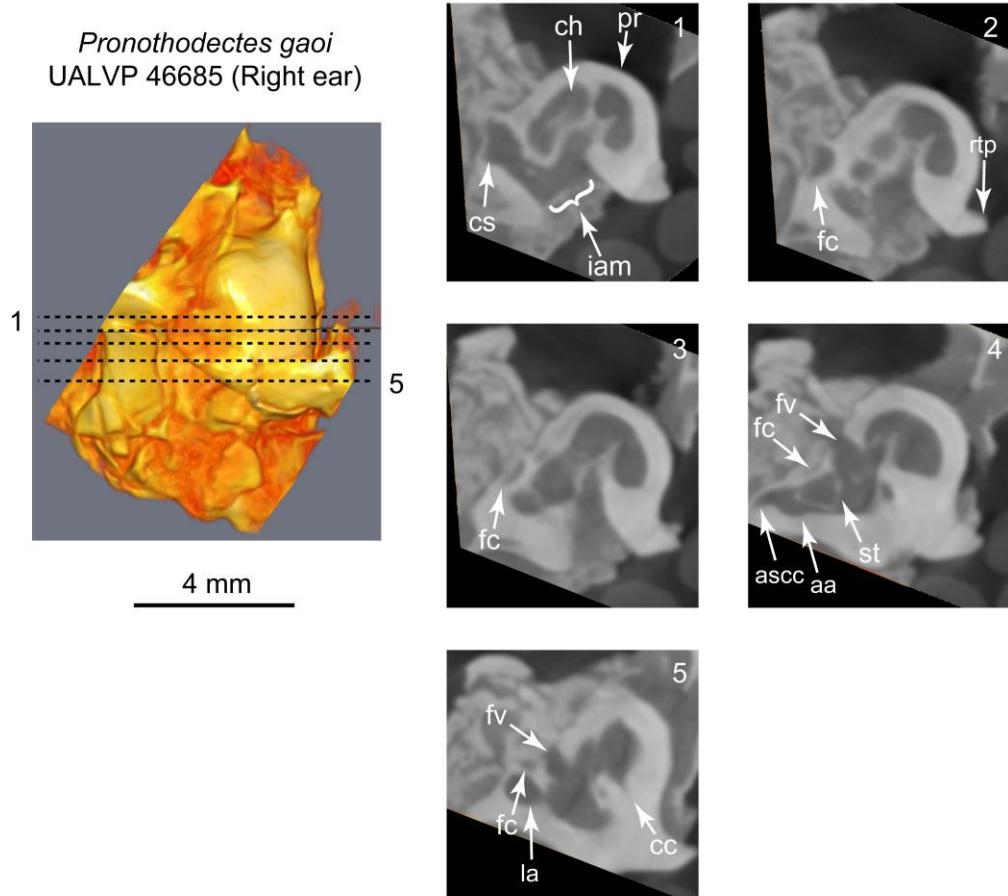
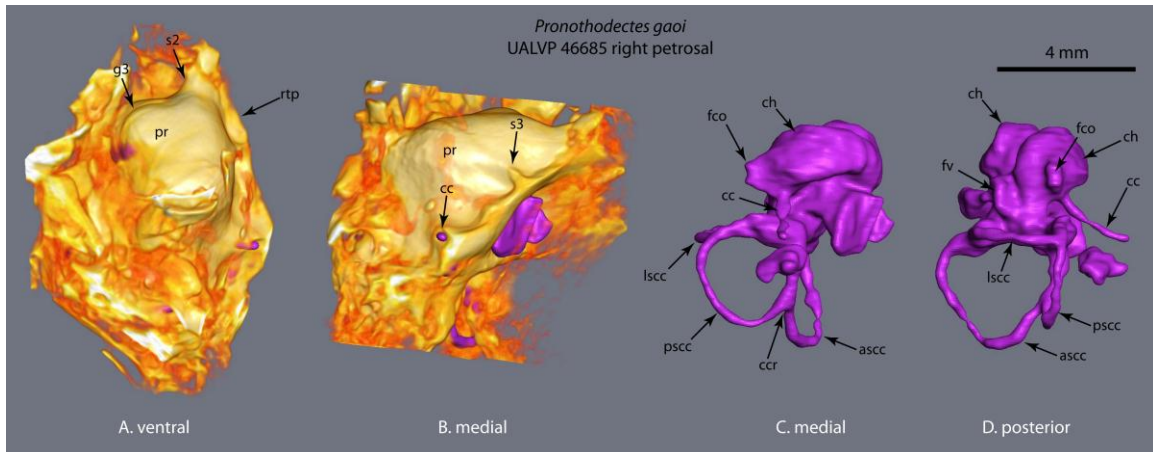


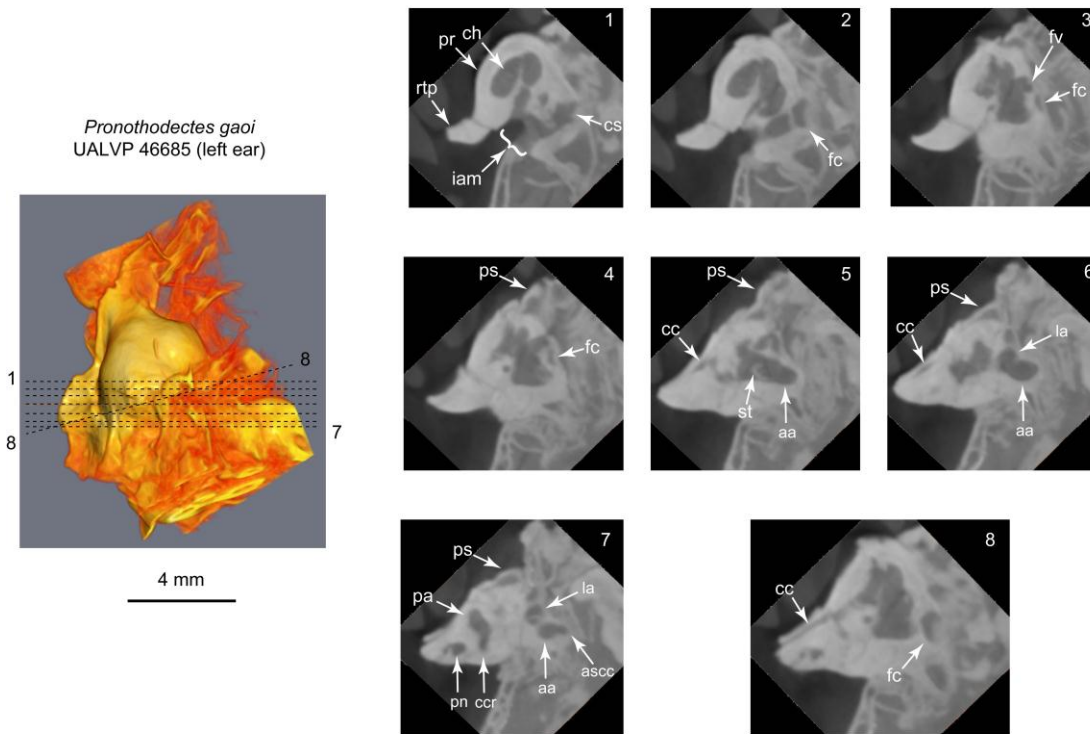
SUPPLEMENTARY FIGURES 1-7



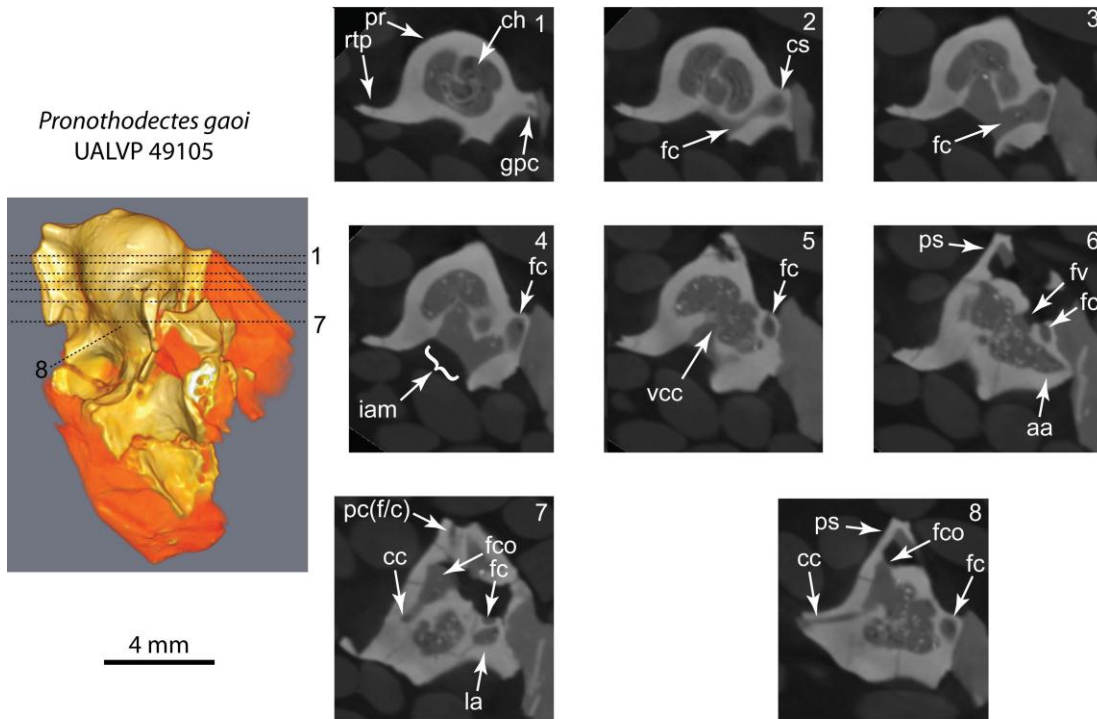
Supplementary Figure 1. Right petrosal of *Pronothodectes gaoi* UALVP 46685 digitally isolated from skull. 3d rendering in ventral view with anterior up. All images with medial to right. Cross-sections shown with ventral up. Abbreviations: aa – anterior ampulla; ascc – anterior semi-circular canal; ch – cochlea; cs – cavum supracochleare (for geniculate ganglion of facial nerve); fc – facial canal; fv – fenestra vestibuli; iam – internal acoustic meatus; la – lateral ampulla; pr – promontorium; rtp – rostral tympanic process; st – stapes.



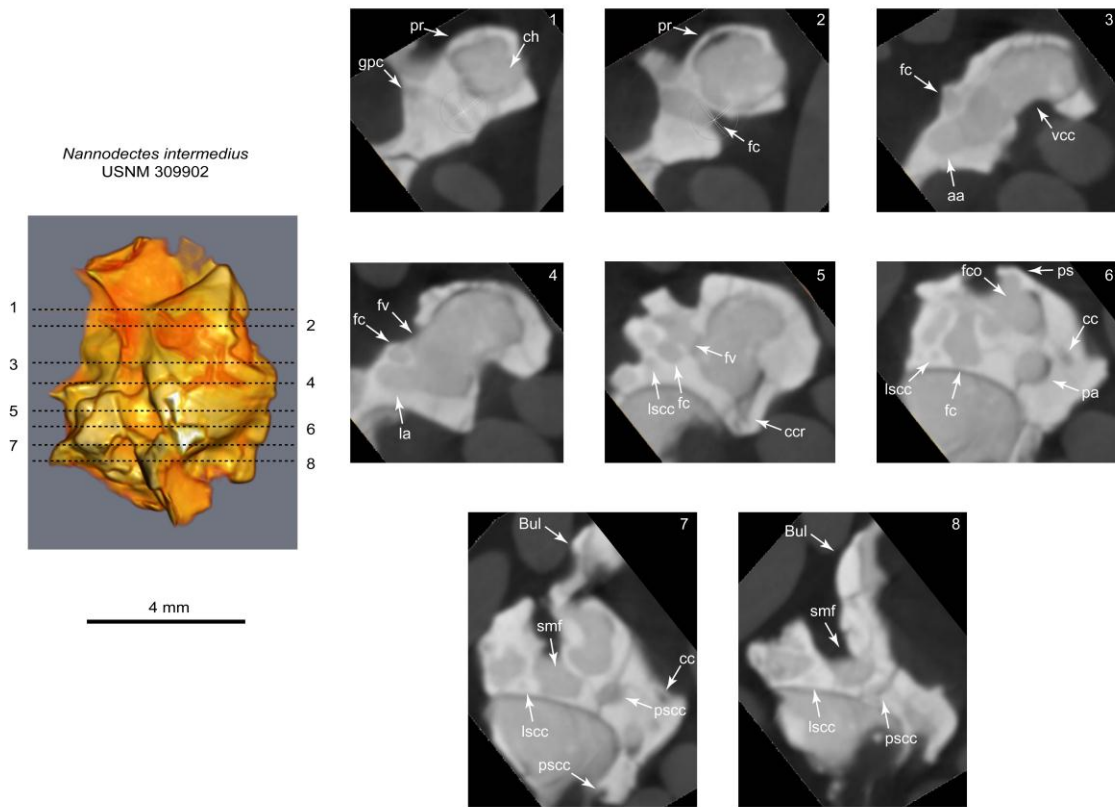
Supplementary Figure 2. Right petrosal of *Pronothodectes gaoi* UALVP 46685 digitally isolated from skull. 3d rendering in ventral view with anterior up (A). B is a medial view with ventral side up. C is the same view as B, with bone removed to show a rendering of the space within the petrosal. Not the structure labeled as cochlear canaliculus (cc) clearly emanates from the cochlea (not the vestibule). Szalay et al. (1987: figures 1-2) called this same structure in *Plesiadapis tricuspidens* the vestibular aqueduct, but these microCT data demonstrate otherwise (see also Supplementary Fig. 6). Abbreviations: aa – anterior ampulla; ascc – anterior semi-circular canal; cc – cochlear canaliculus; ccr – common crus of posterior and anterior semicircular canals; ch – cochlea; fc – facial canal; fco – fenestra cochleae; fv – fenestra vestibuli; g3 – groove that runs across promontorium to s2; la – lateral ampulla; pr – promontorium; psc – posterior semicircular canal; rtp – rostral tympanic process; st – stapes; s3 – septum medial to s2 and rostral to septum of cochlear canaliculus.



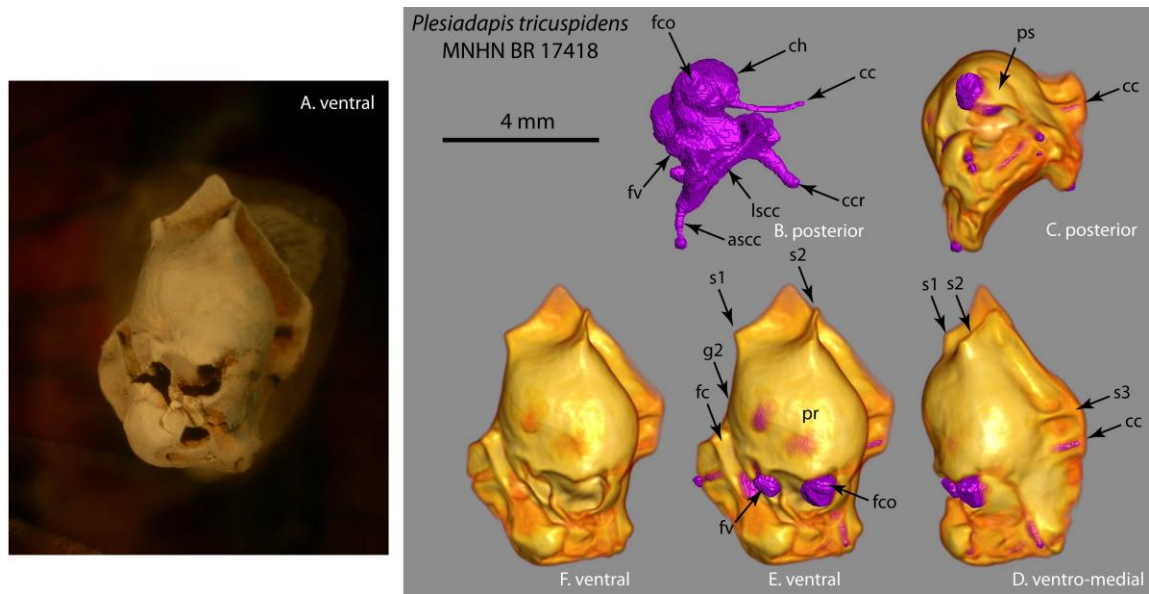
Supplemental Figure 3. Left petrosal of *Pronothodectes gaoi* UALVP 46685 digitally isolated from skull. 3d rendering in ventral view with anterior up. All images with medial to left. Cross-sections shown with ventral up. Abbreviations: aa – anterior ampulla; ascc – anterior semi-circular canal; cc – cochlear canaliculus; ccr – common crus; ch – cochlea; cs – cavum supracochleare (for geniculate ganglion of facial nerve); fc – facial canal; fv – fenestra vestibuli; iam – internal acoustic meatus; la – lateral ampulla; pn – pneumatic space; pa – posterior ampulla; pr – promontorium; ps – posterior septum; rtp – rostral tympanic process; st – stapes.



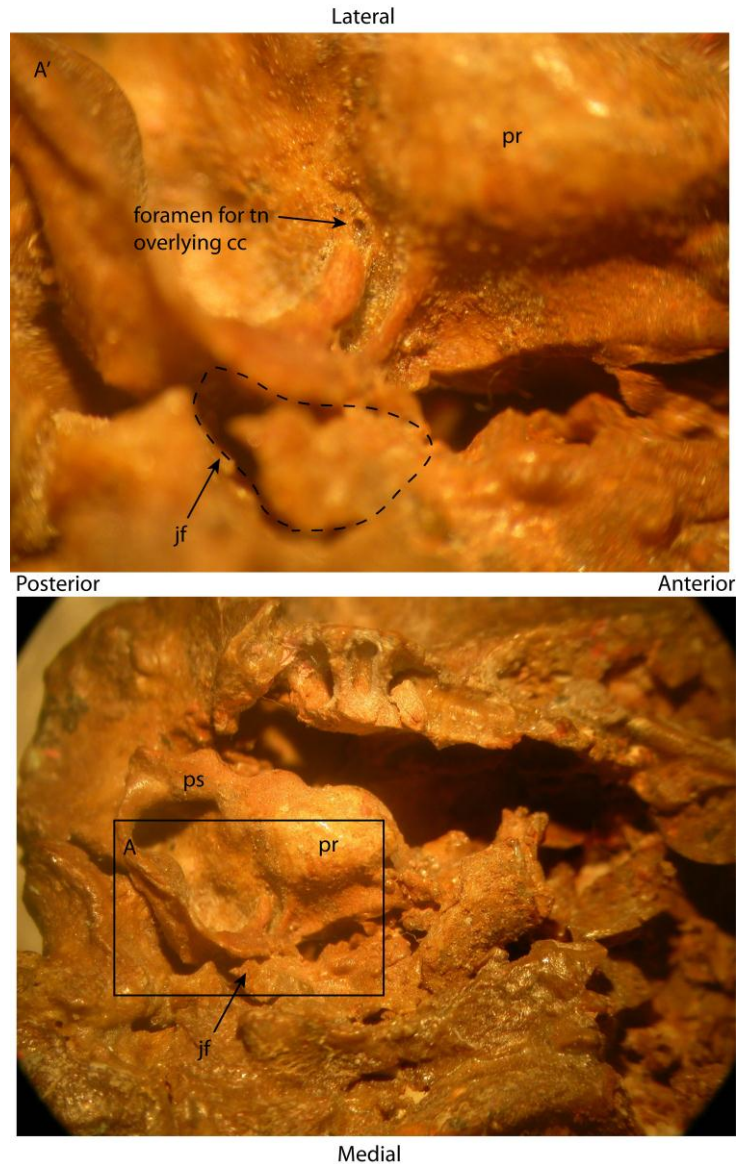
Supplemental Figure 4. Left isolated petrosal of *Pronothodectes gaoi* UALVP 49105. 3d rendering in ventral view with anterior up. All images with medial to left. Cross-sections shown with ventral up. Abbreviations: aa – anterior ampulla; ascc – anterior semi-circular canal; cc – cochlear canaliculus; ccr – common crus; ch – cochlea; cs – cavum supracochleare (for geniculate ganglion of facial nerve); fc – facial canal; fco – fenestra cochleae; fv – fenestra vestibuli; gpc – greater petrosal nerve canal; iam – internal acoustic meatus; la – lateral ampulla; pn – pneumatic space; pa – posterior ampulla; pc(f/c) – posterior carotid (foramen/canal); pr – promontorium; ps – posterior septum; rtp – rostral tympanic process; st – stapes.



Supplemental Figure 5. Left isolated petrosal of *Nannodectes intermedius* USNM 309902. 3d rendering in ventral view with anterior up. All images with medial to right. Cross-sections shown with ventral up. Abbreviations: aa – anterior ampulla; ascc – anterior semi-circular canal; cc – cochlear canaliculus; ccr – common crus; ch – cochlea; fc – facial canal; fco – fenestra cochleae; fv – fenestra vestibuli; gpc – greater petrosal nerve canal; iam – internal acoustic meatus; la – lateral ampulla; lsc – lateral semi circular canal; pa – posterior ampulla; pr – promontorium; ps – posterior septum; psc – posterior semi-circular canal; smf – stylomastoid foramen.



Supplemental Figure 6. Left isolated petrosal of *Plesiadapis tricuspidens* MNHN BR 17418 from Berru, France. A. Photograph in ventral view with anterior up. B. Posterior view (with ventral to top) of inner ear spaces. Note the cochlear canaliculus. C. Same view as B with bone superimposed. D. From position in C, the element as been rotated 90 degrees to expose the ventromedial surface. E. From D the element has been rotated slightly to yield a more directly ventral view – as shown in A and F. F is the same view as E, simply with the internal purple surfaces made invisible. This again shows the structure labeled by Szalay et al. (1987) as the vestibular aqueduct, to be the cochlear canaliculus. Abbreviations: ascc – anterior semicircular canal; cc – cochlear canaliculus; ccr – common crus; ch – cochlea; fc – facial canal; fco – fenestra cochleae; fv – fenestra vestibuli; g2 – groove crossing the promontorium that leads to s1; lsc – lateral semi circular canal; pr – promontorium; ps – posterior septum; s1 – equivalent to anterior septum of MacPhee (1981); s2 – septum medial to s1 and most likely equivalent to medial secondary septum of MacPhee (1981); s3 – septum between s2 and septum of cochlear canaliculus.



Supplementary Figure 7. *Plesiadapis tricuspidens* MNHN CR 125, ventromedial of right petrosal. Over the area of the cochlear canaliculus (cc) is an incompletely formed canal which communicates with jf and has a foramen laterally as well. Unless this represents an unusual circumstance in which the cochlear canaliculus is incomplete, it seems the communication with jugular foramen represents the tympanic canaliculus, while the groove and laterally positioned foramen are equivalent to what has been labeled “tng” and “tnc” (tympanic nerve groove and canal) *Pronothodectes* petrosals. MicroCT scans of MNHN CR 125 are needed to verify the interpretation here. Abbreviations: pr-promontorium; ps-posterior septum; jf-jugular foramen.