

the only evidence in the Bull Canyon Formation of an amphibian with a head length greater than 30 cm.

The large-snouted Rutiodon gregorii-like skull from Barranca Creek is the same taxon of phytosaur known from Revuelto Creek. Protosaurs are represented at Revuelto by partial limbs and vertebrae. A new pseudosuchian, under study by APH, is represented by remains of five individuals, including two partially articulated skeletons. This animal has a very primitive, crocodile-normal tarsus. The socket for the astragalus in the rather aetosaur-like calcaneum is very shallow. The astragalus is wider relative to the calcaneum than in any other archosaur. The femur is remarkably crocodylian in morphology, and there are at least two rows of relatively thick, overlapping paramedian scutes.

Three aetosaurs occur at Revuelto Creek. Typothorax is very common, and in 1988 a 2.5-m-long articulated skeleton was found. Desmotosuchus is represented by two lateral-scute spikes and Paratypothorax by a single paramedian scute. These taxa also occur in the lower portion of the upper Petrified Forest Member of the Chinle in northeastern Arizona and in the "Cooper Member" of the Dockum in Texas (Murry and Long, 1989; Small, 1989).

The dinosaur fauna at Revuelto Creek is anomalously diverse for the Upper Triassic strata of the Southwest. Taxa include a large procompsognathid, a staurikosaurid, Revueltosaurus callenderi and at least one "fabrosaur." The very diverse microvertebrates are under study by APH.

The presence of Typothorax, Desmotosuchus, Paratypothorax and Nicrosaurus/Pseudopalatus indicates correlation with the lower part of the upper Petrified Forest Member of the Chinle Formation in northeastern Arizona and with the "Cooper Member" of the Dockum in Texas. These are all horizons of Norian age (Lucas et al., 1985b).

#### Sedimentology and Taphonomy

As noted by Gregory (1972, oral comm., 1986) and Parrish and Carpenter (1986), virtually all of the fossils in Revuelto Creek occur in a thin (< 8-m-thick) sequence dominated by purple mudstone and siltstone. The purple beds are between two sandstone/conglomerate beds. There is much lateral variation within these beds.

These strata show similarities to rocks described by Frelief (1987) in the Tecovas Formation of West Texas and Kraus and Middleton (1987) in the Chinle Petrified Forest Member of northeastern Arizona. In effect, these strata represent low order channel deposits formed during multiple phases of floodplain degradation and aggradation and/or arroyo-fill sequences. At Revuelto, there apparently were three phases of channeled flow within a restricted area which suggests a period of degradation and geomorphic incision (cf. Frelief, 1987, fig. 8.3) was followed by aggradation and infilling of the incised landscape (cf. Frelief, 1987, figs. 8.1-8.2).