

Checklist of free living nematodes recorded from freshwater habitats in Southern Africa

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Abstract

A checklist is given of about 150 species of aquatic and semi-aquatic free living nematodes recorded from freshwater as well as from mud and wet soil adjoining water bodies, from South Africa, Botswana and Namibia.

Introduction

The recently published key to genera of freshwater nematodes of Southern Africa (Heyns, 2002) did not list species, except in the case of a very few genera. A checklist is now presented for all freshwater species recorded from South Africa, Botswana and Namibia. It may serve as a supplement to the key. It should be noted, however, that while the key included all genera or higher taxa of which representatives have been recorded from freshwater, or semi-aquatic habitats often bordering on water bodies, the present checklist is limited to those species only which are known or assumed to be able to live and reproduce in aquatic or semi-aquatic habitats, where they occupy a variety of niches in the ecosystem. At the same time it excludes those soil-living species, which are frequently washed into water bodies through the action of runoff rain or irrigation water. They end up in the benthos where they may survive for relatively long periods, but since they do not feed or reproduce here, they cannot play any significant role in the

aquatic ecosystem (Heyns 1976; 2002). For this reason they are not included in the checklist, even though most publications on freshwater nematodes record these accidentals, probably for the sake of completeness. On the other hand there are some species, which can apparently live equally well in aquatic, semi-aquatic and terrestrial habitats. Where a particular publication lists such a species from more than one habitat, this is indicated in the checklist by using the following codes: aq (aquatic); s-aq (semi-aquatic) and t (terrestrial).

Synonyms are cited only when the species concerned have been recorded under names or genus-species combinations different from those currently in use. The number of the reference together with the code is then given after the name under which the species was recorded. Where the same species has been recorded more than once, but under different names or combinations, the relevant reference numbers and codes are given after each listing.

The classification followed in the checklist is a synthesis of those employed by Andr assy (1976; 1984) and Goodey (1963).

Order Rhabditida Oerley, 1880 (Chitwood, 1933)		
Family Rhabditidae Oerley, 1880 Genus <i>Rhabditis</i> Dujardin, 1845 <i>R. oxycerca</i> (De Man, 1895) Dougherty, 1955 Genus <i>Mesorhabditis</i> Osche, 1952 (Dougherty, 1953) <i>M. striatica</i> Dassonville and Heyns, 1984 Genus <i>Diploscapter</i> Cobb, 1913 <i>D. coronata</i> (Cobb, 1893) Cobb, 1913	Dassonville (1981): Dassonville & Heyns (1984): Dassonville (1981):	aq aq aq
Family Cephalobidae Filipjev, 1934 Genus <i>Paracrobeles</i> Heyns, 1968 <i>P. laterellus</i> Heyns, 1968	Rashid et al. (1990):	s-aq

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<p>Family Diplogasteridae Micoletzky, 1922 Genus <i>Metadiplogaster</i> Weingärtner, 1955 (Meyl, 1961) <i>M. secundus</i> Dasonville and Heyns, 1984 Genus <i>Paroigolaimella</i> Paramonov, 1952 <i>P. bernensis</i> (Steiner, 1914) Andrassy, 1958</p> <p>Family Diplogasteroididae Filipjev and Schuurmans Stekhoven, 1941 Genus <i>Rhabditoides</i> Rahm, 1928 <i>R. stigmatus</i> (Steiner, 1930) Andrassy, 1984 syn. <i>Anchidiplogasteroides stigmatus</i> (Steiner, 1930) Paramonov, 1964 Genus <i>Goffartia</i> Hirschmann, 1952 <i>G. africana</i> (Micoletzky, 1916) Hirschmann, 1952 syn. <i>Diplogasteroides africanus</i> Micoletzky, 1916</p> <p>Family Diplogasteridae Micoletzky, 1922 Genus <i>Diplogasteritus</i> Paramonov, 1952 <i>D. nudicapitatus</i> (Steiner, 1914) Paramonov, 1952 syn. <i>Acrostichus nudicapitatus</i> (Steiner, 1914) Massey, 1962</p> <p>Family Neodiplogasteridae Paramonov, 1952 (Andrassy, 1984) Genus <i>Mononchoides</i> Rahm, 1928 <i>M. aquaticus</i> Dasonville and Heyns, 1984 <i>M. changi</i> Goodrich, Hechler and Taylor, 1968 <i>M. gracilis</i></p> <p>Family Teratocephalidae Andrassy, 1958 Genus <i>Euteratocephalus</i> Andrassy, 1958 <i>E. capensis</i> Heyns, 1977 <i>E. palustris</i> (De Man, 1880) Andrassy, 1958 <i>E. spiralooides</i> (Micoletzky, 1913) Heyns, 1977 Syn. <i>Euteratocephalus hirschmannae</i> Heyns, 1977</p>	<p>Dasonville & Heyns (1984): Dasonville & Heyns (1984): Dasonville & Heyns (1984): Micoletzky (1916): Dasonville & Heyns (1984): Dasonville & Heyns (1984): Andrassy (1970): Dasonville (1981): Dasonville & Heyns (1984): Heyns (1977): Swart et al (1991): Heyns (1977): Swart et al. (1991):</p>	<p>aq aq aq aq aq aq aq aq aq aq aq aq</p>
Order Tylenchida Filipjev, 1934 (Thorne, 1949)		
<p>Family Dolichodoridae Chitwood, 1950 (Skarbilovich, 1959) Genus <i>Neodolichodorus</i> Andrassy, 1976 <i>N. paralongicaudatus</i> Rashid, Geraert and Heyns, 1990</p> <p>Family Hoplolaimidae Filipjev, 1934 (Wieser, 1953) Genus <i>Helicotylenchus</i> Steiner, 1945 <i>H. africanus</i> (Micoletzky, 1916) Andrassy, 1958 syn. <i>Tylenchus africanus</i> Micoletzky, 1916</p> <p>Family Hemicycliophoridae Skarbilovich, 1959 (Geraert, 1966) Genus <i>Hemicycliophora</i> De Man, 1921 <i>H. labiata</i> Colbran, 1960 <i>H. lutosa</i> Loof and Heyns, 1969</p>	<p>Rashid et al. (1990): Botha & Heyns (1993b): Micoletzky (1916): Botha & Heyns (1993b): Loof & Heyns (1969): Loof & Heyns (1969):</p>	<p>s-aq aq aq aq; s-aq s-aq</p>
Order Aphelenchida Fuchs, 1937		
<p>Family Aphelenchoididae Skarbilovich, 1947 (Paramonov, 1953) Genus <i>Aphelenchoides</i> Fischer, 1894 <i>D. africanus</i> Dasonville and Heyns, 1984</p>	<p>Dasonville & Heyns (1984):</p>	<p>aq</p>
Order Araeolaimida De Coninck and Schuurmans Stekhoven, 1933		
<p>Family Leptolaimidae Oerley, 1880 Genus <i>Chronogaster</i> Cobb, 1913 <i>C. africana</i> Heyns and Coomans, 1980</p>	<p>Botha & Heyns (1992c): Heyns & Coomans (1980):</p>	<p>aq; aq, t</p>

Order Enoplida Baird, 1853 (Chitwood, 1933)		
<p>Family Oncholaimidae Filipjev, 1918 (Baylis and Daubney, 1926) Genus <i>Oncholaimus</i> Dujardin, 1845 <i>O. deconincki</i> Heyns and Coomans, 1977 <i>O. jessicae</i> Coomans and Heyns, 1986</p>	<p>Heyns & Coomans (1977) : Coomans & Heyns (1986):</p>	<p>aq aq</p>
<p>Family Mononchulidae De Coninck, 1965 Genus <i>Mononchulus</i> Cobb, 1918 <i>M. nodicaudatus</i> (Daday, 1899) Cobb, 1918</p>	<p>Coomans et al.(1995):</p>	<p>aq</p>
<p>Family Tripylidae Oerley, 1880 Genus <i>Tripyla</i> Bastian, 1865 <i>T. glomerans</i> Bastian, 1865 Genus <i>Tobrilus</i> Andrassy, 1959 <i>T. ampiei</i> (Joubert and Heyns, 1979) <i>T. diversipapillatus</i> (Daday, 1905) Andrassy, 1959</p>	<p>Andrassy (1970):</p>	<p>aq</p>
<p><i>T. elephas</i> Andrassy, 1964 <i>T. floridensis</i> Joubert and Heyns, 1979 <i>T. gracilis</i> (Bastian, 1865) Andrassy, 1959 syn. <i>Trilobus gracilis</i> Bastian, 1865 <i>T. longus</i> (Leidy, 1852) Andrassy, 1959</p>	<p>Joubert & Heyns (1979): Dassonville (1981): Joubert & Heyns (1979): Andrassy (1970): Joubert & Heyns (1979):</p>	<p>aq aq; aq aq aq</p>
<p><i>T. stefanskii</i> (Micoletzky, 1925) Andrassy, 1959</p>	<p>Micoletzky (1916); Andrassy (1970): Argo & Heyns (1973): Andrassy (1970): Joubert & Heyns (1979)</p>	<p>aq aq; aq aq; aq</p>
<p>Genus <i>Eutobrilus</i> Tsalolikhin, 1981 <i>E. annetteae</i> (Joubert and Heyns, 1979) Tsalolikhin, 1981 syn. <i>Tobrilus annetteae</i> Joubert and Heyns, 1979 <i>E. heptapapillatus</i> (Joubert and Heyns, 1979) Tsalolikhin, 1981</p>	<p>Botha & Heyns (1992c): Joubert & Heyns (1979): Joubert & Heyns (1979): Swart & Heyns (1990): Swart & Heyns (1990):</p>	<p>aq aq aq aq aq</p>
<p>syn. <i>Trobrillus heptapapillatus</i> Joubert and Heyns, 1979</p>		
<p>Genus <i>Tobriloides</i> Loof, 1973 <i>T. loofi</i> Swart and Heyns, 1990</p>	<p>Swart & Heyns (1990):</p>	<p>s.aq</p>
<p>Family Prigmatolaimidae Micoletzky, 1922 Genus <i>Limonchulus</i> Andrassy, 1963 <i>L. heynsi</i> Swart and Furstenberg, 1993</p>	<p>Swart & Furstenberg (1993):</p>	<p>aq</p>
<p>Genus <i>Caprionchulus</i> Swart and Heyns, 1993 <i>C. diversipapillatus</i> Swart and Heyns, 1993</p>	<p>Swart & Heyns (1993):</p>	<p>aq</p>
<p>Genus <i>Onchulus</i> Cobb, 1920 <i>O. capriviensis</i> Swart and Furstenberg, 1993</p>	<p>Swart & Furstenberg (1993):</p>	<p>aq</p>
<p>Family Ironidae De Man, 1876 Genus <i>Ironus</i> Bastian, 1865 <i>I. crassatus</i> Argo and Heyns, 1972 <i>I. ernsti</i> Argo and Heyns, 1972 <i>I. ignavus</i> Bastian, 1865 <i>I. longicaudatus</i> De Man, 1884 <i>I. tenuicaudatus</i> De Man, 1876</p>	<p>Argo & Heyns (1972): Argo & Heyns (1972): Botha & Heyns (1993b): Botha & Heyns (1992c): Andrassy (1970):</p>	<p>aq s-aq aq aq aq</p>
Order Dorylaimida Pearce, 1942		
<p>Family Dorylaimidae De Man, 1876 Genus <i>Dorylaimus</i> Dujardin, 1845 <i>D. afghanicus</i> Andrassy, 1960 <i>D. asymphydorus</i> Andrassy, 1969</p>	<p>Andrassy (1970): Dassonville (1981): Kleynhans (1970): Botha & Heyns (1991): Andrassy (1970):</p>	<p>aq aq; aq aq aq</p>
<p><i>D. deaconi</i> Botha & Heyns, 1991 <i>D. pachys</i> Andrassy, 1970</p>		

<i>D. stagnalis</i> Dujardin, 1845	Micoletzky (1916):	aq
<i>D. stenus</i> Andrásy, 1970	Andrásy (1970):	aq
<i>D. tepidus</i> Andrásy, 1959	Andrásy (1970):	aq
<i>D. unicus</i> Andrásy, 1970	Andrásy (1970):	aq
Genus <i>Ischiodorylaimus</i> Andrásy, 1969		
<i>I. bathypyla</i> Andrásy, 1970	Andrásy (1970):	aq
<i>I. gulliver</i> (Andrásy, 1964) Andrásy, 1969	Andrásy (1970):	aq
<i>I. tessares</i> Kleynhans, 1970	Kleynhans (1970):	aq
Genus <i>Laimydorus</i> Siddiqi, 1969		
<i>L. africanus</i> Botha and Heyns, 1993	Botha & Heyns (1993a):	aq
<i>L. flavomaculatus</i> (v. Linstow, 1876) Siddiqi, 1969 syn. <i>Dorylaimus flavomaculatus</i> v. Linstow, 1876	Micoletzky (1916):	aq
<i>L. gazella</i> Andrásy, 1970	Andrásy (1970):	aq
<i>L. olifanti</i> Botha and Heyns, 1991	Botha & Heyns (1991):	aq
synonym of <i>L. simplex</i> (Baqri and Jana, 1983) Loof, 1996 according to Loof, 1996		
Genus <i>Namaquanema</i> Heyns and Swart, 1993		
<i>N. hanki</i> Heyns and Swart, 1993	Heyns & Swart (1993):	s-aq
Genus <i>Mesodorylaimus</i> Andrásy, 1959		
<i>M. aegypticus</i> (Andrásy, 1958) Andrásy, 1959		
<i>M. arvensis</i> (Cobb in Thorne and Swanger, 1936) Andrásy, 1959	Botha & Heyns (1992a):	aq;
<i>M. bainsi</i> Basson and Heyns, 1974	Dassonville (1981):	aq
<i>M. bastiani</i> (Bütschli, 1873) Andrásy, 1959 syn. <i>Dorylaimus bastiani</i> Bütschli, 1873	Basson & Heyns (1975):	aq, t;
<i>M. importunus</i> Basson and Heyns, 1974	Heyns & Kruger (1983):	aq
<i>M. intermedius</i> Dassonville and Heyns, 1984	Basson & Heyns (1975):	aq, s-aq
<i>M. kowyni</i> Basson and Heyns, 1974		
<i>M. mesonyctius</i> (Kreis, 1930) Andrásy, 1959	Micoletzky (1916):	aq
<i>M. paralitoralis</i> Basson and Heyns, 1974	Basson & Heyns (1975):	s-aq
<i>M. potus</i> Heyns, 1963	Dassonville & Heyns (1984):	aq
<i>M. pseudosubtilis</i> Basson and Heyns, 1974	Basson & Heyns (1975):	s-aq
<i>M. usitatus</i> Basson and Heyns, 1974	Basson & Heyns (1975):	aq;
<i>M. vaalensis</i> Heyns and Kruger, 1983	Heyns & Kruger (1983):	aq
Possibly a synonym of <i>M. alpestris</i> (Thorne, 1939) Andrásy, 1959	Basson & Heyns (1975):	aq
Genus <i>Drepanodorylaimus</i> Jairajpuri, 1966	Botha & Heyns (1992a):	aq;
<i>D. williamsi</i> (Heyns and Kruger, 1983) Andrásy, 1986 syn. <i>Mesodorylaimus williamsi</i> Heyns and Kruger, 1983	Heyns & Kruger (1983):	aq
Genus <i>Prodorylaimus</i> Andrásy, 1959		
<i>P. ensis</i> Kleynhans, 1970	Kleynhans (1970):	s-aq, t
Genus <i>Thornenema</i> Andrásy, 1959		
<i>T. baldum</i> (Thorne, 1939) Andrásy, 1959	Botha & Heyns (1992a):	s-aq
Family Aporcelaimidae Heyns, 1965		
Genus <i>Aporcelaimellus</i> Heyns, 1965		
<i>A. glandus</i> Botha and Heyns, 1991	Botha & Heyns (1991):	aq, s-aq
<i>A. micropunctatus</i> Botha and Heyns, 1990	Botha & Heyns (1991):	aq
<i>A. obtusicaudatus</i> (Bastian, 1865) Altherr, 1968	Andrásy (1970):	aq
Family Nordiidae Jairajpuri and A.H. Siddiqi, 1964		
Genus <i>Lenonchium</i> Siddiqi, 1965		
<i>L. fimbriicaudatum</i> Swart and Heyns, 1991	Swart & Heyns (1991b):	s-aq;
	Botha & Heyns (1991):	aq
Family Actinolaimidae Thorne, 1939		
Genus <i>Neoactinolaimus</i> Thorne, 1967		
<i>N. africanus</i> (Filipjev, 1929) Thorne, 1967 syn. <i>Actinolaimus africanus</i> Filipjev, 1929	Filipjev (1929):	aq;

<p><i>N. barbieri</i> Vinciguerra and Heyns, 1984 <i>N. brachydorus</i> Vinciguerra and Heyns, 1984 <i>N. crassidens</i> Heyns and Argo, 1970 <i>N. vaalensis</i> Andrásy, 1970 Genus <i>Mactinolaimus</i> Andrásy, 1970 <i>M. hutchinsoni</i> (Filipjev, 1929) Thorne, 1967 syn. <i>Actinolaimus hutchinsoni</i> Filipjev, 1929 <i>M. transkeiensis</i> (Heyns and Argo, 1970) Vinciguerra, 1987 syn. <i>Neoactinolaimus transkeiensis</i> Heyns and Argo, 1970 Genus <i>Paractinolaimus</i> Meyl, 1957 <i>P. macrolaimus</i> (De Man, 1880) Andrásy, 1964 syn. <i>Dorylaimus macrolaimus</i> De Man, 1880 <i>P. xosorum</i> Heyns and Argo, 1970 Genus <i>Afractinolaimus</i> Andrásy, 1970 <i>A. capensis</i> (Heyns and Argo, 1970) Vinciguerra and Heyns, 1984 syn. <i>Paractinolaimus capensis</i> Heyns and Argo, 1970 <i>A. magaliesmontanus</i> (Heyns and Argo, 1970) Vinciguerra and Heyns, 1984 syn. <i>Paractinolaimus magaliesmontanus</i> Heyns and Argo, 1970 <i>A. noblei</i> Andrásy, 1970 <i>A. zairensis</i> (Baqri, Coomans and Van der Heiden, 1975) Vinciguerra and Heyns, 1984 Genus <i>Actinca</i> Andrásy, 1964 <i>A. intermedia</i> Andrásy, 1968 Family Carcharolaimidae Thorne, 1967 Genus <i>Carcharolaimus</i> Thorne, 1939 <i>C. crassicosatus</i> Heyns and Argo, 1970 Family Longidoridae Thorne, 1935 Genus <i>Longidorus</i> Micoletzky, 1922 <i>L. heynsi</i> Andrásy, 1970 Family Belondiridae Thorne, 1939 Genus <i>Oxydirus</i> Thorne, 1939 <i>O. gangeticus</i> Siddiqi, 1966 Genus <i>Roqueus</i> Thorne, 1964 <i>R. africanus</i> Andrásy, 1970 Family Leptonchidae Thorne, 1935 Genus <i>Proleptonchus</i> Lordello, 1955 <i>P. krugeri</i> Botha and Heyns, 1992 Family Mydonomidae Thorne, 1964 Genus <i>Dorylaimoides</i> Thorne and Swanger, 1936 <i>D. longidens</i> Furstenberg and Heyns, 1966 Family Aetholaimidae Jairajpuri, 1965 Genus <i>Aetholaimus</i> Williams, 1962 <i>A. trochus</i> Swart and Heyns, 1994 Family Alaimidae Micoletzky, 1992 Genus <i>Alaimus</i> De Man, 1880 <i>A. primitivus</i> De Man, 1880</p>	<p>Vinciguerra & Heyns (1984): aq Vinciguerra & Heyns (1984): aq Heyns & Argo (1970): s-aq Andrásy (1970): aq Filipjev (1929): aq Heyns & Argo (1970): s-aq Micoletzky (1916): aq Heyns & Argo (1970): aq Heyns & Argo (1970): s-aq Heyns & Argo (1970): s-aq Andrásy (1970): aq Botha & Heyns (1992b): aq; Vinciguerra & Heyns (1984): aq Andrásy (1970): aq Heyns & Argo (1970): s-aq Andrásy (1970): aq Botha & Heyns (1993a): aq, s-aq Andrásy (1970): aq Botha & Heyns (1992b): aq Furstenberg & Heyns (1966): aq Swart & Heyns (1994): aq Micoletzky (1916): aq</p>	
Order Mononchida Jairajpuri, 1969 (Jairajpuri and Khan, 1982)		
<p>Family Mononchidae Filipjev, 1934 Genus <i>Mononchus</i>, Bastian, 1865 <i>M. aquaticus</i> Coetzee, 1968</p>	<p>Botha & Heyns (1992c): aq; Coetzee (1968a): aq, s-aq, t;</p>	

<p><i>M. truncatus</i> Bastian, 1865</p> <p><i>M. tunbridgensis</i> Bastian, 1865</p> <p>Genus <i>Coomansus</i> Jairajpuri and Khan, 1977</p> <p><i>C. pretoriensis</i> (Coetzee, 1968) Jairajpuri and Khan, 1977 syn. <i>Mononchus pretoriensis</i> Coetzee, 1968</p> <p>Genus <i>Clarkus</i> Jairajpuri, 1970</p> <p><i>C. sheri</i> (Mulvey, 1967) Jairajpuri, 1970 syn. <i>Mononchus jugalis</i> Coetzee, 1968</p> <p>Genus <i>Iotonchus</i> Cobb, 1916 (Pennak, 1953)</p> <p><i>I. parabasidontus</i> Mulvey and Jensen, 1967</p> <p><i>I. risoceiae</i> (Carvalho, 1955) Andrassy 1958</p> <p>Genus <i>Granonchulus</i> Andrassy, 1958</p> <p><i>G. subdecurrens</i> Coetzee 1966</p> <p>Genus <i>Prionchulus</i> Cobb, 1916 (Wu and Hoeppli, 1929)</p> <p><i>P. muscorum</i> (Dujardin, 1845) Wu and Hoeppli, 1929</p> <p>Genus <i>Cobbonchus</i> Andrassy, 1958</p> <p><i>C. artemisiae</i> Coetzee, 1968</p> <p><i>C. coetzeeae</i> Andrassy, 1970</p> <p><i>C. diannae</i> Coetzee, 1965</p> <p><i>C. megalus</i> Coetzee, 1966</p> <p><i>C. ockerti</i> Coetzee, 1965</p> <p>Family Mylonchulidae Jairajpuri, 1969</p> <p>Genus <i>Mylonchulus</i> Cobb, 1916 (Altherr, 1953)</p> <p><i>M. incurvus</i> (Cobb, 1917) Andrassy, 1958</p> <p><i>M. lacustris</i> (Cobb N.A. in Cobb, M.V., 1915) Andrassy, 1958</p> <p><i>M. minor</i> (Cobb, 1893) Andrassy, 1958</p> <p><i>M. montanus</i> (Thorne, 1924) Andrassy, 1958</p> <p><i>M. polonicus</i> (Stefanski, 1915) Andrassy, 1958</p> <p>[This may be a synonym of <i>M. lacustris</i>, see Coomans et al. (1995)]</p>	<p>Coomans et al. (1995): Dassonville (1981): De Bruin & Heyns (1992a): Andrassy (1970): Botha & Heyns (1992c): Coetzee (1968a): Coomans et al. (1995): De Bruin & Heyns (1992a): Coetzee (1968b):</p> <p>Coetzee (1968a):</p> <p>Coetzee (1968a):</p> <p>De Bruin & Heyns (1992b): Coetzee (1967b) Coomans et al. (1995):</p> <p>Coetzee (1966):</p> <p>Coetzee (1968a):</p> <p>Coetzee (1968b): Andrassy (1970): Coetzee (1965): Coetzee (1966): Coetzee (1968b):</p> <p>Coetzee (1968b): Coomans et al. (1995): Botha & Heyns (1992c): Coetzee (1967a) Andrassy (1970):</p>	<p>aq; aq, t aq; aq; aq; aq; s-aq aq</p> <p>aq</p> <p>s-aq, t</p> <p>s-aq s-aq; aq</p> <p>s-aq, t</p> <p>s-aq, t</p> <p>s-aq aq s-aq s-aq s-aq</p> <p>aq aq aq aq, s-aq, t aq</p>
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Notification

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References

- ANDRÁSSY I (1970) Nematoden aus einigen Fluss-Systemen Südafrikas. *Opusc. Zool. Budapest* **10** 179-219.
- ANDRÁSSY I (1976) *Evolution as a Basis for the Systematization of Nematodes*. Pitman, London. 288 pp.
- ANDRÁSSY I (1984) *Klasse Nematoda*. Gustav Fischer, Stuttgart. 509 pp.

- ARGO A-D and HEYNS J (1972) Four new species of the genus *Ironus* Bastian, 1865 (Nematoda: Ironidae) from South Africa. *Phytophylactica* **4** 59-66.
- ARGO A-D and HEYNS J (1973) New and little known species of the nematode families Monhysteridae and Tripylidae from South Africa. *Phytophylactica* **5** 149-154.
- BASSON J B E and HEYNS J (1975) The genus *Mesodorylaimus* in South Africa (Nematoda: Dorylaimidae). *Phytophylactica* **6** (Year 1974) 249-260.
- BOTHA A and HEYNS J (1991) Dorylaimoidea (Nematoda) from rivers in the Kruger National Park. *Koedoe* **34** 1-24.
- BOTHA A and HEYNS J (1992a) Freshwater nematodes of the genera *Thornenema* and *Mesodorylaimus* from the Kruger National Park with a diagnostic species compendium for South African species of the genus *Mesodorylaimus* (Nematoda: Dorylaimida). *Koedoe* **35** 25-42.
- BOTHA A and HEYNS J (1992b) Species of *Tyleptus*, *Proleptonchus*, *Aquatides* and *Afractinolaimus* from rivers in the Kruger National Park (Nematoda: Dorylaimida). *Koedoe* **35** 43-54.
- BOTHA A and HEYNS J (1992c) Further records and descriptions of nematodes from rivers in the Kruger National Park (orders Enoplida, Chromadorida, Monhysterida, Mononchida and Araeolaimida). *Koedoe* **35** 11-25.

- BOTHA A and HEYNS J (1993a) Species of the genera *Oxydirus*, *Dorylaimellus* (*Axodorylaimellus*), *Laimydorus* and *Rhabdolaimus* from rivers in the Kruger National Park (Nematoda: Dorylaimida and Araeolaimida). *Koedoe* **36** 49-60.
- BOTHA A and HEYNS J (1993b) New records of Tylenchida, Araeolaimida and Enoplida from the Kruger National Park, with an addendum to the checklist of nematode species of the park. *Koedoe* **36** 61-65.
- COETZEE V (1965) South African species of the genus *Cobbonchus* Andrassy, 1958 (Nematoda: Mononchidae). *Nematologica* **11** 281-290.
- COETZEE V (1966) Species of the genera *Granonchulus* and *Cobbonchus* (Mononchidae) occurring in southern Africa. *Nematologica* **12** 302-312.
- COETZEE V (1967a) Species of the genus *Mylonchulus* (Nematoda: Mononchidae) occurring in southern Africa. *Nematologica* **12** (Year 1966) 557-567.
- COETZEE V (1967b) Species of the genus *Iotonchus* (Nematoda: Mononchidae) occurring in southern Africa. *Nematologica* **13** 367-377.
- COETZEE V (1968a) Southern Africa species of the genera *Mononchus* and *Prionchulus* (Mononchidae). *Nematologica* **14** 63-76.
- COETZEE V (1968b) Mononchidae (Nematoda) of southern Africa. *S. Afr. J. Agric. Sci.* **11** 403-414.
- COOMANS A and HEYNS J (1986) *Oncholaimus jessicae* n. sp. (Nematoda: Oncholaimidae) from freshwater in the Transvaal. *S. Afr. J. Zool.* **21** 197-201.
- COOMANS A, RASHID F and HEYNS J (1995) On some predatory nematodes from the Okavango Delta, Botswana. *Hydrobiol.* **302** 119-131.
- DASSONVILLE AF (1981) 'n Taksonomie en Ekologiese Studie van Varswater-nematode in Skinnerspruit, Pretoria. Unpublished Ph.D. Thesis, Rand Afrikaans University, Johannesburg. 222 pp.
- DASSONVILLE AF and HEYNS J (1984) Freshwater nematodes from South Africa. 7. New and known species collected in Skinnerspruit, Pretoria. *Phytophylactica* **16** 15-32.
- DE BRUIN S and HEYNS J (1992a) Mononchida (Nematoda) of southern Africa: genera *Mononchus* Bastian, 1865, *Clarkus* Jairajpuri, 1970 and *Coomansus* Jairajpuri & Khan, 1977. *Phytophylactica* **24** 61-73.
- DE BRUIN S and HEYNS J (1992b) Mononchida (Nematoda) from southern Africa: genus *Iotonchus* (Cobb, 1916) Altherr, 1950. *Phytophylactica* **24** 39-60.
- FILIPJEV IN (1929) Two new species of *Actinolaimus* from South Africa. *Ann. Mag. Nat. Hist. London Serie* **10** (4) 433-439.
- FURSTENBERG JP and HEYNS J (1966) *Chitwoodia transvaalensis* n.gen., n.sp., and *Dorylaimoides longidens* n.sp., two new nematodes from South Africa. *Proc. Helm. Soc. Wash.* **33** 26-30.
- GOODEY T rewritten by GOODEY JB (1963) *Soil and Freshwater Nematodes*. Methuen, London. 544 pp.
- HEYNS J (1976) Preliminary results of a survey of freshwater nematodes in South Africa. *J. Limnol. Soc. South Afr.* **2** 43-45.
- HEYNS J (1977) Freshwater nematodes from South Africa. 1. *Euterocephalus* Andrassy, 1958. *Nematologica* **23** 112-118.
- HEYNS J (2002) Nematoda. In: Day JA and De Moor IJ (eds.) *Guides to the Freshwater Invertebrates of Southern Africa*, Vol. 5: *Non-Arthropods*. Water Research Commission, Pretoria.
- HEYNS J and ARGO A-D (1970) Actinolaimoidea from South Africa (Nematoda: Dorylaimida). *Phytophylactica* **1** (Year 1969) 217-228.
- HEYNS J and COOMANS A (1977) Freshwater nematodes from South Africa. 2. *Oncholaimus deconincki* n.sp. *Rev. Zool. Afr.* **91** 906-912.
- HEYNS J and COOMANS A (1980) Freshwater nematodes from South Africa 5. *Chronogaster* Cobb, 1913. *Nematologica* **26** 187-208.
- HEYNS J and COOMANS A (1989) A new freshwater species of *Theristus* from South West Africa/Namibia (Nematoda: Xyalidae). *S. Afr. J. Zool.* **24** 95-98.
- HEYNS J and COOMANS A (1990) Three *Monhystrella* species from inland waters in South West Africa – Namibia (Nematoda: Monhysteridae). *Nematologica* **35** (Year 1989) 1-14.
- HEYNS J and KRUGER JC de W (1983) Freshwater nematodes from South Africa. 6. *Mesodorylaimus* Andrassy, 1959. *Phytophylactica* **15** 47-53.
- HEYNS J and SWART A (1993) *Namaquanema hanki* n.gen., n.sp. from South Africa (Nematoda: Dorylaimoidea). *Fund. Appl. Nematol.* **16** 171-175.
- JACOBS LJ, HEYNS J and COOMANS A (1994) Redescription of three South African *Monhystera* species (Nematoda). *S. Afr. J. Zool.* **29** 62-69.
- JOUBERT AP and HEYNS J (1979) Freshwater nematodes from South Africa. 3. *Tobrillus* Andrassy, 1959. *J. Limnol. Soc. South Afr.* **5** 17-26.
- JOUBERT AP and HEYNS J (1980) Freshwater nematodes from South Africa. 4. The genus *Monhystera* Bastian, 1865. *S. Afr. J. Zool.* **15** 190-197.
- KLEYNHANS KPN (1970) New records and species of Dorylaimoidea (Nematoda) from South Africa. *Phytophylactica* **2** 251-262.
- LOOF PAA and HEYNS J (1969) Taxonomy of *Hemicyclophora* species from South Africa (Nematoda: Criconematoidea). *Nematologica* **15** 464-472.
- MICOLETZKY H (1916) Süswasser – Nematoden aus Südafrika. Ergebnisse einer botanischen Forschungsreise nach Deutsch-Ostafrika und Südafrika (Kapland, Natal und Rhodesien). *Denkschr. Kais. Akad. Wiss. Wien.* **92** 149-171.
- RASHID F, GERAERT E and HEYNS J (1990) *Neodolichodorus paralongi-caudatus* sp.n. from Namibia (Nematoda: Tylenchida). *Phytophylactica* **22** 281-283.
- RASHID F, HEYNS J and COOMANS A (1990) *Paracrobeles* and *Acrobeles* species from South West Africa/Namibia with description of a new *Acrobeles* species (Nematoda: Cephalobidae). *Phytophylactica* **22** 41-49.
- SWART A and FURSTENBERG JP (1993) Description of two new species of the genera *Onchulus* and *Limonchulus* from Southern Africa (Nematoda: Enoplida, Onchulinae). *Phytophylactica* **25** 11-19.
- SWART A and HEYNS J (1988) Redescription of *Eutobrillus heptapapillatus* (Joubert and Heyns, 1979) Tsalolikhin, 1981 with notes on its morphology and a possible excretory system (Nematoda: Tobriliidae). *Phytophylactica* **20** 161-168.
- SWART A and HEYNS J (1990) Description of *Tobrilloides loofi* n.sp. from Natal, South Africa (Nematoda: Onchulidae). *S. Afr. J. Zool.* **25** 138-143.
- SWART A and HEYNS J (1991a) *Lenonchium frimbricaudatum* n.sp. from South Africa, with a key to the species of *Lenonchium* (Nematoda: Nordiidae). *Rev. Nematol.* **14** 413-418.
- SWART A and HEYNS J (1991b) *Desmodora* (*Sibayinema*) *natalensis* subg. nov., spec. nov. from Lake Sibayi, South Africa (Nematoda: Desmodorida). *Phytophylactica* **23** 273-278.
- SWART A and HEYNS J (1993) Description of *Caprionchulus diversipapillatus* n.gen., n.sp. from Caprivi, Namibia (Nematoda: Onchulinae). *S. Afr. J. Zool.* **28** 136-141.
- SWART A and HEYNS J (1994) Description of *Aetholaimus trochus* n.sp. and the male of *Ironus ignavus* Bastian, 1865 (Nematoda) from Caprivi, Namibia. *S. Afr. J. Zool.* **29** 54-61.
- SWART A, DE WAELE D and HEYNS J (1991) A review of the genus *Euterocephalus* Andrassy, 1958, with description of *E. punctatus* n.sp. *Rev. Nematol.* **14** 551-563.
- VINCIGUERRA MT and HEYNS J (1984) Freshwater nematodes from South Africa. 8. New and known species of Actinolaimoidea. *S. Afr. J. Zool.* **19** 135-140.