STUDIES ON *GEOCENAMUS* SPECIES FROM GERMANY
(NEMATODA, DOLICHODORIDAE)

BY

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The three known *Geocenamus* species, *G. tenuidens* Thorne & Malek, 1968, *G. arcticus* (Mulvey, 1969) and *G. longus* (Wu, 1969), are recorded from Germany and additional information on their morphology, distribution and ecology given. *Merlinius polonicus* (Szczygiel, 1970) is synonymized with *G. tenuidens*. The five German populations of this species differ from both type populations by greater body, spear, spicula and gubernaculum length. A single population of *G. arcticus* was found. The only reliable character separating this species from *G. tenuidens* appears to be the smooth tail tip. *G. longus*, which was recovered at 16 places from forest and non-agricultural soils, possesses all the features which characterize the *Merlinius tessellatus* group and is designated *M. longus* (Wu, 1969) comb. nov.

At present three species are included in the genus *Geocenamus* Thorne & Malek, 1968: *G. tenuidens* Thorne & Malek, 1968, *G. arcticus* (Mulvey, 1969) Tarjan, 1973, and *G. longus* (Wu, 1969) Tarjan, 1973. They were originally described from North America; later *G. arcticus* was recorded from Spitzbergen and *G. longus* from Poland.

Populations of all three species were found in the Federal Republic of Germany, where *G. longus* is widely distributed. Their morphology, range of variation and taxonomic status are discussed and additional information on their ecology and bionomics given. Specimens were fixed in TAF (only the *G. tenuidens* population `Blankenrode' in FAA) and transferred to pure glycerin. Paratypes and other specimens of *G. tenuidens* from the USA and types of *Merlinius polonicus* (Szczygiel, 1970) Tarjan, 1973 were available for comparison.

*Geocenamus tenuidens* Thorne & Malek, 1968

Thorne & Malek (1968) described *G. tenuidens* from prairie sod near Rugby, North Dakota, and designated it as type species of the new genus *Geocenamus*. The species description is brief, several important characters were not mentioned and nothing is reported about morphological variation. Siddiqi (1979) gave additional information on paratypes of *G. tenuidens*.

For my studies paratypes of *G. tenuidens* (2♂♂, 2♀♀), topotypes collected July 26, 1972 (2♂♂, 6♀♀) and specimens from Monitor Pass, Markleeville,
California, collected July 12, 1971 (1♂, 5♀♀) were available, as well as holotype ♀, allotype ♂ and four paratype ♀♀ of Merlinius polonicus. Since no differences in morphology or measurements between these two species could be found, M. polonicus is synonymized with G. tenuidens.

Geocenamus populations from Germany agree in all morphological characters with the G. tenuidens and M. polonicus type specimens from the U.S.A. and Poland, except for some measurements (length of body, spear, spicules and gubernaculum). The dimensions of most German populations are similar but smaller than those of population 'Blankenrode'. As no differences other than morphometric ones could be found, all populations are regarded as members of the species G. tenuidens, which makes it a species with a remarkable range of certain dimensions.

Morphology

Measurements from original descriptions of G. tenuidens and M. polonicus, of the G. tenuidens paratypes studied and of populations from Germany agree in most dimensions (Table I). Specimens from Germany are rather long and the c-value mentioned in the description of G. tenuidens is remarkably small. Greatest variation is in spear length, which may be due in part to the fact that the fine tip is often difficult to see.

The G. tenuidens paratypes and the additional specimens from the U.S.A. studied, the M. polonicus types from Poland and the populations from Germany have the following characters in common:

Body almost straight to C-shaped. Outer cuticle layer and hypodermis finely annulated; annules about 1 μm wide. No longitudinal striation; only the most anterior body annules with irregular longitudinal striae sometimes visible. Inner cuticle layer with smooth refractive surface, thinner than outer layers but increasing in thickness towards the posterior end. Lateral fields areolated especially on anterior and posterior ends of the body. Deirids lacking. Phasmids prominent, mostly anterior to middle of tail.

Lip region offset by constriction, with five to seven annules plus perioral disc, divided into six sectors by longitudinal incisions. Labial framework light. Chelirhabdions of moderate length (5-6 μm), anterior ends thickened, not reaching surface of lip region and not lining margins of perioral disc (as figured in the original description of G. tenuidens). Spear slender, with rather weak, posteriorly sloping basal knobs; lumen of posterior part distinct. Orifice of dorsal esophageal gland close to spear base. Median bulb with conspicuous, 4-6 μm long refractive pump linings; basal bulb rather short, flask-shaped. Excretory pore anterior to slightly posterior basal bulb, immediately to 13 annules behind hemizonid, which is three to four annules long.

Tail of females elongate-conoid to almost subcylindrical, with rounded and annulated tip. Tail in the G. tenuidens paratype females 43 and 49 μm long, with 45 and 47 annules, in females from Germany 46-77 μm long, with 50-80 annules. Post-rectal blind sac absent. Male tail terminus usually without distinct constriction.

Spermathecae with two lobes, more or less rounded when completely filled with sperms. Outer half of vagina thickened; epiptygmata present. Spicules slightly arcuate, distal end notched. Gubernaculum ventrally curved, not modified. Hypopygymata distinct. Spicules in one paratype male of G. tenuidens 18.5 μm long, in the M. polonicus allotype 19.5 μm (original description and own measurement). The spicules measured 28 (26.5-31) μm and the gubernaculum 9.5 (9-10) μm in population ‘Blankenrode’ (n = 8), 23 (22-25) μm and 8 (7.5-8.5) μm, respectively, in the other populations from Germany (n = 7).