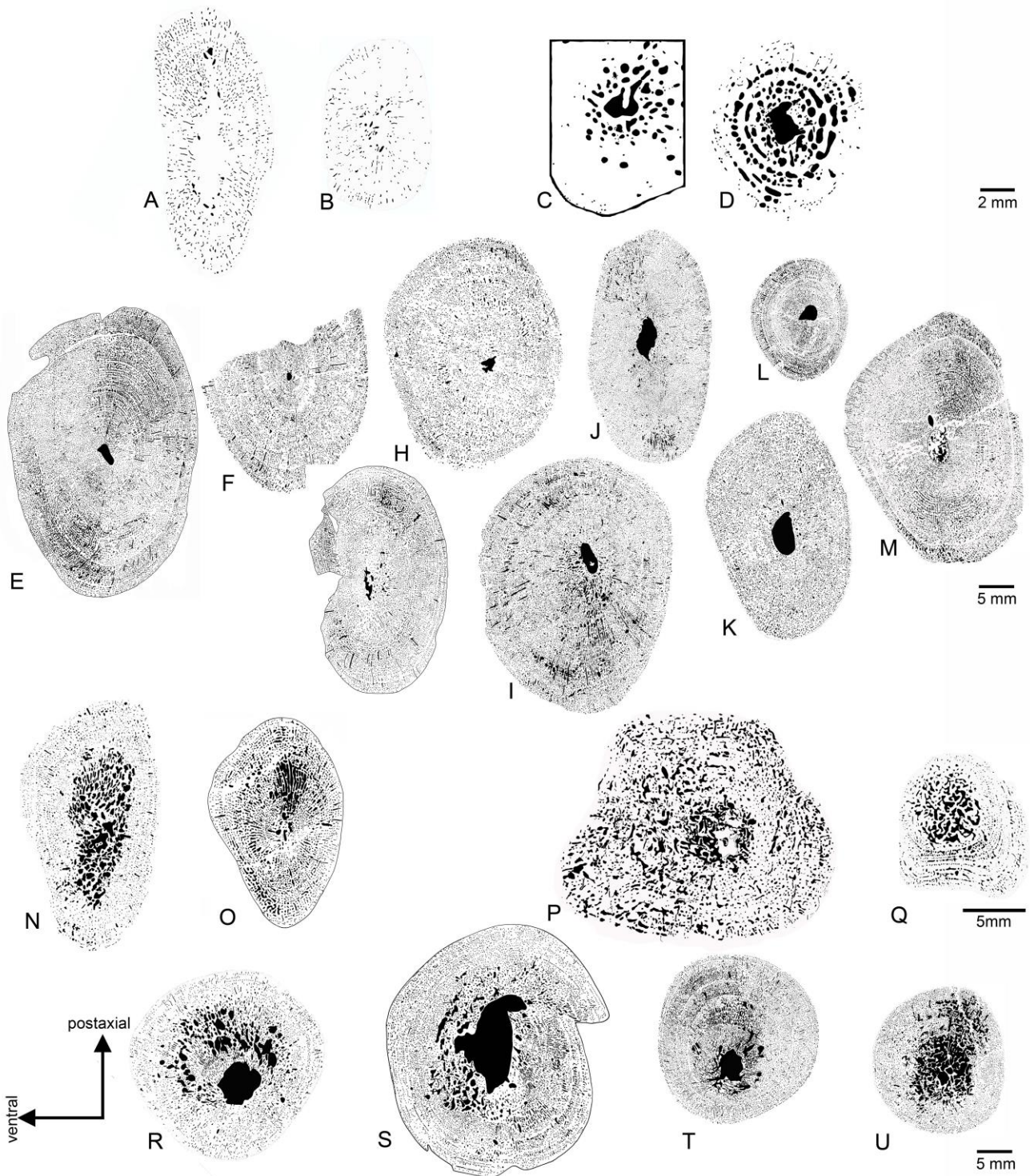


S4. Cross sections of sampled bones transformed into black (medulla and vascular cavities) and white (compact bone) pictures



A, Black and white picture of humerus and B, Femur of *Paraplagodus broilli* (PIMUZ T5845) from the Anisian/Ladinian (Besano Formation, Grenzbitumenhorizont) of the locality of Monte San Giorgio (Switzerland/Italy). Note the lack of a medullary cavity and the low number of vascular canals in both samples. C, Black and white picture of humerus (PIMUZ A/III 1476) and D, Femur (PIMUZ A/III 0735) of *Psephoderma alpinum* from the Rhaetian (Kössener Formation) of Tinzenhorn (Switzerland). Note the large medullary cavities surrounded by a distinct and large perimedullary region and the nearly avascular cortex. E-

L, Black and white pictures of humeri of Placodontia indet. aff. *Cyamodus* from the early Ladinian (Upper Muschelkalk) of southern Germany (see Table 1 for locality information). E, Black and white picture of humerus SMNS 59831. F, Black and white picture of humerus MHI 2112-6. G, Black and white picture of humerus SMNS 15891. H, Black and white picture of humerus SMNS 54569. I, Black and white picture of humerus SMNS 15937. J, Black and white picture of humerus SMNS 54582. K, Black and white picture of humerus MHI 697. L, Black and white picture of humerus MHI 1096. M, Black and white picture of humerus MHI 2112-4 of the marine reptile *Horaffia kugleri* from the middle Ladinian (Upper Muschelkalk/Keuper Grenzbonebed) of Obersontheim-Ummenhofen (Crailsheim, Baden Württemberg, Germany). Note the small medullary cavities and the high vascularization in humeri of cf. *Cyamodus* and *Horaffia kugleri*. N-U Black and white picture of humeri and femora of Placodontia indet. N, Black and white picture of placodont humerus MB.R. 454 from the early Anisian (Lower Muschelkalk) of Ohrdruf (Górny Śląsk, Poland). O, Black and white picture of placodont humerus IGWH 9 from the Anisian (Lower/Middle Muschelkalk) of Freyburg (Unstrut river valley, East-Germany). P, Black and white picture of placodont femur SMNS 84545 from the middle Ladinian (Upper Muschelkalk/Keuper) of Hegnabrunn (Franconia, Bavaria, Germany). Q, Black and white picture of placodont femur IGWH 23 from the Anisian (Lower/Middle Muschelkalk) of Freyburg (Unstrut river valley, East-Germany). Note the medullary and perimedullary regions that are merged into each other in humeri MB.R. 454, IGWH 9 and femora SMNS 84545 and IGWH 23. R, Black and white picture of placodont femur MB.R. 961 from the Ladinian (Upper Muschelkalk) of Bayreuth (Germany). S, Black and white picture of placodont femur MB.R. 814.2 from the early Anisian (Lower Muschelkalk) of Górny Śląsk (Poland). T, Black and white picture of placodont femur MB.R. 812 from the early Anisian (Lower Muschelkalk) of Opatowitz (Górny Śląsk, Poland). U, Black and white picture of placodont femur SMNS 54578 from the early Ladinian (Upper Muschelkalk) of Hegnabrunn (Franconia, Bavaria). Note the de-central medullary cavity and the mainly postaxially oriented trabecular-like bone.