comparisons of fossil enamel to modern hair should be interpreted cautiously. Further, interpretations of paleodiet from solely enamel should be interpreted as a minimum estimate of dietary variability.

Poster Session IV (Saturday, October 17, 2015, 4:15 - 6:15)

**COMPARING TOOTH MACROWEAR IN A JUVENILE AND ADULT SPECIMEN OF *GORGOSAURUS LIBRATUS:* CHANGES IN FEEDING BEHAVIOR THROUGHOUT ONTOGENY IN TYRANNOSAURIDS**

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An understanding of how paleopathologies occur can shed light on the behavior of extinct animals, and inform theories on how they might have interacted with their environment and contemporaries. More so than coprolites, microwear, or bite marks on the bones of prey, the study of macrowear in the teeth of articulated carnivorous dinosaurs provides direct evidence of feeding behavior for a particular specimen over an extended period of time. Following recent speculations on the diet and social dynamics of tyrannosaurid dinosaurs, macrowear in the teeth of two specimens of *Gorgosaurus libratus,* one juvenile and one adult, were compared in order to document any change in feeding strategies through ontogeny. Four major types of tooth wear were present in the two specimens: enamel spalling, longitudinal facets, tip wear, and barrel-shaped puncture marks. Enamel spalling is most likely reflective of traumatic feeding events or reduced enamel integrity due to continuous use after damage, and is presented in both specimens. However, the adult teeth were dominated by tip wear, in contrast to the juvenile teeth, which presented numerous examples of longitudinal wear facets. This is hypothesized to reflect an ontogenetic change in the feeding behavior of *Gorgosaurus*, from shearing and slicing of meat with high levels of tooth occlusion in young, to the more commonly accepted puncture and pull method in adults. This change is concomitant with an increase in bite force as the jaw grows throughout life, and may reflect a change in diet, and even ecological niches between juvenile and adult tyrannosaurids. At the very least, it shows that juveniles and adults processed carcasses in different ways.

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Poster Session IV (Saturday, October 17, 2015, 4:15 - 6:15)

**A JUVENILE *HYPACROSAURUS ALTISPINUS* (DINOSAURIA: HADROSAURIDAE) BONEBED FROM THE HORSESHOE CANYON FORMATION (UPPER CRETACEOUS) OF ALBERTA, CANADA**

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The Bud Nelson Bonebed, a monodominant *Hypacrosaurus altispinus* bonebed, is located in southern Alberta, Canada in the Horseshoe Canyon Formation. Although the University of Alberta discovered it in 1965, it has not been described. Approximately 50 elements have been recovered from the site. The minimum number of individuals is four late juveniles and one sub-adult or adult, based on humeri. The material is assigned to *H. altispinus* using four well-preserved jugals: the ventral margin is acutely angular and there is a lack of a mid-ventral constriction. Five dentaries and a surangular comprise the remainder of the known cranial material. Although details of the original collection are scarce, the material was found disarticulated. Cranial bones are represented by a dominance of right elements whereas postcranial elements show no dominance. Forelimb bones represent the highest number of elements in the bonebed, with the majority of these being humeri. Theropods are represented in the bonebed by shed teeth. The presence of puncture marks on some of the hadrosaur bones indicates scavenging.

The Bud Nelson Bonebed is significant for its high proportion of juveniles. Juvenile hadrosaur bonebeds are not common, especially for *Hypacrosaurus altispinus* which is typically found as isolated individuals or elements. There is only one other unpublished small bonebed that contains elements from this dinosaur and surprisingly the material also belongs to juvenile specimens. There is no evidence that the Bud Nelson assemblage represents a nesting ground. In contrast, three juvenile-dominated *Hypacrosaurus stebingeri* bonebeds are known from the Oldman Formation of Alberta and the upper Two Medicine Formation of Montana. These sites have eggs and baby remains as well as juvenile material at one of the sites in Montana.

The Bud Nelson Bonebed and the unpublished bonebed are the only evidence of communal or crèche behavior in *H. altispinus* into the late juvenile stage. Adult-dominated *Hypacrosaurus* bonebeds are unknown but are common for other hadrosaurs, such as *Edmontosaurus*. This could indicate different behavior among hadrosaur taxa, or bias in preservation. The higher proportion of juveniles suggests that the Bud Nelson Bonebed represents a catastrophic mass death assemblage.

Poster Session III (Friday, October 16, 2015, 4:15 - 6:15)

**NEW SPECIMENS AND MORPHOLOGY OF THE LOWER JAW OF THE LATE CRETACEOUS METATHERIAN *EODELPHIS* MATTHEW, 1916**

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The stagodontid metatherian genus *Eodelphis* is currently known from two species, distinguished by subtle differences in their dentition and size: *E. browni* and the more robust *E. cutleri*, the purported ancestor of *Didelphodon*, the largest North American mammal of the Mesozoic. Here we present two new, nearly complete jaws of *Eodelphis* from the Judithian-age Judith River and Two Medicine formations of Montana that shed light on the ontogeny and ecology of this taxon. Both specimens display characters diagnostic of *E. browni*, including an anterior second premolar (p2) alveolus approximately equal in size to the posterior p2 alveolus (when a double-rooted p2 is present) and a directly anterior position of the posterior root of the third premolar relative to the anterior root of the first molar. However, the teeth are larger than those previously reported from other specimens of *E. browni*. Although size has been traditionally considered as a diagnostic character among *Eodelphis* species, our results may indicate a greater variation in size within *E. browni* than previously thought. One specimen displays an interesting pattern of differential tooth wear in its molar series. The fourth molar (m4) has considerably less wear than the other molars, lending support to the idea that the m4, as in many other marsupials, was the last in the series to erupt. This wear pattern is also consistent with the hypothesis of changing tooth functionality, and by extension, feeding ecology, with ontogeny in stagodontids, with juveniles primarily using molar shearing to process food, gradually transitioning to crushing their food as wear on the cusps and crests accumulate over time to create broad crushing platforms. This wear pattern is thought to start at the anterior portion of the molar series and move posteriorly as teeth erupt during development. The molar series thus forms a broad, relatively flat surface, with the exception of the m4. Due to the existing dental morphology, this specimen may represent a younger adult in a transitional stage of feeding ecology trending towards a more durophagous diet. In comparison, the other specimen described here, although larger in overall size, does not display the same degree of wear in its molar series and seems to retain shearing function. This may indicate that this is a younger individual than the first specimen described here or this individual has not changed its feeding ecology regardless of ontogeny.

Poster Session IV (Saturday, October 17, 2015, 4:15 - 6:15)

**CARNIVORA FROM THE RATTLESNAKE FAUNA (EARLY HEMPHILLIAN, LATE MIOCENE) OF OREGON**

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The Rattlesnake Formation of eastern Oregon is an early Hemphillian site (~7.5 – 7.05 Ma) recording a diverse mammal fauna from a mixture of sagebrush steppe and woodland environments. The initial description of the Rattlesnake fauna was published in the early 1900s, and there have been few updates since then. Here we provide a comprehensive revision of the Rattlesnake carnivoran fauna, including addition of several species, revised identifications of previously described taxa, and description of new fossil material from several noteworthy species. New additions to the fauna include a canid, *Borophagus pugnator*; a mephitid, *Pliogale*; an ischyrictine mustelid, *Plionictis*; a machairodont felid, *Rhizosmilodon*; and a puma-like feline. Previously undescribed dental material allows identification of *Machairodus* cf. *catacopsis*. Notable new fossil material includes additional elements of the type specimen of *Indarctos oregonensis,* which were collected more than 100 years after its initial discovery. Also of significance are the earliest and first western records of the recently described *Rhizosmilodon*, as well as the first maxillary remains of this taxon. The occurrence of *Pliogale* represents the first skunk described from the fossil record of Oregon. As has been noted previously, the Rattlesnake Formation contains some of the earliest North American occurrences of immigrant taxa from Asia, such as *Simocyon*, *Indarctos*, *Plionarctos*, *Lutravus*, and *Machairodus*. With a total of 14 species, the Rattlesnake fauna is the most diverse carnivoran fauna of its age in North America. The diversity of carnivorans present in the Rattlesnake Formation is likely due to the mosaic environment preserved at the site, climate shifts through time, and its geographical placement near carnivore dispersal routes.

Poster Session II (Thursday, October 15, 2015, 4:15 - 6:15)

**NEW SPECIMENS OF THE THYREOPHORAN DINOSAUR *SCUTELLOSAURUS LAWLERI* FROM THE LOWER JURASSIC KAYENTA FORMATION OF NORTHERN ARIZONA**

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Ornithischia originated during the Late Triassic but did not diversify until the Early Jurassic, before becoming the dominant group of terrestrial herbivores throughout the rest of the Mesozoic Era. While rare in Upper Triassic strata, the group had achieved a global distribution by the Early Jurassic, with members of Heterodontosauridae, Neornithischia, and Thyreophora present in Lower Jurassic strata worldwide. The oldest ornithischian fossils from North America have been found in the Silty Facies of the Kayenta Formation in northeastern Arizona. These include the thyreophoran *Scutellosaurus lawleri*, an unnamed heterodontosaurid, and osteoderms and rib fragments tentatively attributed to the thyreophoran genus *Scelidosaurus*.

I report here new ornithischian dinosaur material collected from the Lower Jurassic Kayenta Formation along the Adeii Eechii Cliffs of northern Arizona between 1997 and 2000 by field parties from the Vertebrate Paleontology Laboratory (TMM) at the University of Texas at Austin. Among this new material are two disarticulated associated skeletons of *Scutellosaurus lawleri* (TMM 43663-1 and TMM 43664-1), each preserving anatomy that is poorly known or not previously reported for the taxon, including the nasal, maxilla, lacrimal, postorbital, quadratojugal, squamosal, opisthotic, scapula, ilium, and metatarsus. TMM 43663-1 represents an individual of similar size as the holotype (MNA V175), while TMM 43664-1 represents a somewhat larger individual. These specimens have both been compressed taphonomically, making their removal from the surrounding matrix in their field jackets difficult without risk of damage to the fossil bone. Both specimens were mechanically prepared until risk of damaging the fossil bone was deemed too high, at which point the specimens were scanned at The University of Texas High Resolution X-ray Computed Tomography Facility. This approach results in three-dimensional volumetric models of individual bones generated by removing matrix from the surface of the fossil bone digitally, revealing otherwise obscured anatomy and exposing bone not visible on the surface of the specimens. In addition to these associated skeletons, several dozen other fragmentary specimens of *Scutellosaurus lawleri* have been identified, which increases the known sample size for the taxon. Several relatively large isolated indeterminate ornithischian fossils have also been recovered, which may indicate that ornithischian diversity in the Kayenta Formation is greater than is currently understood.