Sources of codings and dates for fossils

Crussolum Shear in Shear et al., 1998: The scutigeromorph genus *Crussolum* includes one formally named species, *C. crusseratum* Shear in Shear et al. (1998), known from isolated and fragmentary legs from the Middle Devonian Gilboa locality, Schoharie County, New York State. Fossils come from the upper part of the Panther Mountain Formation, dated to the Tioughniogan regional Stage, Givetian in the global time scale. Palynomorphs are consistent with a Givetian age (Richardson et al. 1993). Legs and the forcipular segment of *Crussolum* sp. have been documented from the Windyfield Chert of the Dryden Flags Formation, Aberdeenshire, Scotland, by Anderson and Trewin (2003). An antenna was ascribed to this species by Anderson and Trewin (2003) but has not been used for coding because a hexapod identity cannot be ruled out. Spore assemblages of the Windyfield and stratigraphically underlying Rhynie Chert are dated to the early but not earliest Pragian to early (earliest?) Emsian (*polygonalis-emsiensis* Spore Assemblage Biozone) (Parry et al. 2011). Radiometric dating of the underlying Milton of Noth Andesite at ca 411 Ma (Parry et al. 2011, 2013) has been subject to a dispute over its temporal relationship to hot spring activity associated with the cherts (Mark et al. 2011; Mark et al. 2013) and predates the biostratigraphic dating of the Rhynie Chert relative to the global dating of the base of the Pragian Stage. We apply a date of the 407.6 +/- 2.6 Ma to the Rhynie and Windyfield cherts, using the Pragian-Emsian boundary as a reference. The coding for *Crussolum* draws mostly on the Windyfield Chert material, and accordingly is dated at 407.6 Ma. The oldest samples of *Crussolum* consist of isolated legs from Ludford Lane in England (Shear et al., 1998), sourced from a horizon 0.15-0.20 m above the base of the Ludlow Bone Bed Member of the Downtown Castle Sandstone Formation. The Ludlow Bone Bed Member is earliest Přidolí in age (Jeram et al., 1990).

Devonobius delta Shear and Bonamo, 1988: Described as the type species of a monotypic centipede order Devonobiomorpha, *Devonobius delta* is coded based on figured material of Shear and Bonamo (1988), all from Gilboa, New York. Stratigraphic details are identical to *Crussolum crusseratum* (see above). A minimum date for the end of the Givetian/base of the Frasnian is applied (382.7 +/- 1.6 Ma).

Mazoscolopendra richardsoni Mundel, 1979: Codings for this scolopendromorph centipede are based on descriptions and figures by Mundel (1979) and Haug et al. (2014), and personal observation by GDE of material in the Field Museum of Natural History, Chicago. Specimens are derived from the Francis Creek Shale Member of the Carbondale Formation, Mazon Creek, Illinois, of Westphalian D age (Shabica and Hay 1997). In the global time

scale, this falls within the Moscovian Stage. A date for the top of the Moscovian/base of the Kasimovian is applied (307.0 +/-0.1 Ma).

Kachinophilus pereirai Bonato et al., 2014: Coding of this geophilomorph centipede is based on the original description and direct study of the type material (Bonato et al. 2014b). U-Pd dating of zircons in rock matrix in ”burmite” (Burmese amber) establishes a maximum age of 98.79 +/- 0.62Ma (early Cenomanian) for amber inclusions (Shi et al. 2012).

Cowiedesmus eroticopodus Wilson and Anderson, 2004: This species is one of three co-occurring species assigned to Archipolypoda, an extinct superordinal level grouping identified as Chilognatha (Wilson and Anderson, 2004). These represent the oldest body fossils of Diplopoda. Coding is based on the original description and figures of the holotype by Wilson and Anderson (2004) and personal examination by GDE of the specimen in the Australian Museum. This species occurs in the *Dictyocaris* Member of the Cowie Formation in the Stonehaven Group, Stonehaven, Scotland. As summarized by Wilson and Anderson (2004), associated palynomorphs date the unit to the late Wenlock to early Ludlow (Silurian). A minimum date for the early Ludlow uses the base of the Ludfordian Stage (425.6 +/- 0.9 Ma).

Archidesmus macnicoli Peach, 1882: Selected to supplement *Cowiedesmus* in providing morphological characters for Archipolypoda, coding is based on the revision of this species by Wilson and Anderson (2004). Specimens figured therein come from the Dundee Formation in the Arbuthnott Group, Tillywhandlung Quarry, near Forfar, Scotland. Miospores date the unit to the *micrornatus-newportensis* biozone, of Lochkovian (Lower Devonian) age (Wilson and Anderson 2004). A minimum date is applied to the Lochkovian-Pragian boundary (410.8 +/- 2.8 Ma).

Gaspestria genselorum Wilson, 2006: Coding of this diplopod is based on the original description and published illustrations by Wilson (2006), who interpreted *G. genselorum* as the oldest juliformian, and new photographs of the types (Edgecombe 2015, fig. 14.1). Wilson (2006) reviewed the plant megafossil and spore constraints on the age of the two units in which the species occurs, the Cap-aux-Ocs Member of the Battery Point Formation (Gaspé, Québec) and the Campbelltown Formation (New Brunswick). Spores at the Gaspé site are assigned to the *sextantii* Subzone of the *annulatus-lindlarensis* Zone and those of the New Brunswick site to the *Grundiospora* Subzone of the *annulatus-lindlarensis* Zone. Both are of late Emsian age. A minimum date of 393.3 +/- 1.2 Ma is accordingly applied, constrained by the Emsian-Eifelian boundary.

Proscorpius osborni (Whitfield, 1885): This species was selected as being an anatomically well-understood Silurian scorpion (Whitfield 1885), using the revision by Dunlop et al. (2008) for coding. Formerly known as the 'Bertie Waterlime', the stratigraphic unit from which the material was sourced is the Phelps Member of the Fiddlers Green Formation, in the Bertie Group, New York State. This unit is dated to the Přídolí Series of the Silurian (Dunlop et al. 2008), and assigned a minimal age of 419.2 +/- 3.2 Ma (dating the Přídolí-Lochkovian boundary).

Rehbachiella kinnekullensis Müller, 1983: The monographic revision by Walossek (1993) was used for coding. Material documented therein was derived from four localities of the late Cambrian *Orsten* in southern Sweden. These are assigned to the *Agnostus pisiformis* Zone and, less commonly, to the overlying *Olenus gibbosus* Zone (late Guzhangian and earliest Paibian, respectively: Nielsen et al. (2014)). Because some of the material is demonstrably Guzhangian, a minimal date is applied to the bases of the Furongian and Paibian, 497 Ma.

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