



First records of *Parergodrilus heideri* (Annelida: “Polychaeta”) from North America

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Parergodrilus heideri Reisinger, 1925 is one of two species of the family Parergodrilidae (together with the marine littoral, interstitial species *Stygocapitella subterranea* Knöllner, 1934) and one of only two truly soil-dwelling “polychaetes” (the other being *Hrabeiella periglandulata* Pižl and Chalupský, 1984) that are predominantly known from terrestrial habitats (Reisinger 1925, 1960; Römbke and Jans 1991; Chalupský 1992; Graefe 1993; Rota 1997, 1998; Purschke 1999; Rota et al. 2001; Beylich and Graefe 2007; Martínez-Ansemil and Parapar 2009; Rota et al. 2010). Due to its small body size (adults up to 1 mm) and sensitivity to desiccation, the species has usually been found by researchers using some type of wet extraction for soil mesofauna, such as enchytraeids and free-living flatworms (“turbellarians”). However, due to its similar chaetae, *Parergodrilus heideri* can be easily mistaken for a freshly hatched enchytraeid, even by enchytraeid specialists without experience with this species.

Until recently, the species has been known only from Europe, ranging from southern Sweden in the north to southern Italy in the south and from north-eastern Spain in the west to northern Croatia in the east (an up-to-date overview of its distribution with references to published records was given by Rota et al. [2010]; see also references above). The first and only record outside of Europe was recently published by Dózsa-Farkas and Hong (2010) from Korea. That record from a single locality indicated that the genus and species have a much wider distribution than previously assumed.

We found *Parergodrilus heideri* at two sites within a study on the impact of earthworm invasion on enchytraeid assemblages (Annelida: Clitellata: Enchytraeidae) in northern hardwood forests of North America, previously devoid of any earthworms, conducted between autumn 2010 and summer 2011 (results to be published later, see also Eisenhauer et al. 2011). These are the first records from North America and thus of high faunistic importance. Together with the above-mentioned records from Europe and Korea they show that the species occurs on all three continents of the Holarctic.

Several papers have summarized and contributed to our knowledge on the morphology and systematic (phylogenetic) position of the species (Purschke 1999; Rota et al. 2001; Jördens et al. 2003) and we could not provide any new insights in this respect. However, we believe that our records not only substantially expand the known distribution area of the species but also provide important additional information on its range of habitats and thus autecology. In the following, we will provide details on the specimens and exact locations where these were obtained, sampling method, and a description of the habitats. Based on this information we will also advance some ideas on the origin of these populations and the species’ habitat requirements, comparing our data with those of other authors.

The two study sites were forests situated 250 km apart in northern Minnesota (Chippewa National Forest) and northern Wisconsin (Chequamegon section of Chequamegon-Nicolet National Forest), USA (Figure 1): The site within the Chippewa National Forest was situated on the Ottertail Peninsula at Leech Lake, being identical to the “Section 19” site in Hale et al. (2005), geographic coordinates: 47°16′0.00″ N, 94°23′48.60″ W (corresponding to the current position of the leading edge of earthworm invasion along the studied transect with a length of 390 m at 443–449 m a.s.l.; see explanation further below).

The other site, within the Chequamegon-Nicolet National Forest, was situated at Tower Lake in the Rainbow Lake Wilderness north of the town of Drummond, geographic coordinates: 46°26′3.06″ N, 91°19′36.00″ W (position of leading edge as above; length of transect 700 m from 380 m to 405 m a.s.l.).

Both study sites were covered with mesic forests approximately 80–100 years old after logging in the early 1900s.