.
- Webb, S. D., B. J. MacFadden, & J. A. Baskin. Geology and paleontology of the Love Bone Bed from the late Miocene of Florida. *American Journal of Science*, 281:513-544.

**1982**

- MacFadden, B. J., & S. D. Webb. The succession of Miocene (Arikareean through Hemphillian) terrestrial localities and faunas in Florida. Pp. 186-199 in T. M. Scott & S. B. Upchurch, eds. *Miocene of the Southeastern United States*. Florida Bureau of Geology, Special Publication 25.
- Marshall, L. G., S. D. Webb, J. Sepkoski, & D. Raup. Mammalian evolution and the Great American Interchange. *Science*, 215:1351-1357 (plus cover).
- Webb, S. D., & L. G. Marshall. Historical biogeography of Recent South American land mammals. Pp. 39-52 in M. A. Mares & H. H. Genoways, eds. *Mammalian Biology in South America*, Special Publication Pymatuning Laboratory of Ecology 6.

**1983**

- Lundelius, E. L., R. W. Graham, E. Anderson, J. Guilday, J. A. Holman, D. W. Steadman, & S. D. Webb. Terrestrial vertebrate faunas. Pp. 311-353 in S.C. Porter, ed. *Late-Quaternary Environments of the United States*. Vol. 1, *The Late Pleistocene*. University of Minnesota Press, Minneapolis.
- Webb, S. D. The rise and fall of the late Miocene ungulate fauna in North America. Pp. 267-306 in M.H. Nitecki, ed. *Coevolution*. University of Chicago Press, Chicago.
- Webb, S. D. A new species of *Pediomeryx* from the late Miocene of Florida, and its relationships within the subfamily Cranioceratinae (Ruminantia: Dromomerycidae). *Journal of Mammalogy*, 64:261-276.
- Webb, S. D., & D. B. Crissinger. Stratigraphy and vertebrate paleontology of the central and southern

phosphate districts of Florida. *Geological Society of America, Southeastern Section, Field Trip Guidebook*, pp. 28-72.

- Webb, S. D., J. T. Milanich, R. Alexon, & J. S. Dunbar. An extinct *Bison* kill site, Taylor County, Florida. *The Florida Anthropologist*, 36:81-82.

**1984**

- Webb, S. D. Ten-million years of mammal extinctions in North America. Pp. 189-210 in P. S. Martin & R. G. Klein, eds. *Quaternary Extinctions: A Prehistoric Revolution*. University of Arizona Press, Tucson.
- Webb, S. D. On two kinds of rapid faunal turnover. Pp. 417-436 in W. A. Berggren et al., eds. *Catastrophes and Earth History, the New Uniformitarianism*. Princeton University Press, Princeton.
- Webb, S. D. Geology and vertebrate paleontology of the late Miocene Gracias Formation in central Honduras. *National Geographic Research Reports*, 17:913-930.
- Webb, S. D., J. T. Milanich, R. Alexon, & J. S. Dunbar. A *Bison antiquus* kill site, Wacissa River, Taylor County, Florida. *American Antiquity*, 49:384-392.
- Webb, S. D., & S. C. Perrigo. Late Cenozoic vertebrates from Honduras and El Salvador. *Journal of Vertebrate Paleontology*, 4:237-254.
- Webb, S. D. & K.T. Wilkins. Historical biogeography of Florida Pleistocene Mammals. Pp. 370-383 in H. H. Genoways & M. Dawson, eds. *Contributions in Quaternary Vertebrate Paleontology: A Volume in Memorial to John E. Guilday*. Carnegie Museum of Natural History Special Publication 8.
- Wright, D. B. & S. D. Webb. Primitive *Mylohyus* (Artiodactyla: Tayassuidae) from the late Hemphillian Bone Valley of Florida. *Journal of Vertebrate Paleontology*, 3:152-159.

**1985**

- Stehli, F. G., & S. D. Webb, eds. *The Great American Biotic Interchange*. Plenum Press, New York, 536 p.
- Stehli, F. G., & S. D. Webb. A kaleidoscope of plates, faunal and floral dispersals and sea level changes. Pp. 3-16 in F. G. Stehli & S. D. Webb, eds. *The Great American Biotic Interchange*. Plenum Press, New York.
- Webb, S. D. Main pathways of mammalian diversification in North America. Pp. 201-218 in F. G. Stehli & S. D. Webb, eds. *The Great American Biotic Interchange*. Plenum Press, New York.
- Webb, S. D. Late Cenozoic mammal dispersals between the Americas. Pp. 357-386 in F. G. Stehli & S. D.

Webb, eds. The Great American Biotic Interchange. Plenum Press, New York.

Webb, S. D. The interrelationships of tree sloths and ground sloths. Pp. 105-112 in G. Montgomery, ed. The Evolution and Ecology of Armadillos, Sloths, and Vermilinguas, Smithsonian Press, Washington, D.C.

Webb, S. D., & S. C. Perrigo. New megalonychid sloths from El Salvador. Pp. 113-120 in G. Montgomery, ed. The Evolution and Ecology of Armadillos, Sloths, and Vermilinguas, Smithsonian Press, Washington, D.C.

Wilkins, K. T. & S. D. Webb. Zoogeography of Recent and fossil pocket gophers in Florida. National Geographic Research Reports, 20:853-869.

### 1986

Webb, S. D., & R. C. Hulbert. Systematics and evolution of *Pseudhipparion* (Mammalia, Equidae) from the late Neogene of the Gulf Coastal Plain and the Great Plains. Pp. 237-272 in K. Flanagan & J. Lillegraven, eds. Vertebrates, Phylogeny and Philosophy. Contributions Geology, University of Wyoming. Special Paper 3.

### 1987

Lundelius, E. L., T. Downs, E. H. Lindsay, H. A. Semken, R. J. Zakrzewski, C. S. Churcher, C. R. Harington, G. E. Schultz, & S. D. Webb. The North American Quaternary sequence. Pp. 211-235 in Cenozoic Mammals of North America, Geochronology and Biostratigraphy, M.O. Woodburne, ed. University of California Press, Berkeley.

Tedford, R. H., M. F. Skinner, R. W. Fields, J. M. Rensberger, D. P. Whistler, T. Galusha, B. E. Taylor, J. R. Macdonald, & S. D. Webb. Faunal succession and biochronology of the Arikareean through Hemphillian interval (late Oligocene through earliest Pliocene epochs) in North America. Pp. 153-210 in Cenozoic Mammals of North America, Geochronology and Biostratigraphy, M.O. Woodburne, ed. University of California Press, Berkeley.

Webb, S. D. Community patterns in extinct terrestrial vertebrates. Pp. 439-466 in J. H. R. Gee & P. S. Giller, eds. Organization of Communities Past and Present. The 27th Symposium of the British Ecological Society. Blackwell Scientific Publications, London.

### 1988

Dunbar, J. S., S. D. Webb, & M. K. Faught. Page/Ladson (8JE591): an underwater Paleo-Indian Site

in northwestern Florida. Florida Anthropologist, 41:442-452.

### 1989

Dunbar, J. S., S. D. Webb, M. K. Faught, R. J. Anuskiewicz, & M. J. Stright. Archaeological sites in the drowned Tertiary karst region of the eastern Gulf of Mexico. Pp. 25-31 in J. B. Arnold, ed. Underwater Archaeology, Proceedings of the Society of Historical Archaeology Conference. Society of Historical Archaeology, Long Beach.

Webb, S. D. Osteology and relationships of *Thinobadistes segnis* Hay, the first mylodont sloth in North America. Pp. 469-532 in J. F. Eisenberg & K. Redford, eds. Advances in Neotropical Mammalogy. Sandhill Crane Press, Gainesville.

Webb, S. D., & A. D. Barnosky. Faunal dynamics of Pleistocene mammals. Annual Review of Earth and Planet Science, 17:413-438.

Webb, S. D., G. S. Morgan, R. C. Hulbert, D. S. Jones, B. J. MacFadden, & P. A. Mueller. Geochronology of a rich early Pleistocene vertebrate fauna, Leisey Shell Pit, Tampa Bay, Florida. Quaternary Research, 32:96-110.

### 1990

Dunbar, J. S., S. D. Webb, & D. Cring. Culturally and naturally modified bones from a Paleoindian site in the Aucilla River, north Florida. Pp. 473-497 in R. Bonnicksen & M. Sorg, eds. Bone Modification. Center for the Study of Early Man, Orono.

Webb, S. D. The fourth dimension in North American mammalian communities. Pp. 181-203 in D. Morris, Z. Abramsky, & M. Rosenzweig, eds. Patterns in the Structure of Mammalian Communities. Special Publications, The Museum, Texas Tech University, Texas Tech University Press, Lubbock.

Webb, S. D. Historical biogeography. Pp. 70-100 in J. Ewel & R. Myers, eds. Ecosystems of Florida, University of Central Florida Press, Orlando.

### 1991

Dunbar, J. S., S. D. Webb, & M. K. Faught. Inundated Prehistoric Sites in Apalachee Bay, Florida, and the search for the Clovis shoreline. Pp. 117-146 in L. L. Johnson & M. Stright, eds. Paleoshorelines and Prehistory: An Investigation of Method. CRC Press, Boca Raton, Florida.

Jones, D. S., B. J. MacFadden, S. D. Webb, P. A. Mueller, D. A. Hodell, & T. M. Cronin. Integrated geochronology of a classic Pliocene fossil site in Florida: linking marine and terrestrial chronologies. Journal of Geology, 99:637-648.

Webb, S. D. Ecogeography and the Great American Interchange. *Paleobiology*, 17:266-280.

### 1992

Faught, M. K., J. S. Dunbar, & S. D. Webb. New evidence for Paleoindians on the continental shelf of northwestern Florida. *Current Research in the Pleistocene*, 9:11-12.

Webb, S. D. A cranium of *Navahoceros* and its phylogenetic place among New World Cervidae. *Annals Zoologica Fennica*, 28:401-410.

Webb, S. D. A brief history of New World Proboscidea with emphasis on their adaptations and interactions with man. Pp. 16-34 in J. W. Fox, C. B. Smith, & K. T. Wilkins, eds. *Mammoths, Mastodons, and Human Interactions*. Baylor University Press, Waco.

Webb, S. D., J. S. Dunbar, & L. A. Newsom. Mastodon digesta from north Florida. *Current Research in the Pleistocene*, 9:114-116.

### 1993

Miyamoto, M., F. Kraus, P. J. Laipis, S. M. Tannhauser, & S. D. Webb. Mitochondrial DNA phylogenies within Artiodactyla. Pp. 268-281 in F. S. Szalay, M. J. Novacek, & M. C. McKenna, eds. *Mammal Phylogeny: Placentals*. Springer-Verlag, New York.

Newsom, L. A., S. D. Webb, & J. S. Dunbar. History and geographic distribution of *Cucurbita pepo* gourds in Florida. *Journal of Ethnobiology*, 13:75-97.

### 1994

Graham, R. W., & E. L. Lundelius, Co-Directors (S. D. Webb, Regional Collaborator). FAUNMAP: A database documenting late Quaternary distributions of mammal species in the United States. Illinois State Museum, Scientific Papers, Volume 25, 690 pp.

Hulbert, R. C., G. S. Morgan, & S. D. Webb, eds. Paleontology and Geology of the Leisey Shell Pits, early Pleistocene of Florida. *Bulletin of the Florida Museum of Natural History*, 37:1-660.

Webb, S. D., & J. P. Dudley. Proboscidea from Leisey Shell Pits, Hillsborough County, Florida. *Bulletin of the Florida Museum of Natural History*, 37:645-660.

Webb, S. D., & F. G. Stehli. Selenodont artiodactyls (Camelidae and Cervidae) from the Leisey Shell Pits, Hillsborough County, Florida. *Bulletin of the Florida Museum of Natural History*, 37:621-643.

### 1995

Webb, S. D. Biological implications of the middle Miocene Amazon seaway. *Science*, 269:361-362.

Webb, S. D., R. C. Hulbert, & W. D. Lambert. Climatic implications of large herbivore distributions in the Miocene of North America. Pp. 91-108 in E. S. Vrba, G. H. Denton, T. C. Partridge, & L. H. Burckle, eds. *Paleoclimate and Evolution: with Emphasis on Human Origins*. Yale University Press, New Haven.

Webb, S. D., & N. D. Opdyke. Global climatic influence on Cenozoic land mammal faunas. Pp. 184-208. *Effects of Past Global Change on Life. Studies in Geophysics*, National Academy Press, Washington, D. C.

### 1996

Dunbar, J. S., & S. D. Webb. Bone and ivory tools from submerged Paleoindian sites in Florida. Pp. 331-353 in D. G. Anderson & K. E. Sassaman, eds. *The Paleoindian and Early Archaic Southeast*. University of Alabama Press, Tuscaloosa.

Webb, S. D. & A. Rancy. Late Cenozoic evolution of the Neotropical mammal fauna. Pp. 335-358 in J. Jackson, A. Coates, & N. Budd, eds. *Evolution and Environments in Tropical America*. University of Chicago Press, Chicago.

### 1998

Koch, P. L., K. A. Hoppe & S. D. Webb. The isotopic ecology of late Pleistocene mammals in North America, Part 1: Florida. *Chemical Geology*, 152:119-138.

Webb, S. D. The Great American Faunal Interchange. Pp. 97-122. in A. G. Coates, ed. *Central America: A Natural and Cultural History*. Yale University Press, New Haven.

Webb, S. D. Hornless ruminants. Pp. 463-476 in C. Janis, K. Scott, & L. Jacobs, eds. *Evolution of Tertiary Mammals of North America, Volume 1: Terrestrial Carnivores, Ungulates, and Ungulatelike Mammals*. Cambridge University Press, Cambridge.

Webb, S. D. Cervidae and Bovidae. Pp. 508-510 in C. Janis, K. Scott, & L. Jacobs, eds. *Evolution of Tertiary Mammals of North America, Volume 1: Terrestrial Carnivores, Ungulates, and Ungulatelike Mammals*. Cambridge University Press, Cambridge.

Webb, S. D., C. A. Hemmings, & M. P. Muniz. 1998. New carbon dates for Vero tapir and stout-legged llama from Florida. *Current Research in the Pleistocene*, 15:127-128.

### 1999

Hoppe, K. A., P. L. Koch, R. W. Carlson, & S. D. Webb. Tracking mammoths and mastodons: Reconstruction of migratory behavior using strontium isotope



ratios. *Geology*, 27:439-442.

Webb, S. D. Isolation and interchange: A deep history of South American mammals. Pp. 13-19 in J. F. Eisenberg & K. Redford, eds. *Mammals of the Neotropics*, Volume 3. University of Chicago Press, Chicago.

## 2000

Mihlbachler, M. C., C. A. Hemmings, & S. D. Webb. Reevaluation of the Alexson *Bison* Kill Site, Wacissa River, Jefferson County, Florida. *Current Research in the Pleistocene*, 17:55-57.

Webb, S. D. Evolutionary history of New World Cervidae. Pp. 38-64 in E. S. Vrba & G. B. Schaller, eds. *Antelopes, Deer, and Relatives: Fossil Record, Behavioral Ecology, Systematics, and Conservation*. Yale University Press, New Haven.

Webb, S. D. Two cycles of late Pleistocene sinkhole filling in the middle Aucilla River, Jefferson County, Florida. *Florida Geological Survey Special Publication*, 46:142-153.

## 2002

Mihlbachler, M. C., C. A. Hemmings, & S. D. Webb. Morphological chronoclines among late Pleistocene muskrats (*Ondatra zibethicus*: Muridae, Rodentia) from northern Florida. *Quaternary Research*, 58:289-295.

Webb, S. D., & C. A. Hemmings. Ivory and bone tools from late Pleistocene deposits in the Aucilla and Wacissa River, north-central Florida. Pp. 1-8 in B. A. Purdy, ed. *Enduring Records: the Environmental and Cultural Heritage of Wetlands*. Oxbow Books, Oxford.

## 2003

Faught, M. K., M. Hornum, B. Carter, R. C. Goodwin, & S. D. Webb. Earliest Holocene Tool Assemblages from Northern Florida with Stratigraphically Controlled Radiocarbon Estimates (8LE2105 and 8JE591). *Current Research in the Pleistocene*, 20:16-18.

Webb, S. D., B. L. Beatty, & G. Poinar, Jr. New evidence of Miocene Protoceratidae including a new species from Chiapas, Mexico. Pp. 348-367 in L. Flynn, ed. *Vertebrate Fossils and their Context: Contributions in Honor of Richard H. Tedford*. *Bulletin of the American Museum of Natural History*, 279.

## 2004

Tedford, R. H., L. B. Albright, A. D. Barnosky, I. Ferrusquia-Villafranca, R. M. Hunt, J. E. Storer, C. C. Swisher, M. R. Voorhies, S. D. Webb, & D.

P. Whistler. Mammalian biochronology of the Arikareean through Hemphillian interval (late Oligocene through early Pliocene epochs). Pp. 169-231 in M. O. Woodburne, ed. *Late Cretaceous and Cenozoic Mammals of North America: Biostratigraphy and geochronology*. Columbia University Press, New York.

Bell, C. J., E. L. Lundelius, A. D. Barnosky, R. W. Graham, E. H. Lindsay, D. R. Ruez, H. A. Semken, S. D. Webb, & R. J. Zakrzewski. The Blancan, Irvingtonian, and Rancholabrean Mammal Ages. Pp. 232-314 in M. O. Woodburne, ed. *Late Cretaceous and Cenozoic Mammals of North America: Biostratigraphy and Geochronology*. Columbia University Press, New York.

Webb, S. D., R. W. Graham, A. D. Barnosky, C. J. Bell, R. Franz, E. A. Hadley, E. L. Lundelius, H. G. McDonald, R. A. Martin, H. A. Semken, & D. W. Steadman. Vertebrate paleontology. Pp. 519-538 in A. R. Gillespie, S. C. Porter, & B. F. Atwater, eds. *The Quaternary Period in the United States. Developments in Quaternary Science*, Volume 1, Elsevier, Amsterdam.

Webb, S. D. & J. Meachen. On the origin of Lamine Camelidae including a new genus from the late Miocene of the High Plains. *Bulletin of the Carnegie Museum of Natural History*, 36:349-362.

## 2005

Hulbert, R. C., N. J. Czaplewski, & S. D. Webb. New records of *Pseudhipparion simpsoni* (Mammalia: Equidae) from the late Hemphillian of Oklahoma and Florida. *Journal of Vertebrate Paleontology*, 25(3):737-740.

Whistler, D. P., & S. D. Webb. New goatlike camelid from the Late Pliocene of Tecopa Lake Basin, California. *Natural History Museum of Los Angeles County, Contributions in Science*, 503:1-40.

## In Press

Webb, S. D., ed. *First Floridians and Last Mastodons: the Page-Ladson Site on the Aucilla River*. Springer, New York. [forthcoming book with several chapters authored or co-authored by S. D. Webb]

Webb, S. D. & C. A. Hemmings. Last horses and first humans in North America. In S. Olsen, S. Grant, & A. Choyke, eds. *Horses and Humans: the Evolution of Human-Equine Relations*. BAR International, Oxford, England.

Webb, S. D., R. C. Hulbert, G. S. Morgan, & H. F. Evans. Terrestrial mammals of the Palmetto Fauna (early Pliocene, latest Hemphillian) from the Central

Florida Phosphate Mining District. *In* X. Wang, ed. Papers in Honor of David P. Whistler. Natural History Museum of Los Angeles County Science Series.

Webb, S.D., K. Randall, & G.T. Jefferson. Extinct camels and llamas of Anza-Borrego. *In* G.T. Jefferson & L. Lindsay, eds. Fossil Treasures of the Anza-Borrego Desert. Sunbelt Publications, San Diego.