Figure Legends.

Figure 1. CT 3D reconstruction of *Chrysocyon brachyurus* endocast.

Figure 2a) *Lycaon pictus*, 2b) Suprazygomatic temporalis (white arrow),*Vulpes vulpes*, 2c) Superficial temporalis (white arrow),*Vulpes vulpes*, 2d) Deep temporalis (white arrow), *Vulpes vulpes*.

2e) Superficial masseter (white arrow) *Nyctereutes procyonoides*, 2f) Tendon of origin of superficial masseter (white arrow), *Lycaon pictus*, 2g) Deep masseter (white arrow), *Canis lupus*, 2h) Zygomaticomandibularis (white arrow), *Lycaon pictus*.

2i) Medial pterygoid (white arrow) and lateral pterygoid (black arrow), *Vulpes vulpes*, 2j) Superficial masseter (black arrow) and pterygoids (white arrow), *Canis lupus*.

Figure 3. Reduced Major Axis regression, log body mass vs log total jaw adductor muscle mass. Dietary groups are highlighted.

Figure 4. Reduced Major Axis regression, log body mass vs log endocranial volume. Dietary groups are highlighted and reconstructed skulls from CT scans illustrate variation in head shape.

Figure 5. Whole skull principal component scores PC1 vs PC2. Dietary groups and the mapped phylogenetic tree is shown within the plot and wireframes representing skull shape changes are aligned along the relevant axes.

Figure 6. Cranial principal component scores PC1 vs PC2. Dietary groups and the mapped phylogenetic tree is shown within the plot and wireframes representing skull shape changes are aligned along the relevant axes.

Figure 7. 3D CT reconstructions demonstrating the area of origin of temporalis (red) on three species. A, Vulpes zerda exhibits a wide sagittal gap where left and right temporalis do not meet at midline, B, Vulpes vulpes demonstrates that the temporalis origin utilises all of the dorsal calvarium, and C, Canis lupus, displays a pronounced sagittal crest for increasing the surface area of temporal attachment.

Figure 8. Dorsoventral view wireframes taken PC1 of the cranial component analysis. Both diagrams have been scaled to have equal zygomatic width as this scales isometrically. Line ‘A’ represents the midline and line ‘C’ the lateral extent of the zygomatic arch. Line ‘B’ represents the lateral extent of the cranium in the species with low PC1 scores.

Figure 9. Dorsoventral view of cranial wireframes comparing the -0.11 principal component analysis with that of *Canis lupus* and *Chrysocyon brachyurus*. Line 'D' represents the midline, and line 'F' the lateral extent of the zygomatic arch. Line 'E' represents the lateral extent of the cranium.