NEW OCCURRENCE OF *TRILOPHOSAURUS* (REPTILIA: ARCHOSAUROMORPHA) FROM THE UPPER TRIASSIC OF WEST TEXAS AND ITS BIOCHRONOLOGICAL SIGNIFICANCE

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Abstract.—We document a rich Upper Triassic bonebed in Borden County, Texas in either the uppermost Tecovas Formation or, more likely, the Trujillo Formation of the Chinle Group, that represents one of the highest stratigraphic occurrences of the aberrant archosauromorph reptile *Trilophosaurus*. The associated fauna includes indeterminate coprolites, unionid bivalves, osteichthyans, indeterminate reptiles, a possible ornithischian dinosaur, and the putative theropod dinosaur *Spinosuchus caseanus* Huene.

INTRODUCTION

Numerous workers have collected and described Upper Triassic fossils from various localities in West Texas, including Cope (1892), Case (1922, 1928, 1932), Gregory (1945), Sawin (1947), Murry (1982, 1986) and Chatterjee (1986) (Fig. 1). Among the fossils collected were the original specimens of the aberrant archosauromorph reptile *Trilophosaurus buettneri* Case, 1928, subsequently the subject of a monograph by Gregory (1945) and described further by Parks (1969) and Murry (1982). To date, all other verifiable *Trilophosaurus* records come from low in the Chinle Group in Texas (Gregory, 1945; Parks, 1969; Murry, 1982) or in Arizona and New Mexico (Long and Murry, 1995), with the exception of isolated teeth collected by Kirby (1989, 1991, 1993) in the Owl Rock Formation of north-central Arizona. Here, we outline the stratigraphy of a new locality yielding fossils of *Trilophosaurus*, describe the fauna of this locality, and comment on its biostratigraphic and biochronologic significance.

In this paper MNA = Museum of Northern Arizona, Flagstaff; and NMMNH = New Mexico Museum of Natural History and Science, Albuquerque.

STRATIGRAPHY

One of us (RK) discovered New Mexico Museum of Natural History and Science (NMMNH) locality 3775 while working in West Texas in the early 1990s (Fig. 1). This locality yields numerous pinkish-gray disarticulated bones from a matrix of intraformational conglomerate. The principal fossiliferous horizon consists of a moderate brown, clast-supported conglomerate of rounded, flattened, intraformational mud pebbles up to 2 cm in diameter. The matrix is principally a rounded, moderately poorly sorted sublitharenite. This horizon is separated from the underlying moderate brown mudstone by an irregular contact that suggests slight scouring and erosion (Fig. 1). Most of the overlying strata are interbedded sandstone, conglomerate and mudstone. Unionid bivalves were collected from the uppermost conglomerate which is a moderate yellowish-brown intraformational conglomerate dominated by clasts of calcrete and siltstone up to 1.5 cm in diameter.

The bedded intraformational conglomerates that dominate this outcrop strongly resemble the dominant lithologies of the Trujillo

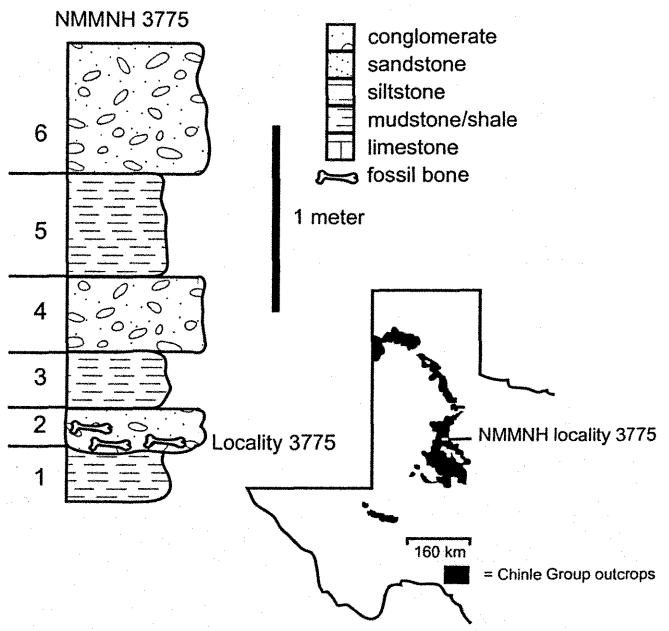

FIGURE 1. Index map and measured stratigraphic section of NMMNH locality 3775. For a description of stratigraphic units in the section see the Appendix. Detailed locality information is on file at NMMNH.

Formation of the Chinle Group (Lucas et al., 1994, 2001). However, the possibility exists that these strata instead represent an outcrop of the more areally limited coarse-grained channel bodies within the stratigraphically lower Tecovas Formation (Lucas et al., 1994 and sources cited therein). Because these are some of the only outcrops in an area characterized by broad flatlands, we remain unsure as to the exact stratigraphic position of these strata. However, we suspect that these deposits represent the base of the Trujillo Formation locally, and summarize arguments both for and against that assignment in the following paragraphs.

Trujillo Formation strata overlie a regional erosional surface termed the Tr-4 unconformity by Lucas (1993) that approximates the Carnian-Norian boundary. Although exposure in the vicinity of NMMNH locality 3775 is poor, strata to the north and west clearly pertain to the Bull Canyon Formation, which overlies the Trujillo throughout West Texas and east-central New Mexico. Similarly, the Trujillo Formation throughout this region is consid-

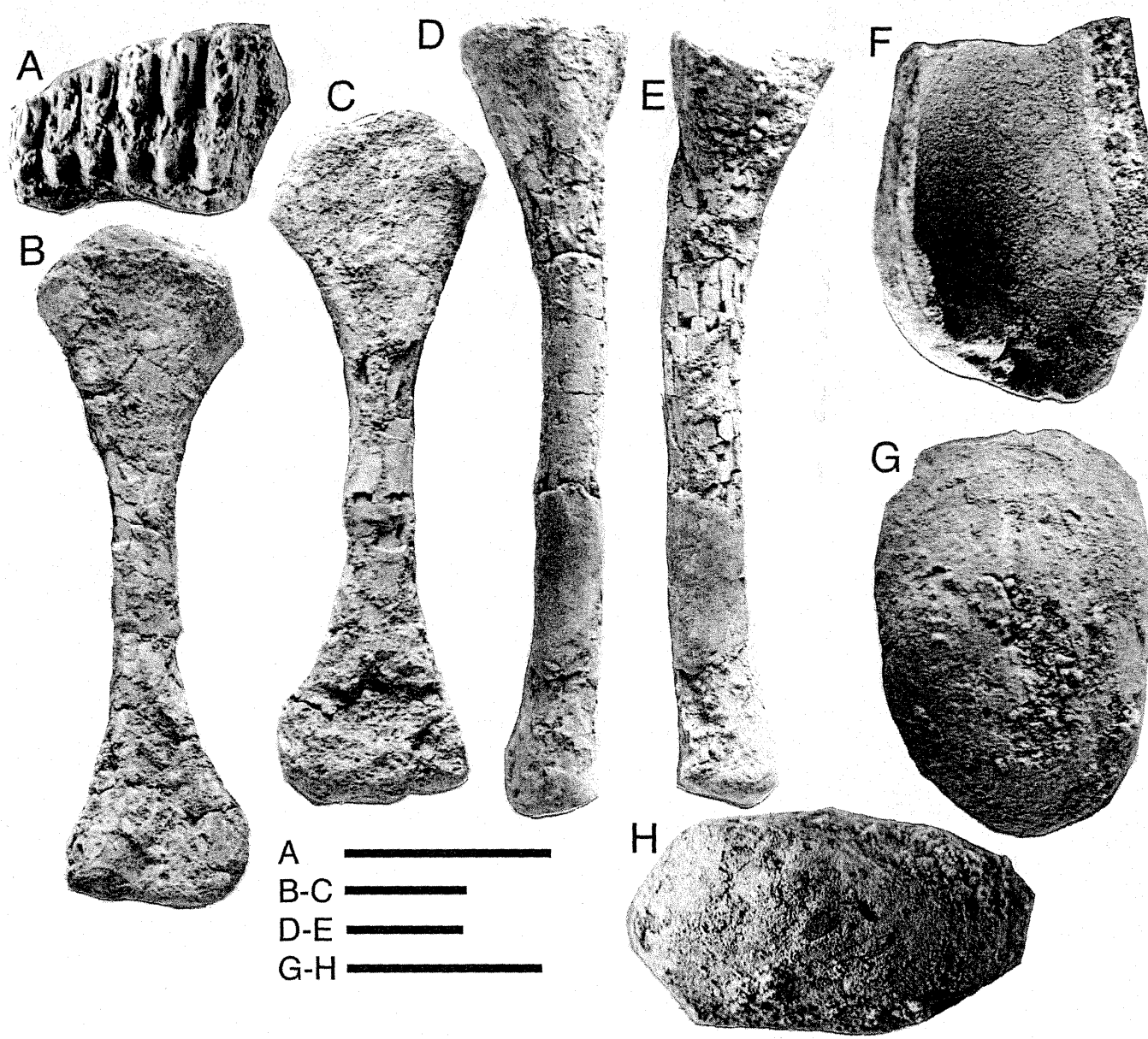

FIGURE 2. Photographs of representative fossils from NMMNH locality 3775. A-E. *Trilophosaurus* sp., A. NMMNH P-29959, maxillary? frag occlusal view; B-C. NMMNH P-34101 left humerus in (B) lateral and (C) medial views, D-E. NMMNH P-34102, right tibia in lateral (D) and (E) views; F-H. NMMNH P-29954, indeterminate unionid bivalves, incomplete valves in interior (F) and exterior (G-H) views. All scales = 2

erably more resistant than either the overlying Bull Canyon Formation or the underlying Tecovas Formation. Thus, the Trujillo Formation crops out as either a ledge-former above Tecovas Formation badlands, such as at Muchakooyoo Peak slightly to the southeast or, alternately, as a bench flooring broad plains beneath localized exposures and badlands of the Bull Canyon Formation. The strata at NMMNH locality L-3775 appear to represent the latter, as they are part of a broad upland surface that extends from Gail to the northeast southward to just northwest of Westbrook.

The only other possibility is that these strata represent a channel deposit in the Tecovas Formation. However, we note here that the broad flats of which this outcrop is a part suggest that it is not composed of isolated channel-fill lithologies, and instead represents more regional deposition of coarse-grained strata. Therefore, we tentatively assign NMMNH locality L-3775 to t jillo Formation.

PALEONTOLOGY

We have collected numerous macro- and microvertebı sils from NMMNH locality 3775. Although many of th sils have yet to be prepared, it is evident that this locality number of tetrapod taxa, dominated by the archosauromo tile *Trilophosaurus* (Fig. 2). The associated fauna includ terminate coprolites, unionid bivalves, osteichthyans, in nate reptiles, a possible ornithischian dinosaur, and prob ropods, including a possible occurrence of the putative dinosaur *Spinosuchus caseanus* Huene.

Trilophosaurus

We have collected abundant material of *Trilophosaurus* from NMMNH locality 3775; these fossils include skull or lower jaw, dental, and postcranial material (Fig. 2A-E, 3A). The most diagnostic elements are an incomplete tooth-bearing element (probably either a left maxilla or right dentary) (Fig. 2A) and an associated, isolated tooth (Fig. 3A). Additional fossils of *Trilophosaurus*, all from a single field jacket, include a left humerus, a right tibia, a caudal vertebra, and a possible incomplete femur. We also collected as float or in screenwashing concentrate several vertebrae, a proximal? humerus fragment, a distal humerus, two distal ulnae, four proximal radii, a carpal I or V, a proximal and distal femur and an astragalus. For a complete list of specimens, see the table in the Appendix.

There are six teeth in the maxillary or dentary fragment (NMMNH P-29959) we assign to *Trilophosaurus* (Fig. 2A). The teeth are slightly damaged, but all are clearly transversely expanded and bear three cusps, one central and one each at the lingual and labial margins. The cusps are sharply pointed and aligned in a row connected by thin transverse ridges. The teeth are tightly packed and aligned medially, with narrower teeth anterior to broader teeth posteriorly, thus forming a laterally convex tooth margin. Comparison with illustrations of *Trilophosaurus buettneri* (Gregory, 1945, figs. 3, 6; Parks, 1969, fig. 2) suggests that this element probably represents the anterior portion of the tooth battery of a left maxilla. However, it is also possible that it is the anterior portion of the tooth battery of a right dentary. In general, the maxilla of *Trilophosaurus* demonstrates a greater increase in the width of teeth posteriorly than does the dentary, so this element is most likely a left maxilla.

One of the more striking features of NMMNH P-29959 is the close spacing of the teeth. Published illustrations and casts of comparative material of *Trilophosaurus buettneri* from the WPA localities indicate that the teeth are much closer together in NMMNH P-29959 than in the TMM specimens. Similarly, the teeth of NMMNH P029959 are also much closer together than in the holotype of *T. buettneri*. Given the large number of specimens from two size classes that Gregory (1945) examined (maxillae of at least four individuals and 15 lower jaws, Gregory, 1945, p. 391), we suspect that this difference has taxonomic significance, but withhold more definitive statements until associated material from locality 3775 is prepared.

A single tooth, NMMNH P-29960, associated with NMMNH P-29959, is similarly broad transversely, although the labial and lingual cusps are broken off (Fig. 3A). Cingulae are present on both the anterior and posterior margins of this tooth, and evident on the teeth of NMMNH P-29959 as well. Clearly, this tooth is morphologically similar to those of NMMNH P-29959, with which it was associated. The tooth crown is relatively tall, and there is a substantial root that is nearly as tall as the crown. Where the central cusp is preserved, including NMMNH P-29960, it is particularly swollen mesio-distally, to the extent that the lower parts of the central cusp divide the anterior and posterior cingula into labial and lingual segments. This swollen base of the central cusp differs from that of both the type and WPA specimens of *Trilophosaurus* and appears to be unique to *Trilophosaurus* specimens from NMMNH locality 3775. As with the tooth spacing, this may have taxonomic significance, although we refrain from further comment until more material is prepared. Damage to teeth of NMMNH P-29959 and P-29960 prevents us from describing detailed features such as possible wear facets with confidence.

The humerus (NMMNH P-34101) is elongate, with slightly expanded proximal and distal ends (Fig. 2B-C). The deltopectoral crest forms a small, medially directed knob in the middle of the proximal expansion, and there is a thin but prominent process forming the posterior margin of the proximal expansion. The distal end is rotated slightly medially, so that the shaft appears somewhat twisted. The elongate ectepicondylar groove is poorly preserved but present. In distal view, the radial and ulnar condyles lie on the anterior half of the distal end, with the distal expansion almost entirely posterior to the ulnar condyle. This bone corresponds in all details to humeri of *Trilophosaurus buettneri* described by Gregory (1945, pl. 27[1-3]).

The tibia (NMMNH P-34102) is less well preserved (Fig. 2D-E). The proximal head is broadly expanded transversely, with prominent articular facets for the distal condyles of the femur on the posterior portion. The medial facet is slightly larger than the lateral facet. A weakly developed cnemial crest is present. The shaft is thin (although this may partly be an artifact of transverse crushing) and slightly convex anteriorly. The distal end is unexpanded, with a slight sulcus anterolaterally for reception of the ascending process of the astragalus. This bone, too, corresponds in all details to tibiae of *Trilophosaurus buettneri* described by Gregory (1945, pl. 30).

The associated femur? (NMMNH P-34104) from the same field jacket lacks both proximal and distal ends. The resulting shaft is considerably more stout than either of the other limb bones described, with a rounded center and flattened proximal and distal ends. The preserved bone is nearly as long as the associated tibia, and is thus similar in proportions to femora of *Trilophosaurus* (Gregory, 1945).

A nearly complete caudal centrum (NMMNH P-34103) from the same jacket is elongate, with a fused neural arch. The centrum is amphicoelous, with the anterior face slightly concave and the posterior face deeply so. In lateral view, the centrum appears slightly concave ventrally. The neural arch is long and low, and fused along approximately 80% of the centrum length. Most of the neural processes are broken, but the posterior zygopophyses slope abruptly dorsally at an angle approximately 45° to the dorsal surface of the centrum.

Ornithischia?

We recovered one possible ornithischian tooth from NMMNH locality 3775. This tooth, NMMNH P-34106, is triangular in outline (Fig. 3D), very slightly asymmetric in occlusal view (Fig. 3I-K), possesses denticles that are somewhat oblique to the tooth margin and has a basal constriction near the (broken) root (the posterior denticles are intact and not truncated). In these respects it conforms to descriptions of Upper Triassic ornithischian teeth given by Hunt and Lucas (1994). However, the tooth is also mod-

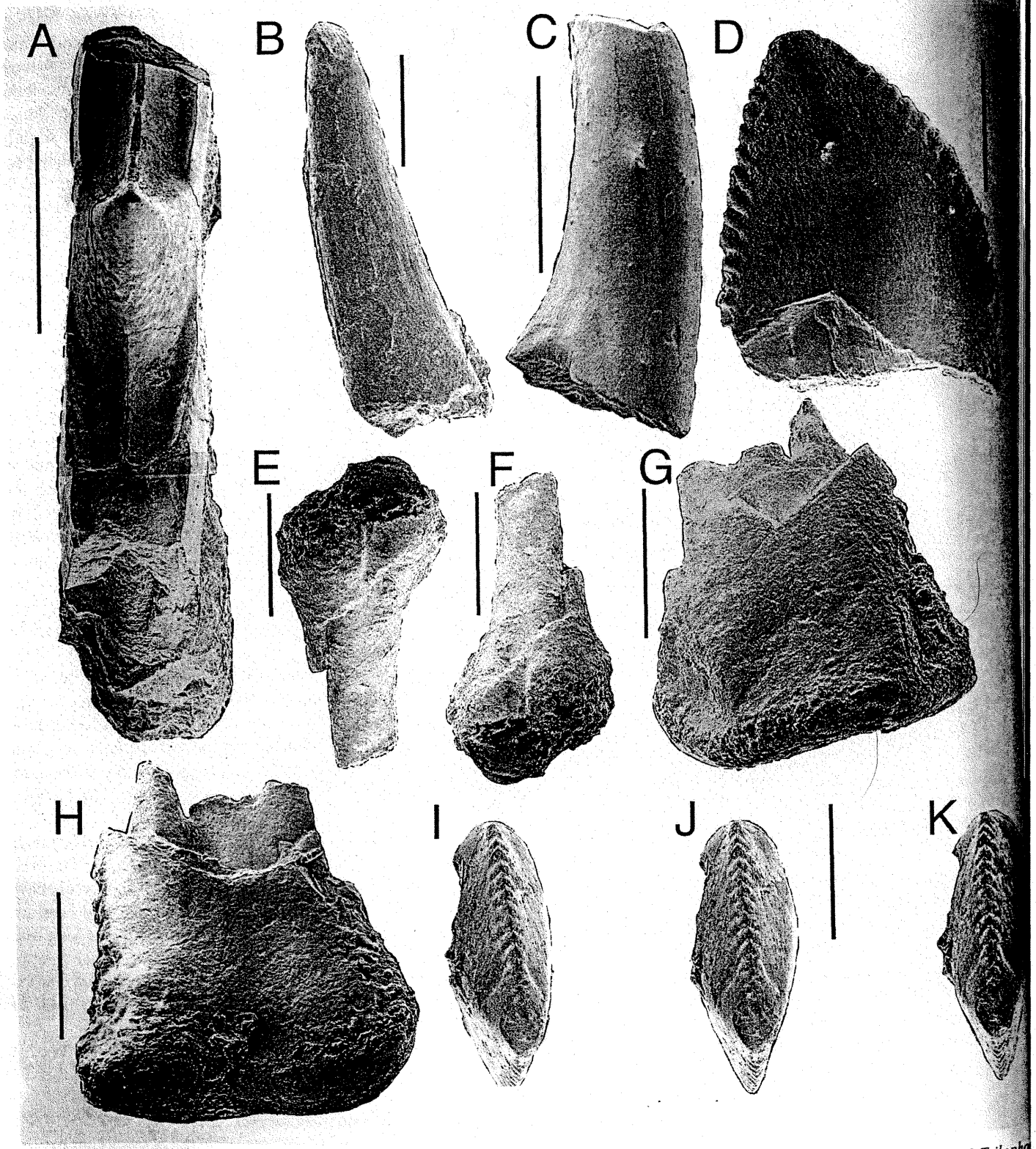

FIGURE 3. Scanning electron microphotographs of selected fossils from NMMNH locality 3775. A. NMMNH P-29960, tooth of *Trilopho* ***buettneri*** photograph montage in occlusal view; B. NMMNH P-29956, possible reptile fang in labial? view; C. NMMNH P-34107, possible tooth in lateral? view; D., I-K. NMMNH P-34106, possible ornithischian dinosaur tooth in lateral (D) and stereo occlusal (I-K) views; E-F. NM P-34127, possible theropod metapodial or phalanx in dorsal (E) and ventral (F) views; G-H. NMMNH P-34125, possible theropod distal right h in lateral (G) and medial (H) views. Scale bars = 2 mm (A, E-F, and G-H) or 1 mm (B-D, I-K).

erately tall relative to its mesio-distal length and is only slightly asymmetric, and in these respects resembles teeth of basal sauropodomorphs, principally prosauropods. In either case, it clearly represents a herbivorous dinosaur.

If this tooth is an ornithischian, it most closely resembles *Revueltosaurus callenderi* Hunt, 1989 in its moderately tall, triangular crown, but is less asymmetric in occlusal view. It is less recurved than most *Revueltosaurus* presumed maxillary/dentary teeth but considerably more compressed than many *Revueltosaurus* premaxillary teeth. It is also significantly smaller than the holotype and referred specimens of that taxon, and appears to have more fine denticles. Notably, the holotype and paratype teeth of *Revueltosaurus* (Hunt, 1989, pl. 8e-h, pl. 9) have crowns 6-10 mm tall, while NMMNH P-34106 is no more than 3 mm tall (Fig. 3D), and is decidedly more labio-lingually compressed (Fig. 3I-K). NMMNH P-34106 is distinct from all other Triassic ornithischians, including *Galtonia*, *Tecovasaurus*, *Lucianosaurus*, and *Tecnhosaurus*. This tooth could represent a juvenile of *Revueltosaurus* or an unnamed taxon, so we tentatively refer it to Ornithischia? indet.

Prosauropod teeth are less variable than those of ornithischian teeth, but most are considerably taller than NMMNH P-34106. Teeth of the prosauropods *Plateosaurus* and *Sellosaurus* illustrated by Galton (1985) are generally taller than NMMNH P-34106, although posterior maxillary-dentary teeth of these taxa are grossly similar (Galton, 1985, figs. 3-4). The tooth is both less spatulate and has finer denticles than most Triassic prosauropods as well. If this tooth is indeed a prosauropod, it most closely resembles teeth of the Early Jurassic *Massospondylus* (Attridge et al., 1985) from the Elliot Formation in South Africa and the Kayenta Formation in north-central Arizona. Whether the tooth is prosauropod or ornithischian, it is a relatively rare record of a herbivorous dinosaur tooth in the Chinle.

Theropods

One of us (RK) has collected vertebrae possessing extremely tall neural spines from NMMNH locality 3775. These are similar to the vertebrae described by Case (1927) and later named *Spinosuchus caseanus* by Huene (1932). This is the first co-occurrence of *Spinosuchus* with *Trilophosaurus* and would appear to be evidence supporting Richards' (1999) recent hypothesis that *Spinosuchus* and *Trilophosaurus* are the same animal. However, we note that the holotype specimen of *Spinosuchus* photographically illustrated by Case (1927, pl. 1) differs greatly from illustrations of the vertebral column of *Trilophosaurus* (Gregory, 1945). *Trilophosaurus* does superficially resemble *Spinosuchus* in its possession of moderately tall neural spines in the caudal series. However, the dorsal vertebral series are entirely different, with *Trilophosaurus* bearing low neural spines over its comparatively shorter dorsal centra, as opposed to the tall neural spines on longer centra in *Spinosuchus*.

We also note here that the limb bones and vertebrae of *Trilophosaurus* are not hollow, and that we have recovered apparently hollow bones from this locality that appear to have been subsequently filled with matrix and/or calcite (e.g., NMMNH P-34123-34127: Fig. 3E-H). While the possibility remains that this is a preservational artifact, this mode of preservation is not evident on any of the limb bones referable to *Trilophosaurus*. In the nonmarine Upper Triassic, only pterosaurs and theropod dinosaurs possess hollow limb bones, and only theropods possess hollow vertebrae. Consequently, pending the preparation of additional material, we tentatively note the presence of a small theropod dinosaur, probably *Spinosuchus*, at NMMNH locality 3775. We also note here that, although some authors (e.g., Padian, 1986; Murry and Long, 1989; Long and Murry, 1995) do not consider *Spinosuchus* dinosaurian, Hunt et al. (1998) recently reviewed the material and concluded that, pending further preparation, the hollow centra and long bones of *Spinosuchus* are sufficient evidence to at least tentatively assign it to the Theropoda.

Reptilia indet.

Screenwashing matrix from the main bone-bearing horizon has yielded a diverse fauna of microvertebrate reptiles, most of which are indeterminate. Some of the more noteworthy fossils from this sample include at least two morphologies of elongate, recurved, fang-like reptilian teeth. One of these, NMMNH P-34107 (Fig. 3C), is very tall and thin, slightly recurved, and possesses very faint longitudinal striations. The second, represented by NMMNH P-29956 (Fig. 3B), is similarly tall and recurved but more robust and lacks longitudinal striations. Other specimens include a jaw fragment with three tooth sockets (NMMNH P-29957) and a small caudal? vertebra (NMMNH P-34117)

Osteichthyes indet.

Among the microvertebrates recovered thus far are a few scales and other fish elements. These include pitted scale fragments that may belong to semionotid fish, unornamented scales, and a very small, serrated scale still embedded in a small matrix block. More specimens will be necessary to make more precise determinations, but it appears that at least three different taxa of osteichthyan fish are represented at NMMNH locality 3775.

Coprolites

To date, we have recovered a few coprolites from NMMNH locality 3775. These fossils, two of which are catalogued as NMMNH P-29952, are small, cylindrical masses typical of coprolites found in the Chinle. We make no attempt to identify their perpetrator beyond the level of Vertebrata indet.

Invertebrates

Numerous mollusc shells occur above the bonebed in unit 6 of the measured section shown in Figure 1. These are largely fragmentary shells of unionid bivalves (Fig. 2F-H) catalogued as NMMNH P-29954.

DISCUSSION AND BIOCHRONOLOGICAL SIGNIFICANCE

Case (1928) first described fragmentary remains of *Trilophosaurus buettneri*, noting the particularly diagnostic, transversely expanded, lobed teeth with three prominent cusps. Following extensive work near Otis Chalk, Texas, Gregory (1945) published a monograph on the osteology of this unusual reptile, noting two size classes but preferring to maintain all of them in the species *T. buettneri*. The type specimens illustrated by Case (1928) are clearly of the smaller size class.

Parks (1969) wrote a thesis on the skull and dentition of *Trilophosaurus*, and Murry (1982) also characterized isolated remains. Murry (1987) named a second species of *Trilophosaurus*, *T. jacobsi*, for isolated tooth and jaw fragments collected from the base of the Chinle Group in east-central Arizona. Later, Sues and Olsen (1993) identified these teeth as belonging to a procolophonid. Long and Murry (1995) concurred, and re-assigned fossils of "*Trilophosaurus*" *jacobsi* to the procolophonid *Chinleogomphius jacobsi*. We concur with this assessment, noting that the asymmetric, pyramidal cusps of the posterior teeth of *C. jacobsi* strongly resemble those of procolophonids and are distinct from the conical cusps of *Trilophosaurus*.

Murry and Long (1989) identified a single occurrence of *T. buettneri* from high in the Blue Mesa Member of the Petrified Forest Formation, but did not illustrate or describe the specimen, nor is it included in Long and Murry's (1995) list of specimens referred to *Trilophosaurus*. Long and Murry (1995) documented other referred specimens of *Trilophosaurus* from Arizona, New Mexico, and Texas. All of the Arizona specimens are either from the *Placerias* quarry low in the Bluewater Creek Formation or are based on extremely fragmentary material higher in the section.

Omitted from Long and Murry's (1995) compendium were occurrences of *Trilophosaurus* documented by Kirby (1989, 1991, 1993). Kirby identified *Trilophosaurus* from the Owl Rock Formation near Wards Terrace in north-central Arizona. These records were based on an isolated tooth and several fragmentary skull bones. We concur that the incomplete tooth, MNA V7064, could represent *Trilophosaurus*, but it also closely resembles *Tricuspisaurus*, a possible procolophonid known from fissure fills of similar age in Britain (Robinson, 1957; Fraser, 1986). In particular, MNA V7064 and *Tricuspisaurus* are less transversely broad than referred specimens of *Trilophosaurus*, and thus more closely resemble teeth of procolophonids. Further, MNA V7064 is incomplete, and the presence of a third cusp, while probable, can only be inferred. If this specimen does pertain to *Trilophosaurus*, it represents the smaller of two body morphs, as it would be less than 2 mm wide were it complete (Gregory, 1945).

Regardless of whether the strata encompassing NMMNH locality 3775 are assigned to either the uppermost Tecovas Formation or the Trujillo Formation, they represent a range extension for the larger *Trilophosaurus* morph. The Tecovas Formation is of well-established Adamanian (latest Carnian) age, based on the occurrence of the Adamanian index taxa *Rutiodon* and *Stagonolepis* (Lucas and Hunt, 1993; Lucas et al., 1994). The Trujillo Formation is slightly younger. Tetrapod fossils, including the occurrence of *Typothorax coccinarum* (Hunt, 2001; Lucas et al., 2001), suggest that the Trujillo is of Revueltian (early-mid Norian) age, although palynological evidence indicates that the basal Trujillo could be as old as latest Carnian (Dunay and Fisher, 1974, 1979; Litwin et al., 1991; Cornet, 1993).

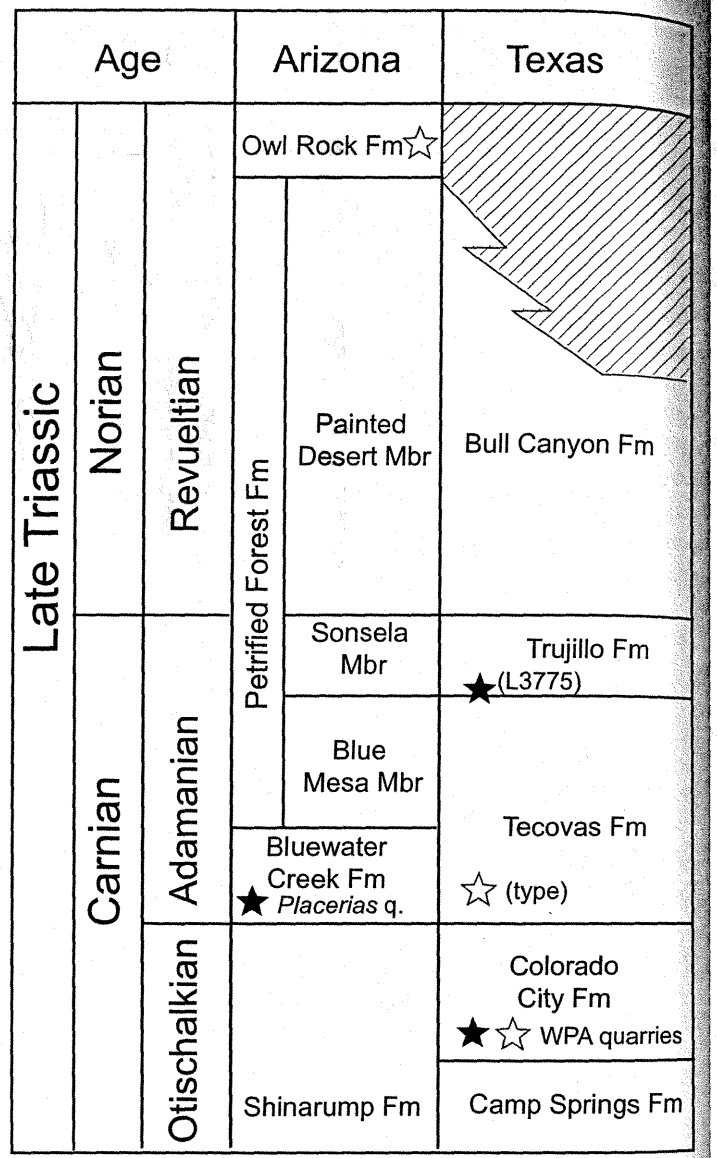

FIGURE 4. Generalized stratigraphic distribution of *Trilophosaurus* occurrences in the southwestern U.S. Solid stars = large morph, open-stars = small morph. See text for discussion.

All previous occurrences of *Trilophosaurus buettneri* documented by Long and Murry (1995) are from strata low in the Chinle Group of either Otischalkian (late early to early late Carnian) or early Adamanian (latest Carnian) age. The New Mexican occurrence is both fragmentary and stratigraphically low, occurring in the Los Esteros Member of the Santa Rosa Formation. The type locality, near Walker's Tank in Crosby County in the Tecovas Formation (Case, 1928), is stratigraphically low in the Tecovas Formation and of Adamanian age, based on the co-occurrence of the Adamanian index taxa *Rutiodon* (=*Leptosuchus*) and

Stagonolepis. The remaining Texas records referred to *Trilophosaurus* come from the Works Progress Administration (W.P.A.) quarries described by Gregory (1945), which are part of the type assemblage of the Otischalkian lvf (Lucas et al., 1993). Consequently, *Trilophosaurus* occurrences at NMMNH locality 3775 extend the range of *Trilophosaurus* to at least the latest Adamanian, and probably into the early Revueltian (Fig. 4). Although we do not rule out the possibility that the material here represents a distinct species of *Trilophosaurus*, it is the stratigraphically highest occurrence of the larger *Trilophosaurus* morph. If the material from NMMNH locality turns out to be a distinct species, we note that there may be some biochronological utility in having at least two stratigraphically superposed species of *Trilophosaurus*. However, *Trilophosaurus* is relatively rare in the Chinle and, so far as we can tell, the postcrania of older specimens and the NMMNH material are essentially identical, requiring relatively intact teeth to diagnose the two species.

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APPENDIX 1—
DESCRIPTION OF MEASURED SECTION L-3775

Section measured at UTM zone 14S 0252420E, 3625349N NA027. This is the first road cut on 1054S to Vealmoor south of U.S. 180, Borden County, Texas. Strata are flat-lying. Section measured by A.B. Heckert and S.G. Lucas, 22 April, 1999. Rock colors follow Goddard et al. (1984).

unit lithology **thickness (m)**

Chinle Group: Trujillo? Formation:

6 Conglomerate; moderate yellowish brown (10YR5/4) to grayish orange (10YR7/4); clasts are intraformational calcrete and siltstone pebbles up to 1.5 cm diameter; most clasts are less than 0.5 cm diameter, rounded; bed is well-indurated and caps outcrop; locally fossiliferous with unionid bivalves, highly calcareous.

5 Mudstone; dark reddish brown (10R3/4) with some mottles of ye... gray (5Y7/2); locally some conglomerate lenses which are also ye... gray (5Y7/2) and contain siltstone rip-ups; mudstone is very slight... mudstone is weakly calcareous; siltstone is calcareous.

4 Conglomerate and sandstone; conglomerate is moderate brown (5Y... with some sand-sized clasts; and is clast-supported; sand is rounded ... and quartzite; conglomerate clasts are claystone pebbles up to ... diameter; weakly calcareous to calcareous; sand-sized fraction is ... to very coarse, rounded, moderately well-sorted sublitharenite.

3 Mudstone; moderate brown (5YR4/4); very silty; slightly micaceous; ... careous.

2 Conglomerate; moderate brown (5YR4/4); clasts are intraformational ... pebbles up to 2 cm diameter, rounded, flattened; clast-supported; matrix ... rounded, moderately poorly sorted sublitharenite; slightly calcareous; ... is the main bone-bearing interval; bone is pinkish gray (5YR8/1); ... irregular scouring at base.

1 Mudstone; moderate brown (5YR4/4) with some pale greenish yel... (10Y8/2) mottles; very silty; very calcareous, base of exposure.

not measured

APPENDIX 2—
SPECIMENS REFERRED TO *TRILOPHOSAURUS* FROM NMMNH LOCALITY 3775

NMMNH P#	TAXON	DESCRIPTION
29959	*Trilophosaurus*	(1) Lower (?) jaw fragment
29960	*Trilophosaurus*	(1) Tooth fragment
29961	*Trilophosaurus*	(2) Complete caudal vertebrae
29962	*Trilophosaurus*	(2) One complete vertebra
29963	*Trilophosaurus*	(1) Proximal humerus (?) fragment
29964	*Trilophosaurus*	(1) Distal humerus
29965	*Trilophosaurus*	(2) Distal ulnas
29966	*Trilophosaurus*	(4) Proximal radii
29967	*Trilophosaurus*	(1) Carpal - I OR V
29968	*Trilophosaurus*	(1) Proximal femur
29969	*Trilophosaurus*	(1) Distal femur
29970	*Trilophosaurus*	(1) Astragalus
29972	*Trilophosaurus*?	(1) Carpal
29973	*Trilophosaurus*?	(1) Limb element (phalanx)
29974	*Trilophosaurus*?	(3) Podials
29975	*Trilophosaurus*?	(1) Metapodial end
34101	*Trilophosaurus*	(1) Left humerus
34102	*Trilophosaurus*	(1) Right tibia
34103	*Trilophosaurus*	(1) Caudal vertebra
34104	*Trilophosaurus*?	(1) Femur?
34105	*Trilophosaurus*	(1) Tooth fragment
34122	*Trilophosaurus*	(1) Caudal centrum