Society for Integrative and Comparative Biology
2019 Annual Meeting

Meeting Abstract

P2-220 Saturday, Jan. 5 15:30 - 17:30 **Is There Osteological Evidence of a Prominent Zygomaticomandibularis in Hypocarnivorous Mammals?** *DAVIS, JS*; GANNON, JL; High Point University; High Point University* jdavis0@highpoint.edu

Several studies have shown a relationship between fusion of the mandibular symphysis and late unilateral activity of the balancing-side zygomaticomandibularis muscle, thought to facilitate the production of transversely-oriented grinding movements during mastication, particularly among species that specialize on plant-based diets. The recurrence of this pattern across mammalia is compelling evidence of convergent adaptation in the masticatory apparatus. Given the importance of the zygomaticomandibularis in this pattern, we hypothesize that this muscle may differ not only in the timing of its activity, but also in its morphology and prevalence among the jaw adductors in species with a fused mandibular symphysis and plant-based diet, when compared to related species with omnivorous or animalivorous diets and patent symphyses. To investigate this relationship, three parallel 3D geometric morphometric analyses are used to characterize the shape of the mandibular ramus in three separate mammalian lineages that include species that are representative of the ecomorphological groups of interest: musteloid carnivorans, xenarthrans, and phyllostomid bats. We focus on the mandibular ramus because its shape is influenced by attachment sites for the major jaw adductors, including the zygomaticomandibularis, and we investigate whether there are convergent trends in its shape among species with plant-based diets.