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Phylum Nematoda: feeding habits for all valid genera using a new, universal scheme encompassing the entire phylum, with descriptions of morphological characteristics of the stoma, a key, and discussion of the evidence for trophic relationships

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Abstract

This paper details a system for classifying the trophic relationships of the entire Phylum Nematoda, together with a table specifying the categories of every valid genus. This system encompasses both the diets of nematodes and how the food is obtained. The types of evidence used to evaluate trophic relationships and the inferences that can be drawn from each are evaluated. The general morphological and ecological characteristics of each trophic type are detailed, and a morphological key is presented. This information will enable the trophic relationships of any valid genus of nematodes to be assessed, along with currently undescribed genera, provided their affinities to existing genera can be ascertained. The system and list can add value to ecological, environmental and biodiversity studies where there is no morphological information, for example in environmental sequencing or metabarcoding studies.

Key words: ecology, food, foodweb, microbivore, predator, fungivore, herbivore, omnivore, parasite, soil sediment, host, bacterial-feeding, microbial-feeding, plant-parasitic

Introduction

Nematodes are everywhere on earth in enormous diversity and numbers—except the few areas where liquid water never exists like the poles and the tops of the highest mountains. Their huge numbers and potential range of foods means that they can be of great ecological importance in many situations for ecosystem function (Adams & Wall 2000, Bardgett & Griffiths 1997, Barker & Koenning 1998, Bonkowski *et al*. 2000, Hodda 2009a, Ingham *et al*. 1985, Majdi & Traunspurger 2015, Nicol *et al*. 2011, Petersen & Luxton 1985, Shakya & Yadav 2020, Singh *et al*. 2013, Trap *et al*. 2016). However, nematodes' great taxonomic and ecological diversity, together with the fact that they are mostly small and hard to identify, has meant that most species are still uncollected and undescribed (Hodda 2007, 2022a, Hodda & Khudhir 2022, Hugot *et al*. 2001, Khudhir *et al*. 2022, Lambshead 1993). This, in turn, has meant that interpreting the likely impact of nematodes in most situations is problematic—and, as stated above, nematodes are found in large numbers in just about all situations on earth.

At a most basic level, what is often needed when nematodes are found is information on the relationships of nematodes with other organisms. Thus, it is useful to know whether the nematodes are grazing on microbes, preying on small organisms or parasitizing larger organisms. It is also useful to know whether they are general feeders, interacting with a large number of different organisms, or specialists, consuming just a few types of food. In addition, knowing how they get their food can be useful, as this may influence the conditions under which they will feed. For example, nematodes sucking their food of small microbes from suspension in water will need wetter conditions than nematodes scraping off bacteria adhering to substrate particles. Predatory nematodes will need a variety of prey. To a certain extent this information will predict the environmental conditions under which these different groups will grow best. All this information is commonly summarized in the concept of "trophic groups".

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Several schemes for nematode trophic groups have been proposed, but all some time ago, and all concentrating on a particular major habitat and type of food.

The mostly microbial-feeding marine nematodes were divided into 5 trophic groups with most emphasis on the supposed methods used by the nematodes for feeding and the degree of specialization of their diet (Wieser 1953, 1959, Boucher 1973). This scheme had a single category for predators, and no category for parasites, concentrating as it did on the mostly microbial-feeding nematodes found in marine and estuarine sediments. (Nematodes parasitizing marine plants are rare, and those parasitizing marine animals are seldom found outside their final or intermediate hosts.) This scheme was later modified, with microbial feeders divided into only two trophic groups, a more narrowly-defined group of predators, and a new group of "scavengers" taking some genera previously classified as "predators" and some previously classified as microbial feeders (Jensen 1987).

The mostly plant-parasitic terrestrial soil nematodes were divided into a different set of 8 main categories with 6 sub-categories (Yeates *et al*. 1993). By contrast with the above scheme, the emphasis was on parasites of higher plants, which were incorporated and subdivided into 6 different sub-categories, although parasites and associates of the aerial parts of plants were still omitted. Nematodes feeding on fungal hyphae were recognized separately, and predators were divided into 2 different sub-categories. Microbial-feeding nematodes were divided into only 2 main categories with another secondary category; a much coarser division than the scheme of Weiser and Boucher discussed above. Parasites were recognized, but only those of terrestrial invertebrates, and then only as dispersal or infective stages found in the soil. Vertebrate parasites were omitted.

A trophic scheme for insect-parasitic nematodes was developed largely in isolation from the schemes for other nematodes (Kaya & Gaugler 1993). This scheme concentrated on the nematodes that feed on bacteria introduced by the nematodes (with fatal consequences for the host), leaving the nematodes a rich bacterial culture to feed on. Other associations of nematodes with insects, such as phoresy, direct parasitism on insect tissues, or parasitism as an intermediate host were not considered in detail. Likewise, parasitism of other invertebrates was not considered, along with feeding on other microbes, plants or other animals (vertebrate or invertebrate).

The trophic relationships within vertebrate-parasitic nematodes have always been categorized primarily on their vertebrate hosts, using the traditionally-recognized taxonomic classes of fish, amphibians, reptiles, birds or mammals (Anderson *et al*. 2009, Benesh *et al*. 2017, Gibbons 2010). Nematodes with more than one host in the life cycle (generally an invertebrate in addition to the final vertebrate host) were recognized secondarily in this scheme. The location of parasites within the host was also often considered. Some parasites of invertebrates are recognized, but only those phylogenetically close to vertebrate parasites were included and not those phylogenetically distant. Hence, not all types of invertebrate parasitism were included, such as that of the Mermithida, which have insect-parasitic larvae and free-living, non-feeding adults, and Heterorhabditidae and Steinernematidae, which kill their insect hosts by introduction of bacteria. Likewise, the feeding habits of free-living nematodes were not considered in detail, even for free-living stages of parasite life cycles outside of their vertebrate final hosts.

Each of these schemes for specifying nematode trophic groups emphasizes some foods or habitats but simplifies or neglects altogether others. Many trophic relationships and many nematodes are omitted from each of these schemes, and where the schemes overlap, they do not necessarily classify feeding types the same way. They are thus not compatible. This led to a proposal for a universal trophic classification of all nematodes (Hodda *et al.* 2009). This scheme proposed 18 categories, including most of those for the free-living marine and terrestrial nematodes, but still mostly omitting animal parasites. The scheme was hierarchical to make dealing with the larger number of categories simpler, with 8 main feeding types within each of which nested 1, 2 or more sub-types. This scheme provided only limited detail of the morphological characteristics of each group, and no list of the genera or families in each of the groups.

Although some of the schemes for dividing nematodes into trophic groups listed the genera in each group, these were all done many, many years ago (Anderson *et al*. 2009: this being an archival volume of publications originally from 1974 to 1983, Boucher 1973, Jensen 1987, Kaya & Gaugler 1993, Wieser 1953, 1959, Yeates *et al*. 1993). Hence these lists lack the many genera described since (Hodda 2022b).

The lack of up-to-date lists of the trophic group of all nematode taxa is a particular issue now that genetic techniques are being increasingly used for identifying nematodes techniques, for example metabarcoding of environmental DNA (Porazinska *et al*. 2010, Porazinska *et al*. 2014, Creer *et al*. 2010). These techniques often lead to lists of taxa with the nearest matching sequence, but little other context.

The lack of context from many metabarcoding studies has hindered accurate evaluation of what any nematodes

represented by the genetic material may be doing in the particular ecosystem under study. Molecular identifications involve no morphological examination of the nematodes and hence no information on the structure of the mouth, which is the primary organ for ingesting food and consequently is used to assign to a probable trophic group for many taxa (see below). Molecular identifications also often use "barcoding" genes, which are often poor for assessing phylogeny—another of the pieces of information used to assign a probable feeding group (see also below). Finally, the scientists completing studies using metabarcoding often have specializations other than nematology—which also hinders assignment to trophic groups and interpretation of identifications.

In this paper a trophic classification comprehensively covering the entire Phylum Nematoda is proposed which details the most important features of the trophic interactions of nematodes with other organisms. The main morphological and environmental features of each group are described and a key enabling tentative allocation of undescribed genera to trophic groups is presented. The trophic groups for all valid genera from the most recent comprehensive classification of nematodes are listed, and the basis for the allocation of each genus is discussed. The genera are listed alphabetically, which should enable classification into a probable trophic group of any nematode—described or undescribed—provided there is either an identification to genus, some morphological information, or else some information on likely phylogenetic affinities (when read in conjunction with the comprehensive phylogenetic classification (Hodda 2022a)).

The universal nematode trophic groups

The trophic groups proposed are based on a careful conceptual analysis of the basic characteristics of nematode feeding across the whole wide range of foods and acquisition strategies, together with the diverse range of environments represented within the almost ubiquitous distribution of nematodes on earth. Such analysis was required to produce a workable scheme for the whole phylum. The result of these considerations is a primary division of nematode trophic relationships based on the size of the food relative to the nematode.

All nematodes feed on living organisms of some type (with the exception of some life-cycle stages of some genera which use food stores laid down previously, and quiescent stages with little or no metabolic energy requirements). The size of the organism being consumed will crucially influence the relationship between a nematode and its food.

- If the food organism is basically smaller than the nematode, then, depending on the range of foods eaten, the nematode needs to find and ingest the food, which may involve sucking it from suspension, cracking it open or scraping it from the surface of a substrate particle. The food is basically some sort of microbe, be it bacteria, unicellular fungi, algae or protists. If the organism is small, then a lot will need to be consumed by the larger nematode.
- If the food is basically a similar size to the nematode, then a different relationship exists with the food. The nematode will need to capture and subdue the organism before accessing its contents in some way. This is a predatory interaction, and may require fewer prey than if the food were smaller.
- If the food organism is basically larger than the nematode—potentially very much larger—then the nematode needs to find the host and access its tissues, often from inside, but also often by piercing the outside. The nematode is a parasite, and each individual nematode may be often associated with just one individual host. By contrast with the other categories, one host may support many parasitic nematodes. The range of hosts attacked by each species of nematode may be quite narrow, and even further, the nematode species may be found in only one part of the larger host's body, or may migrate through it.

Sub-divisions within these basic trophic types reflect the different features of each and what is likely to be most important and informative. This results in 24 different categories in the entire scheme (Table 1). Although the total number of categories is larger than other classifications, this number was the minimum necessary to encompass the full diversity of trophic relationships of nematodes. The categories are arranged hierarchically for ease of reference, and so that an appropriate level of detail can be applied for any purpose.

For microbial feeding nematodes, the most important characteristic is how the food is obtained, by sucking from suspension, taking large microbes into the mouth, scraping them off large particles, or piercing them. Notably, this separates microbial food processors with relatively rigid mouth shapes consisting of single thickened plates (such as Rhabditidae) from microbial food crushers with mobile mouths consisting of multiple thickened plates (such as Cephalobidae). These groups have been identified as having fundamentally different ecological relationships within the soil; the former being "colonizers" associated with high abundances of rapidly-reproducing bacteria

in organically enriched substrates and the latter being "persisters" associated with lower abundances of slowly-reproducing microbes in less enriched but more stable substrates (Bongers 1990, Bongers & Bongers 1998, Ferris *et al*. 2001). "Crushers" were separated from other microbial-feeding nematodes some time ago, but this suggestion was not subsequently included in later schemes for trophic groups (Yeates 1970, Yeates *et al*. 1993).

TABLE 1. Universal trophic categories of nematodes. Taxa may fall into one or more categories, during either single or different life stages.

1. Microbial feeders

Feeding method	**Type of food**	**Equivalent in microbial marine scheme (Weiser 1953, 1959, Boucher 1973)**	**Equivalent in plant-parasitic terrestrial scheme (Yeates *et al*. 1993)**
Sucker	Suspension	Selective deposit (1A)	
	Particulate	Non-selective deposit-part (1B)	Bacterial feeding-part (3)
Processor	Suspension	Aggregate (1B)	Substrate ingestion-part (4)
	Particulate	Non-selective deposit-part (1B)	Substrate ingestion-part (4)
Scraper	Particulate	Epistrate (2A)	Unicellular eucaryote-part (6)
Crusher	Particulate	Non-selective deposit-part (1B)	Bacterial feeding-part (3)
Piercer	Cellular		Hyphal feeding-part (2) Unicellular eucaryote-part (6) Omnivore (8)

2. Predators

Feeding method	**Equivalent in microbial marine scheme (Weiser 1953, 1959, Boucher 1973)**	**Equivalent in plant-parasitic terrestrial scheme (Yeates *et al*. 1993)**
Chewer	Omnivore-predator (2B)	Ingester predator (5a)
Piercer		Piercer predator (5b)

3. Parasites

Host type	**Host or host relationship**	**Main location**	**Equivalent in plant-parasitic terrestrial scheme (Yeates *et al*. 1993)** [1]
Plant	Internal modifier	Aerial	Sedentary parasite-part (1a)
		Below ground	Sedentary parasite-part (1a)
	Internal migrator	Aerial	Migratory parasite-part (1b)
		Below ground	Migratory parasite-part (1b)
	External root feeder	Subsurface	Semi-endoparasite (1c)
		Surface	Ectoparasite (1d)
	Plant browser		Epidermal (1e) Algal-part (1f)
	Wood or bark associate		Unicellular Eucaryote-part (6) Hyphal feeding-part (2) Bacterial (3) Predator (5)
Invertebrate	Arthropod		Dispersal or infective-part (7)
	Other host		Dispersal or infective-part (7)
Vertebrate	Fish		
	Amphibian		Dispersal or infective-part (7)
	Reptile		Dispersal or infective-part (7)
	Bird		Dispersal or infective-part (7)
	Mammal		Dispersal or infective-part (7)
Unknown			Dispersal or infective-part (7)

[1] Not considered at all in microbial marine scheme (Weiser 1953, 1959, Boucher 1973).

For predators, the important features are whether the nematode ingests the prey by taking it into the mouth (at least partially), or whether it pierces the prey from outside.

For associates of larger organisms, there is a major division between those feeding on plants and hyphal fungi, those feeding on invertebrates, and those feeding on vertebrates. A further sub-category has been included for the nematodes whose host is unknown because they have been found as non-feeding stages only. There are a substantial number of nematode species where the host—although suspected as being from a particular animal group—is not definitively known. In Table 3, suspected hosts are also indicated for these genera.

For plant feeders, whether they are internal or external to the plant, and whether feeding on the aerial parts or roots is particularly important. Whether the nematodes induce modifications to the plant is ecologically important, and therefore included in the classification.

For invertebrate and vertebrate parasites, there are an enormous range of interactions with the host, ranging from totally benign use of the host as a transport mechanism through to rapid use of all or most of the host tissues resulting in host death. Indeed, sometimes the host behaviour is modified so that it moves to a location favourable for the nematode to leave after killing the host, so that the interaction involves both use of the host as transport and use as food. The effect of nematodes on a larger organism can depend on the condition of the host and the number of nematodes. The nematode may migrate from an initial place of infection through various parts of a host to its final site, in a fashion that can be either benign or damaging to the host. Including all of these different features of the interactions between a nematode and larger organism in the trophic classification would require a large number of categories to describe the potential complexity of these interactions, resulting in so many categories as to be impractical. Divisions would also be to some extent arbitrary as well. Hence, only the simplest subdivision based on hosts has been used. The term "parasite" is used as the name for the group because it can be interpreted in a general sense to cover all the types of interactions. Alternatives such as "associates of larger organisms", while they may be more accurate, are more unwieldy, and do not convey as well the often intimate associations of the nematodes and larger organism.

Nematodes in each trophic group

An alphabetic list of every valid genus, together with the tropic group or groups in which it falls, is presented in Table 3.

Genera may be listed under more than 1 category because many nematodes seem to use a range of food sources, the evidence for which is discussed below.

Some nematodes seem to use a range of food sources all the time. Others may switch food sources opportunistically according to what is available in a particular place at a particular time. Some nematode genera change their trophic relationships at different stages in the life cycle. Some changes occur as nematodes grow larger. Some parasitic nematode groups have invertebrate intermediate hosts and vertebrate definitive hosts. Listing all known feeding relationships for each genus gives more information than simply listing a genus as an "omnivore" as in some previous trophic classifications. (This is the reason there is no specific category for omnivores.)

Many nematodes are known to have non-feeding resting, dispersal or reproductive stages, and undoubtedly there are other nematodes with non-feeding stages which are not known at present. These are not recognized in the present trophic classification because they represent a separate ecological characteristic of nematodes. However, some nematodes—particularly Mermithida, but also some other genera related to vertebrate parasites—have been found only as non-feeding reproductive or dispersal stages. For these nematodes, their likely life cycle and host can only be inferred from their phylogenetic affinities, so this is reflected in a category of "non-feeding stages only known". It may be that the reason the feeding stages remain unknown is that they are not in the expected hosts.

Basis of the assignment of nematodes to a trophic group

The ideal basis for assigning nematodes to trophic groups is detailed studies of nematode feeding. Unfortunately, there have been very few such studies, in either natural or experimental conditions (Majdi *et al*. 2020). Instead, the best information on the trophic relationships of many nematodes comes from opportunistic observations of

behaviour or recognition of foods in the gut or mouth of specimens, either live or dead. Particularly for parasites found attached or inside a host, this can be strong evidence for a particular trophic relationship, although such finds may also represent accidental, opportunistic or purely phoretic relationships.

For many nematodes—especially those not typically found in association with a host— there is little direct evidence for their trophic interactions, and instead the food is inferred from the size and structure of the mouth cavity, together with their evolutionary affinities to other nematodes whose trophic relationships are known.

The types of information available for classifying nematodes into trophic groups can thus be classified according to the strength of inference possible from the available evidence. While some types of evidence allow for strong inferences about the trophic relationships of nematodes, others provide less strong inferences, and all are subject to some level of uncertainty.

1. The strongest evidence comes from **preference studies:** direct observations of experiments in which nematodes are given a range of choices to determine what they will eat and what they prefer given a choice. Although this provides strong evidence that the nematodes can and do feed on a particular diet in a particular way, the results may depend on the environmental conditions for the observations or the range of foods offered, either or both of which may be unrepresentative of the normal conditions experienced by the nematode in nature. Experimental conditions under which observations can be made particularly may not replicate normal conditions in nature (Croll *et al*. 1977). Just because a nematode may feed on something when presented with it, it does not necessarily mean that it does feed on it in nature. Examples of preference studies on nematodes are mainly from the various sub-types of microbial feeders which can be cultured easily on readily-available, defined media in the laboratory (Fueser *et al*. 2019, Hasna *et al*. 2007, Kim & Knudsen 2018, Tietjen *et al*. 1970, Zunke *et al*. 1986).

2. Strong evidence also comes from **observational studies** of nematodes feeding on particular foods, where they are offered. Like preference studies, observations of nematodes feeding on a particular food in a particular way can be misleading because of the conditions or food availability when observations are made. Observational reports of feeding are open to the possibility that the behaviour observed is opportunistic and atypical. An extreme example is the successful culture of a microbial-feeding marine nematode on clotted blood, a food which would never be found in its natural habitat (Jennings & Colam 1970). Switching of foods related to culture conditions has also been observed (Behnke 2008, Gaze *et al*. 2014, Werner *et al*. 2017). The probability of records being unrepresentative becomes lower as more foods are tested or if there are more observations and if the range of testing conditions are wider. The possibility remains however that offered a choice of foods or under different environmental conditions, the nematode may feed on something else. Examples include a wider range of trophic types than those for which preference studies are available, although with various biases within each trophic group. For the various types of microbial feeders, observational studies are biased towards piercers either themselves potentially pathogenic or else with potential biocontrol potential for plant pathogens (Cayrol 1967, 1970, Chin & Estey 1966, Doncaster 1962, 1966, Faulkner & Darling 1961, Hasna *et al*. 2007, Ikonen 2001, Okada & Kadota 2003, Okada *et al*. 2005, Ruehle & Christie 1958, Ruess *et al*. 2000, Santos *et al*. 2008, Self & Bernard 1994, Tan *et al*. 1992). For predators, observational studies are often centred on prey that are economically damaging, although there are also some concerned with bioenergetics (Grootaert & Maertens 1976, Grootaert & Wyss 1978, Hechler 1963, Heip *et al*. 1978, Small & Evans 1981, Wood 1975). There have also been detailed observational studies of model organisms as well, including the diet of *Caenorhabditis elegans*, including the digestion and physiological effects of different microbial diets (Zanni *et al*. 2015). For parasites of plants there is a large literature on hosts and non-hosts for economically-important species summarized in, for example, Evans *et al*. 1993, Sikora *et al*. 2018 and Starr *et al*. 2002). For parasites of invertebrates there is a substantially smaller literature recording direct observations of feeding tests with particular hosts (see for example Campos-Herrera *et al*. 2012, Maggenti 1981, Stock 2015). For parasites of vertebrates there is also a perhaps surprisingly small literature of direct experimental tests on anything other than potential parasites of humans and domesticated species (see recent summaries in Coulson *et al*. 2018, MacKay 2015, Saccareau *et al*. 2017, Spratt 2015).

3. Less strong evidence comes from **opportunistic observations** of feeding behaviour. Such observations are subject to the same potential for misleading interpretation as many of the other bases for inferring trophic relationships. The situation of the observation may be representative—or not—of the most commonly occurring conditions of the internal food reserves of the nematodes, their environment or the foods available. If observations are not formally or systematically recorded, they may give rise to anecdotal evidence (see point 8 below). Examples include a range of trophic types, including microbial feeders (Jensen 1987), predators (Yeates 1987a, b), a plant parasite (Cuc & Pilon 2007), and a microbial feeder switching to an invertebrate parasite (Bedding 1972, Hunt & Poinar 1971). There are fewer records of direct observations of feeding by parasites of plants and invertebrates (see point 5 below). There are quite a few opportunistic observations for parasites of vertebrates where nematodes can be observed in microscopic sections feeding on host tissue (reviewed by Anderson 1999). However, there are many more records which are locational associations, where the nematodes were found in a host gut for example, without direct observations that it was feeding (see point 5 below).

4. Observations of **gut contents** also provide strong support for trophic interactions, but may be limited to some types of interactions only. Inferences about diets have been obtained from observations or measurements of the hard parts of some types of prey such as rotifers in the guts of predatory nematodes, a characteristic appearance of gut contents related to feeding on plant-cell contents in many plant parasites, and biochemical analysis of gut contents of DNA, pigments, uptake of particular vital stains, stable isotopes or fatty acids. Such observations may be more likely to come from natural rather than artificial experimental situations and so represent real circumstances, but each observation still represent one animal captured at one point in time and space, which may, or may not, be representative of the conditions occurring most frequently. Examples include several different methods of observation but most frequently on predators, with fewer microbial feeders and parasites of plants: diatom pigments detected in the gut of microbial feeders by HPLC (Majdi *et al*. 2012); direct microscopic observations of bacteria in the gut of a different sort of microbial feeder (Arpin & Kilbertus 1981); observations of fluorescent tagged bacteria in the gut of another type of microbial feeder (Palominos & Calixto 2020); nitrogen isotope ratios and fatty acid composition of different microbial feeders (Ruess *et al*. 2004), and studies using radioactive labelling, PCR of gut contents or direct observations of distinctive parts of various prey in the guts of predators (Cabos *et al*. 2013, Fonseca & Galluci 2008, Jensen 1992, Lopez *et al*. 1979, Mohilal & Dhanachand 1992, Small 1987, Wang *et al*. 2015).

5. Less direct evidence for nematode trophic relationships come from **locational associations** of nematodes with particular foods or hosts. Nematodes are frequently located in, on, or next to their host or main food source, and this provides a potentially strong clue to their diet. Proximity, of course, does not necessarily mean that there is a direct relationship such that the host or food is being consumed. *Cum hoc ergo propter hoc* is a common logical fallacy. This form of evidence is subject to the same potential issues as the above. Examples include distribution of microbial piercers, plant parasite browsers and external root feeders in soil, mycorrhizae, mycorrhizal soil, and roots (Hanel 1998), distribution of microbial processors and piercers in potato fields (Hofman & Jacob 1989), distribution around plants of microbial feeders (Cayrol & Dreyfuss 1975, Rossner & Urland 1983, Singh *et al*. 1977), and distribution of different types of microbial feeders in different freshwater or marine sediments (Boucher 1973, Traunspurger *et al*. 2020). Other examples of locations used as evidence for trophic relationships are cited in reviews (Neher *et al*. 1999, Paramonov 1962, Yeates 1987c, Yeates *et al*. 1993). There are many, many reports of parasites of plants, invertebrates and vertebrates being found on, in or otherwise associated with a supposed host.

6. Another form of indirect evidence for nematode trophic relationships are **morphological associations**. This may take the form of morphological similarity with other nematodes for which there have been the sorts of evidence discussed above, or else a theoretical interpretation of the morphology, particularly the nature of the mouth and teeth. Experimental evidence has confirmed that size of microbial food consumed is related to the mouth dimensions (Jensen 1987, Cayrol 1970, Fueser *et al*. 2019) and tooth characteristics (Kiontke & Fitch 2010). There are many examples where morphologically-similar nematodes have been shown to have very similar trophic relationships, and furthermore that the relationships are those expected from the shape of the mouth and teeth. However, there are other examples where there is good evidence that nematodes which

are morphologically almost indistinguishable have quite different trophic relationships (Nickle & Hooper 1991, Sturhan & Brzeski 1991, Yeates *et al*. 1993). Examples where morphology has been used to infer the trophic relationships include many genera of microbial feeders, predators and parasites of plants (Jensen 1987, Sohlenius *et al*. 1977, Weiser 1953, 1959, Yeates *et al*. 1993).

7. The indirect evidence from **phylogenetic relationships** can be based on closely-related genera often being morphologically similar. (Indeed in the pre-molecular period when many genera were defined, the morphology of the mouth was used to define phylogenetic relatedness; as there are still no sequences for many genera of nematodes, mouth morphology is still used to assess phylogenetic relatedness (Lieven & Sudhaus 2000, Lorenzen 1984, Maggenti 1991, Stock & Hunt 2005, Stock *et al*. 2002, Stock & Nadler 2006).) The use of mouth morphology to inform phylogeny notwithstanding, empirically, closely-related nematodes are likely to be similar trophically where there is evidence, although this is not always the case (Ragsdale *et al*. 2013). Hence where there is no other evidence for the trophic relationships of particular nematode genera, then using phylogeny is a reasonable surrogate. (Yeates *et al*. 1993).

8. There are also cases where **anecdotal evidence** is used to infer trophic relationships. This is not really evidence and can be based on a commonly held belief, or can be indirect evidence based on hearsay. Whichever of these it is, the inference it provides on trophic relationships is not strong. Nevertheless, it is the only means available to suggest the trophic groups of some nematodes, particularly various types of microbial feeders, predators and parasites of plants (Jensen 1987, Yeates *et al*. 1993).

In compiling the table of trophic groups, evidence is generally given most credence based on the strength of inference detailed above. Unfortunately, the amount of evidence for each of these categories, is often inversely related to their strength. That is, there are really strong data for very few nematodes based on feeding trials and the like. Fortunately, though, there is more data where the inferences are less strong, and this can increase the confidence in the weaker forms of data. Evidence collected under different conditions also increases confidence in data or observations, particularly where there are a wider range of conditions.

Having multiple types of evidence for trophic relationships also increases the confidence in assigning trophic groups, especially when the evidence is concordant. Discordant results do not however necessarily decrease confidence. There is good evidence that many nematode species can and do feed on different foods or hosts. Examples include the following.

- Opportunistic switching of foods according to availability or environmental conditions in microbial feeders and predators including genera such as *Pristionchus*, *Mononchoides* and *Neodiplogaster* or the piercing microbial feeding and plant-parasitic *Bursaphelenchus* (Bui & Ragsdale 2019, Kanzaki 2016, Kanzaki *et al*. 2019, Kiontke & Fitch 2010, Ragsdale 2015, Serobyan *et al*. 2013, 2014, Sommer *et al*. 2017, Susoy & Sommer 2016, Wilecki *et al*. 2015). The different diets may, or may not, be associated with changes in mouth morphology.
- Switching of foods over the course of the life cycle. This may be opportunistic in genera such as *Mononchoides* and *Mononchus*, and may be associated with adopting predatory (even cannibalistic!) habits as the nematode becomes larger (Steel *et al*. 2001, Yeates 1987a, b, Yeates *et al*. 1993). It may instead be obligate in the case of ultimately vertebrate-parasitic nematodes which must pass through an intermediate host to complete their life cycles (as, for example, in *Angiostrongylus* or *Oxyspirura* with mollusc or arthropod intermediate hosts and vertebrate final hosts. It may be related to changing food preferences over time to balance physiological needs with intake of foods of different nutritional composition (Ruess *et al*. 2000).
- Switching between different life cycles which may have different morphologies, behaviour and life stages, as in the genera *Bursaphelenchus* with plant- and fungal-feeding life cycles, or *Deladenus* with fungal-feeding and insect-parasitic life cycles (Bedding 1972, Hunt & Poinar 1971). In both these genera, each life cycle may continue for many generations before switching.
- Switching between foods when another nematode species is present. This may involve switching from microbial feeding to becoming predacious on the other nematode, or consuming a different bacterial species when the preferred food is being primarily consumed by another nematode (Anderson & Coleman 1981).

Having the best understanding of trophic relationships under different conditions is important if the conditions likely to be encountered by nematodes changes, for example under climate change (Molnar *et al*. 2013).

Nematode trophic relationships and assignment to categories

A major issue in listing trophic relationships by genus is that very closely related species within a single genus may feed on different hosts or types of foods even though they are morphologically and genetically almost indistinguishable. Examples include species within the genera *Ditylenchus* and *Aphelenchoides*, some of which feed on fungi while others feed on plants (Nickle & Hooper 1991, Sturhan & Brzeski 1991). A similar situation occurs within the genus *Filenchus* (Okada *et al*. 2005). Other examples include species within the parasites of vertebrates in the genus *Amplicaecum*, some of which parasitize amphibians, some reptiles, and some birds (Hartwich 1974, Gibbons 2010). (It should be noted, though, that many species and genera have been defined traditionally on the basis of their hosts rather than a comprehensive understanding of their phylogeny, and so there may be substantial artifacts in apparent relationships between nematode taxa and their hosts.)

Because there is evidence of plasticity in trophic relationship within species and genera, trophic categories are presented in tabular form so that all combinations of multiple trophic groups can be listed. If there is evidence that species within a genus fall within different trophic categories, then they are listed in multiple categories.

In fact, many nematodes seem to eat a range of foods. Where there have been detailed experimental studies, most have found that, at least in the species studied, most nematodes can feed on a range of foods. For example, *Acrobeloides nanus* feeds on both cellular bacteria & fungal hyphae (Ruess & Dighton 1996). Species of *Chiloplacus* and *Rhabditis*—normally bacterial feeders—have been successfully cultured on fungi (Gupta *et al*. 1979, Procter 1986). And several predatory species also feed on microbes; indeed may be even dependent on them (Fonseca & Galluci 2008, Lopez *et al*. 1979, Heip *et al*. 1978, Wood 1973, Yeates *et al*. 1993). However, where multiple foods have been demonstrated, growth, survival or reproduction was often better on some foods than others (Anderson *et al*. 1978, Hajihassani *et al*. 2017, Giannakis & Sanders 1990, Hasna *et al*. 2007, Ikonen 2001, Okada *et al*. 2005, Okada & Kadota 2003, Ruess *et al*. 2000). The nematodes on which such studies have been successfully completed may be biased because more omnivorous nematodes will be more amenable to this sort of study than more highly specialized ones, but they may nevertheless be representative of a substantial number of other genera.

That some nematodes can and apparently do consume a range of foods does not mean that others are not apparently highly specialized. Many nematode associates of larger organisms have very specific host requirements, even including 2 hosts both of which are very specific (particular species of eucalypt trees and gall flies in the nematode genus *Fergusobia* for example (Davies *et al*. 2010, 2016, Ye *et al*. 2007).

There are several other issues that should be considered in evaluating the evidence for nematode trophic relationships.

One is that identification of nematodes under the sorts of conditions where feeding can be observed can be problematic. Unless the nematodes are in culture, observation in any medium that is suitable for nematode survival, movement and feeding, and contains food is likely to be sub-optimal for identification by either morphological or molecular means. Hence some feeding observations may have the nematodes misidentified. This is more likely at the species level than genus level, and will not occur when monotypic cultures have been observed because the identification can be carried out under different conditions to the feeding.

Another issue is that in some nematodes the exact food is unknown because only an apparently non-feeding stage is known. The assumption that certain nematodes are non-feeding is based on their morphology, but seems entirely reasonable. Such nematodes may have no mouth, intestinal lumen or anus. Rather their intestine is disconnected from the pharynx and filled with lipids or other high-energy compounds, seemingly built up during a previous period of feeding. The nature of the feeding may be suspected, based on locational or phylogenetic associations, but these are very tenuous for some nematodes and hence insufficient to confidently assign any trophic group other than "host unknown". Fortunately, this is relatively rare and most nematodes can be assigned to one or more trophic groups.

Less serious is the related case where some foods are known but where there may be others. This situation may be particularly prevalent where an intermediate host is assumed likely based on related genera, but has never been observed, for example in many genera of Filariodea which have vertebrate final hosts, but are suspected of having invertebrate intermediate hosts (Gibbons 2010). In the cases where an intermediate host is suspected on phylogenetic grounds but where any concrete evidence of its identity is lacking, then no intermediate host is recorded.

The situation where not all foods are known is not limited to parasites, but also occurs in other trophic groups. Quite a few microbial-feeding nematodes are also predaceous, and are included in a trophic group of "omnivores" in

some previous schemes for describing nematode trophic relationships (Jensen 1987, Yeates *et al*. 1993). Many other nematodes may be similar, although one or the other of their foods may never have been observed or suspected, and so be missing from the table.

Another issue is that some nematodes can survive indefinitely purely by ingesting chemical compounds from solution. Microbial feeding species of the genus *Caenorhabditis* are the best known, but there are several others, including the predatory *Adoncholaimus* and *Pontonema* (Nicholas 1984, Jensen 1987, Lopez *et al*. 1979, Nuss 1985, Yeates *et al*. 1993). The part played by direct ingestion of chemicals in nature is unknown, but it should be noted that many of the species where this phenomenon has been demonstrated typically occur in habitats where rich soups of chemicals may be expected, such as decomposing animals, plant roots or fungi. Many nematode genera other than those listed may frequently or occasionally use this sort of feeding, but the extent is not known. In the current trophic classification, this diet and mode of feeding is captured within the category of "microbial feeders, suckers, suspension", and only those suspected of feeding this way based on the nature of the mouth, or those where the phenomenon has been directly observed are listed in Table 3.

There are also cases where trophic interactions are complex and indirect. Examples include some genera such as *Heterorhabditis* or *Steinernema* which feed on specialised bacteria introduced into an invertebrate host by the nematodes. These bacteria are found in the host and the nematode only. These nematodes have a specialized, intimate interaction which has a major effect on the invertebrate host, but they do not feed on the host directly. Nevertheless, they occur within their hosts and require hosts to survive in nature, so they are recorded as both microbial-feeding and parasites of invertebrates.

There are examples of complex and indirect trophic interactions among most of the other trophic groups as well. In predators which also feed on microbes (*Pristionchus pacificus*), the number and type of bacteria eaten can affect their predatory behaviour (Akduman *et al*. 2020). Growth rates can affect what the nematodes feeding on as well (Serobyan *et al*. 2013). Nematodes parasitic on plants (genus *Pratylenchus*) feed better on their plant hosts in the presence of *Rhizobium* than in its absence (Scotto La Massese *et al*. 1981). And the parasite of vertebrates *Heligmosomoides polygyrus* facilitates infection by other nematode parasites (Behnke 2008).

Morphology of each trophic group

Assignment of trophic groups is often based on the morphological features of the mouth in the absence of other evidence (see above). The features used in the current scheme for inferring trophic groups are mostly similar to those used in previous schemes (see introduction above). To make these characters explicit they are described below with typical examples from common genera. They are also listed the form of a table of characters (Table 2), and used to produce a dichotomous key (below). Diagrammatic representations of the characters of the stoma for all trophic types are presented in Figure 1.

In addition to detailing the characters used to assign genera to trophic groups, these resources can be used to infer the general morphological features of the mouth for any currently valid genus of nematodes: Hodda (2022a) provides an alphabetic list and classification of all currently valid nematode species. This may be particularly pertinent with the increase in the number of researchers who work on nematodes using molecular techniques, and the decline in numbers of nematologists with detailed knowledge of morphology.

TABLE 2. Tabular compilation of morphological characteristics of trophic groups.

				Located on or within vertebrate [1]	Located on or within arthropod	Located on or within non-arthropod invertebrate	1 to 3 large nematodes only in host	Invertebrate host haemolymph cloudy	Located on or within plant or plant part	Part of plant [2]	Host modified (other than damage)	Body swollen [3]	Stylet present	Stylet knobs or flanges present
microbial feeder	**sucker**	**suspension**		0	0 (1)	0 (1)	*	*	0	* (8)	0	0	0	*
		particulate		0 (1)	0 (1)	0 (1)	*	*	0	* (8)	0	0	0	*
	processor	**suspension**		0	0 (1)	0 (1)	*	*	0	* (8)	0	0	0	*
		particulate		0	0 (1)	0 (1)	*	*	0 (1)	* (8)	0	0	0	*
	piercer			0	0 (1)	0 (1)	*	*	0	* (8)	0	0	**1**	0/1
	crusher			0	0 (1)	0 (1)	*	*	0 (1)	* (8)	0	0	0	*
	scraper			0	0	0	*	*	0	*	0	0	0	*
predator	**chewer**			0	0	0	*	*	0 (1)	* (8)	0	0	0	*
	piercer			0	0	0	*	*	0 (1)	* (8)	0	0	**1**	0 (1)
parasite	**plant**	**internal modifier**	**aerial**	0	0	0	*	*	**1**	**1/2/3**	**1**	**(0) 1**	**1**	**1**
			below-ground	0	0	0	*	*	**1**	**9** (10) (11)	**1**	(0) **2**	(0)**1**	**1**
		internal migrator	**aerial**	0	0 (1)	0 (1)	*	*	**1**	3/5/7	0	0	**1**	**1**
			below-ground	0	0	0	*	*	**1**	**9** (10) (11)	**0**	0	(0)**1**	**1**
		external root feeder	**sub-surface**	0	0	0	*	*	**1**	(9) **10/11**	0	0/1 (2)	(0)**1**	**1**
			surface	0	0	0	*	*	**1**	9	0	0	(0)**1**	**1**
		external browser		0	0 (1)	0 (1)	*	*	**1**	10	0	0	**1**	(0)**1**
		wood & bark associate		0	0 (1)	0 (1)	*	*	**1**	**6/8**	0	0	0/1	0/1
	invertebrate	**arthropod**		0	**1**	0 (1)	0/1	0/1	0 (1)	4	0/1	0/1/2	0/1	(0)1
		other		0	0 (1)	**1**	0/1	0/1		4	0/1	0/1/2	0/1	(0)1
	vertebrate	**fish**		**1**	0 (1)	0 (1)	0	0	0	*	0/1	0/1	0	*
		amphibian		**1**	0 (1)	0 (1)	0	0	0	*	0/1	0/1	0	*
		reptile		**1**	0 (1)	0 (1)	0	0	0	*	0/1	0/1	0	*
		bird		**1**	0 (1)	0 (1)	0	0	0	*	0/1	0/1	0	*
		mammal		**1**	0 (1)	0 (1)	0	0	0	*	0/1	0/1	0 (1)	0
	host unknown			0 (1)	0 (1)	0 (1)	0/1	0	0	*	*	0/1	0	*

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[1] throughout table 0 means feature is negative or absent, 1 means feature is positive or present. Bold values indicate distinctive features. Values in brackets indicate values that are not common or occur in only a few members of the trophic group. "/" indicates alternative values.

[2] 1=seed, 2=flower or fruit bud, 3=inside leaf, 4=leaf surface, 5=inside non-woody stem, 6=inside woody stem, 7=outside smooth stem, 8=in fibrous bark, 9=inside roots, 10=around root surface, 11=in soil or substrate

[3] 0=not swollen, 1=swollen, 2=globose

[4] 0=not offset, 1=low (head length < 0.4 times length), 2=high (length >0.4 times length)

TABLE 2. (continued)

				Stylet knobs distance across	Stylet length	Stylet anterior solid	Stylet conus & shaft thickness	Stylet diameter >30% length	Stylet aperture >30% length	Stylet lumen diameter	lips curled forward	cephalic framework present	cephalic framework cuticle thickened	oesophageal bulb posterior to nerve ring	terminal oesophageal swelling, bulb or glands present	terminal oesophageal bulb very long (>2x body diameter)
microbial feeder	**sucker**	**suspension**		*	*	*	*	*	*	*	0	0	*	0/1	0/1	0
		particulate		*	*	*	*	*	*	*	0	0	*	0/1	0/1	0
	processor	**suspension**		*	*	*	*	*	*	*	0	0	*	0/1	0/1	0
		particulate		*	*	*	*	*	*	*	0	0	*	0/1	0/1	0
	piercer			<4	5– 80	0 (1)	1/2	0	0	1/2	0	0/1	0	0/1	0/1	0/1
	crusher			*	*	*	*	*	*	*	0	0	*	0/1	0/1	0
	scraper			*	*	*	*	*	*	*	0	0	*	0/1	0/1	0
predator	**chewer**			*	*	*	*	*	*	*	0	0	*	0/1	0/1	0
	piercer			<5	20–50	0	**2**	(0)**1**	(0)**1**	**2**	0 (1)	0/1	0/1	0/1	0/1	(0)**1**
parasite	**plant**	**internal modifier**	**aerial**	<2	<10	0	1	0	0	1	0	1	0	0/1	0/1	**1**
			below-ground	3–5	10–20	0	1	0	0	1	0	1	1	1	1	**1**
		internal migrator	**aerial**	<3	5–15	0	1	0	0	1	0	1	0	0/1	0/1	0/1
			below-ground	(2–5) 5–6	10–25	0	**2**	0	0	1	0	1	1	1	1	**1**
		external root feeder	**sub-surface**	5–8	20–200	0	**2**	0	0	1	0	1	1	1	1	**1**
			surface	3–5	10–20 (40–200)	0	1/2	0	0	1	0	1	0/1	0/1	1	(0)**1**
		external browser		<4	<15	**0** (1)	1	0	0	1	0	0/1	0/1	0/1	0/1	(0)**1**
		wood & bark associate		* (<4)	<15	1	1	0	0	1	0	0/1	0/1	0/1	0/1	0/1
	invertebrate	**arthropod**		<4	*(15–25)	0	1	0	0	1	0	0/1	0	0	0/1	0
		other		<4	*(15–25)	0	1	0	0	1	0	0/1	0	0	0/1	0
	vertebrate	**fish**		*	*	*	*	0	0	*	0	0	*	0/1	0/1	0
		amphibian		*	*	*	*	0	0	*	0	0	*	0/1	0/1	0
		reptile		*	*	*	*	0	0	*	0	0	*	0/1	0/1	0
		bird		*	*	*	*	0	0	*	0	0	*	0/1	0/1	0
		mammal		*			*	0	0	*	0	0	*	0/1	0/1	0
	host unknown			*	*	*	*	0	0	*	0	0	*	0/1	0/1	0

.....continued on the next page

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[4] 0=not offset, 1=low (head length < 0.4 times length), 2=high (length >0.4 times length)

TABLE 2. (continued)

				number of oesophageal bulbs or swellings	head length	tail filiform	tail with terminal hyaline portion	mouth absent & oesophagus disconnected from intestine & no anus	mouth cavity blocked or filled	mouth narrow (<20% head diameter)	mouth with cheilorhabdion ridges	mouth with teeth	tooth near entrance to mouth	mouth cuticle thickened	mouth with >2 thickened plates in wall	mouth with denticles	located on vertebrate
microbial feeder	**sucker**	**suspension**		0–1	0/1	0/1	0	0	*	1	0	0	*	0	0	0	0
		particulate		0–1	0/1	0/1	0	0	*	0	0	0	*	0	0	0	0
	processor	**suspension**		0–1	0/1	0/1	0	0	*	1	0/1	0/1	0/1	0/1	0	0	0
		particulate		0–1	0/1	0/1	0	0	0/1	0	0/1	0/1	0/1	0/1	0	0/1	0
	piercer			1–2	0/1	0/1	0	0	0	1	0/1	0	0	0	0	0	0
	crusher			1–2	0/1	0/1	0	0	0/1	0/1	0	0	0	1	1	0	0
	scraper			0–1	0/1	0/1	0	0	0	0/1	1	1	1	1	0	0	0
predator	**chewer**			0–2	0/1	0/1	0	0	0	0/1	0/1	0/1	0/1	1	0	0/1	0
	piercer			1	0/1/**2**	0/1	0/1	0	0	1	0/1	0	0	0/1	0	0	0
parasite	**plant**	**internal modifier**	**aerial**	1–2	0/1	0	0	0	0	1	0	0	*	0	0	0	0
			below-ground	2	0/1	0	0/1	0	0	1	0	0	*	0	0	0	0
		internal migrator	**aerial**	1–2	0/1	0	0	0	0	1	0	0	*	0	0	0	0
			below-ground	2	**1/2**	0	0	0	0	1	0	0	*	0	0	0	0
		external root feeder	**sub-surface**	2	0/1/**2**	0/1	0/1	0	0	1	0	0	*	0	0	0	0
			surface	0–2	0/1/**2**	0/1	0/1	0	0	1	0	0	*	0	0	0	0
		external browser		0–2	0/1	0/1	0	0	0	1	0	0	*	0	0	0	0
		wood & bark associate		0–2	0/1	0/1	0	0	0/1	0/1	0/1	0/1	0/1	0/1	0	0	0
	invertebrate	**arthropod**		1	0/1/**2**	0	0	0/**1**	0/1	0/1	0	0/1	0/1	0/1	0	0	1
		other		1	0/1/**2**	0	0	0/**1**	0/1	0/1	0	0/1	0/1	0/1	0	0	1
	vertebrate	**fish**		0–1	0/1/**2**	0	0	0 (1)	0/1	0/1	0	0/1	0/1	0/1	0	0	1
		amphibian		0–1	0/1/**2**	0	0	0 (1)	0/1	0/1	0	0/1	0/1	0/1	0	0	1
		reptile		0–1	0/1/**2**	0	0	0 (1)	0/1	0/1	0	0/1	0/1	0/1	0	0	1
		bird		0–1	0/1/**2**	0	0	0 (1)	0/1	0/1	0	0/1	0/1	0/1	0	0	1
		mammal		0–1	0/1/**2**	0	0	0 (1)	0/1	0 (1)	0	0/1	0/1	0/1	0	0	1
	host unknown			0–1	0/1/**2**	0	0	0 (1)	0/1	0	0	0/1	0/1	0/1	0	0	1

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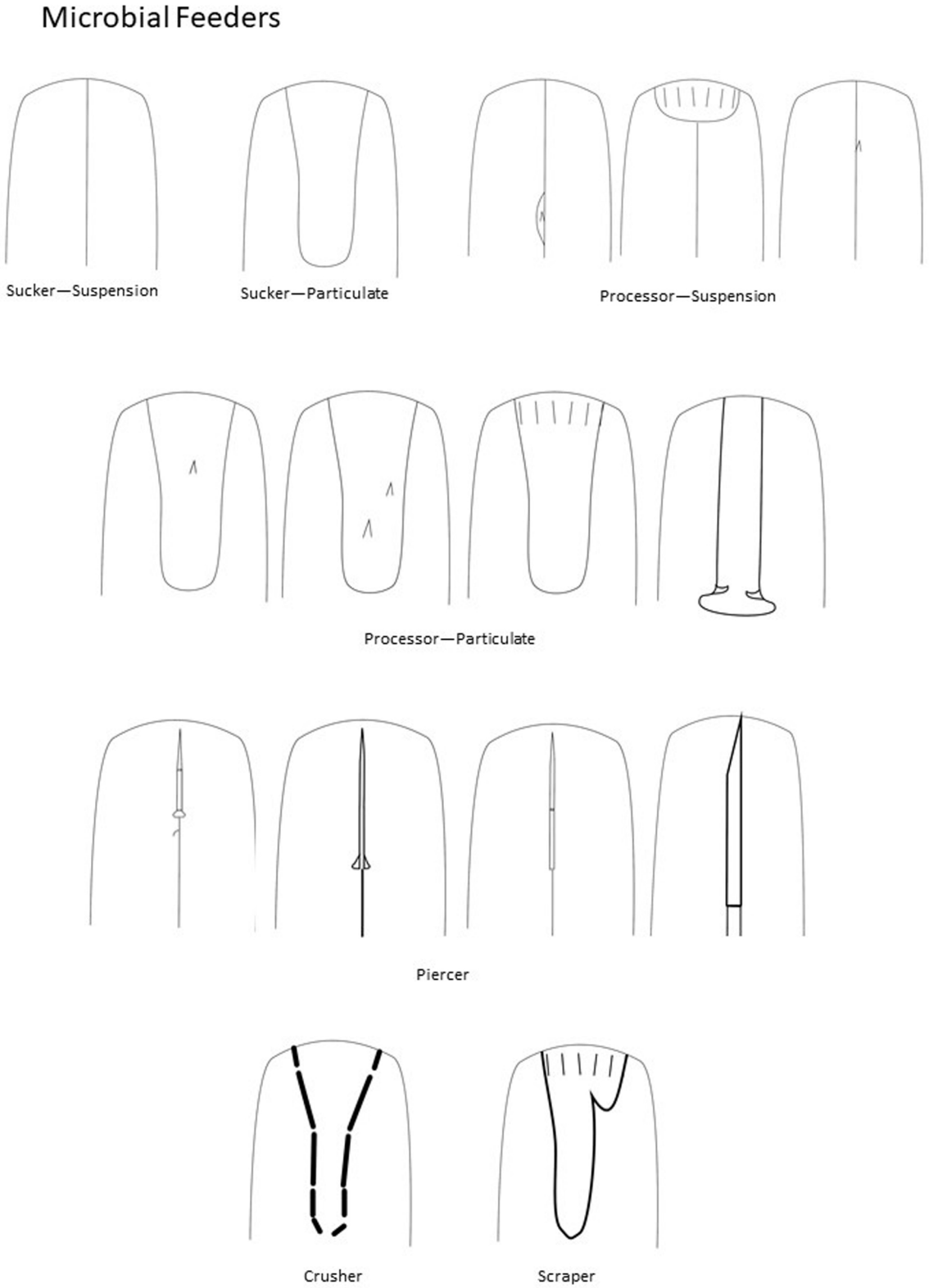
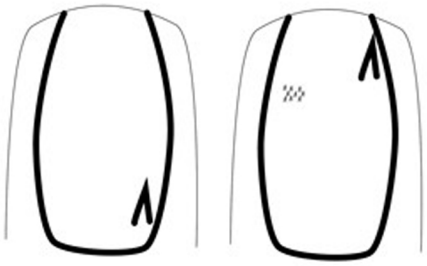
[4] 0=not offset, 1=low (head length < 0.4 times length), 2=high (length >0.4 times length)

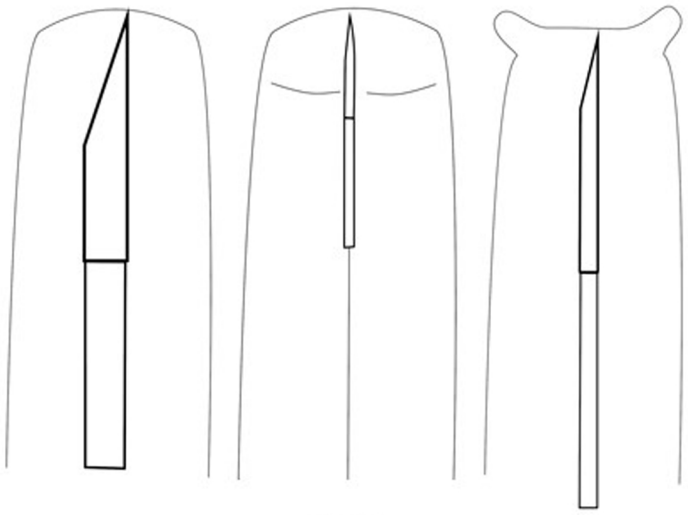
FIGURE 1. Diagrammatic representation of general characteristics of the stoma of all trophic types.



Predators

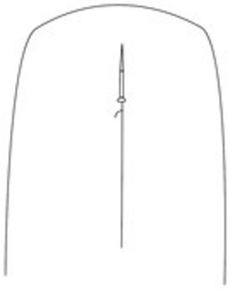


Ingester (Chewer)

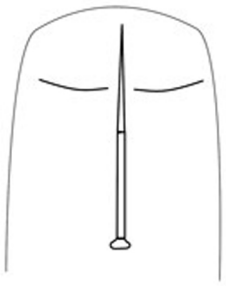


Piercer

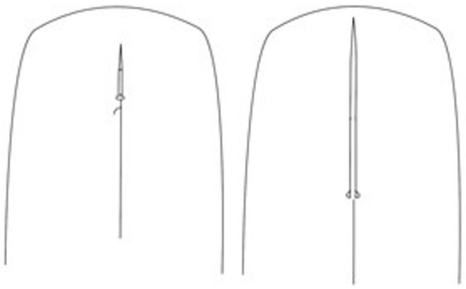
Parasites



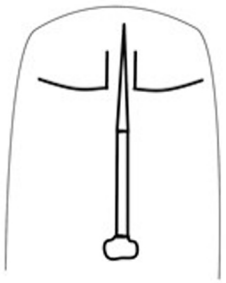
Plant – Internal Modifier – Aerial



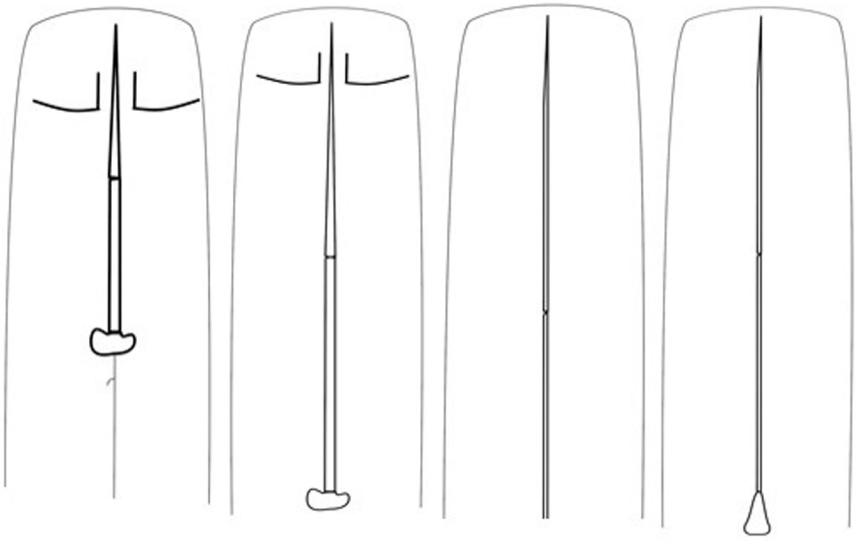
Plant – Internal Modifier – Below ground



Plant – Internal Migrator – Aerial

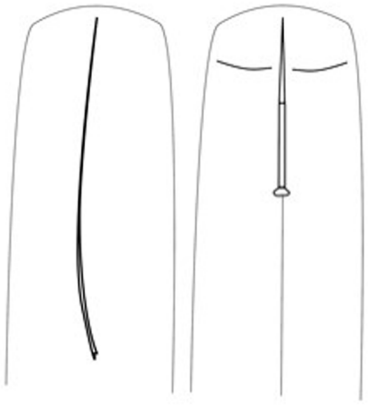


Plant – Internal Migrator – Below ground

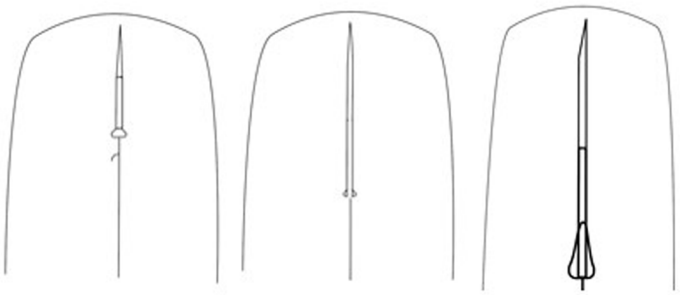


Plant – External Root Feeder – Sub-surface

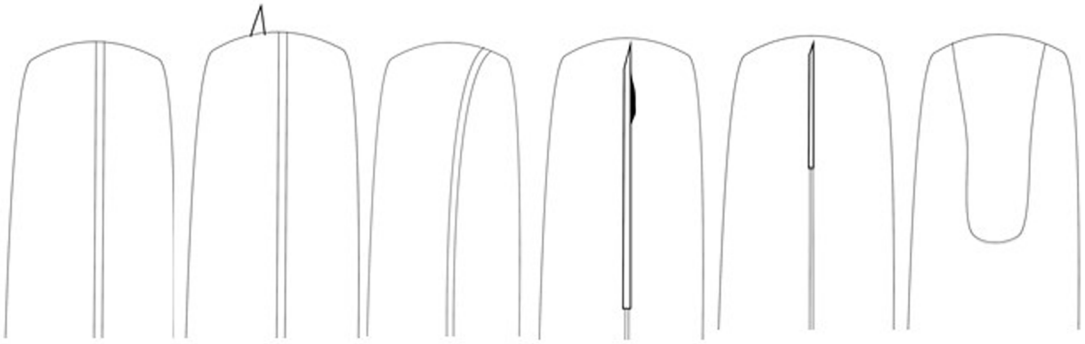
Parasites



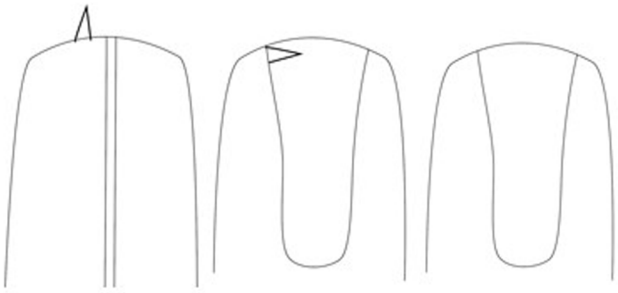
Plant – External Root Feeder – Surface



Plant – External Browser



Invertebrate



Vertebrate

Description of trophic relationships and typical morphological features of each trophic group

1. Microbial feeder

Feed on microbes smaller than themselves (bacteria, fungi, unicellular algae).

Small nematode with either no buccal cavity, a narrow one or a broad one, with or without cheilostomal ridges or plates, with or without teeth, with or without stylet. Found in soils, and sediments, but also in plant bark and wood, insects or other invertebrates

A. Sucker

Feed by ingesting organisms small enough to be consumed whole, or molecules from solution.

Stoma without cheilostomal ridges, plates or thickening, without wall thickening, teeth, denticles or stylet.

i. Suspension

Feed by ingesting very small organisms that can be sucked from suspension, consumed whole and digested with minimal processing, or else ingesting molecules from solution.

No or very narrow buccal cavity (less than 20% head diameter)

E.g. *Araeolaimus*, *Carabonema*, *Draconema*, *Eumonhystera*, *Serpentirhabdias*, *Siphonolaimus*, *Steinernema*

ii. Particulate

Feed by ingesting small organisms that can be consumed whole with minimal processing after being taken into the mouth, or else ingesting molecules from solution.

Definite buccal cavity (more than 20% of head diameter)

E.g. *Anoplostoma*, *Bathylaimus*, *Caenorhabditis*, *Macrolaimus*, *Panagrellus*, *Plectus*, *Prismatolaimus*, *Sabatieria*

B. Food processor

Feed by ingesting small organisms requiring some processing in the mouth with teeth or ribs to access contents before ingestion.

Stoma with or without cheilostomal ridges, plates or thickening, with or without thickening, with or without teeth or denticles, without stylet

i. Suspension

Feed by ingesting very small organisms that can be sucked from suspension, but require some processing to access contents.

Small mouth (either narrow (less than 20% head diameter) or short (length less than 50% of head diameter)) with small tooth or teeth or denticles or cheilostomal ridges, without stylet, plates or large teeth

E.g. *Phasmarhabditis*, *Rhabdolaimus*, *Tripyla*

ii. Particulate

Feed by taking small organisms into the mouth and processing them to access their contents.

Definite mouth cavity present, cheilostomal ridges or thickenings present or absent, buccal cavity deeper (length more than 50% head diameter), with teeth and/or denticles but without stylet

E.g. *Diplogaster*, *Ironus*, *Kinonchulus*, *Mononchus*, *Molgolaimus*, *Rhabditis*, *Tobrilus*

C. Piercer
Feed by using a protrusible hollow stylet to pierce microbial cells or fungal hyphae and suck the contents into the gut.

Stoma without cheilostomal ridges or plates, without teeth or denticles but with stylet, stylet generally without knobs, but if with knobs then they are small

E.g. *Abursanema*, *Aphelenchus*, *Dorylaimoides*, *Dorylaimus*, *Leptonchus*, *Tylenchus*

D. Crusher
Feed by using mobile thickened plates in the mouth to crush microbes and obtain access to their contents.

Funnel or tubular mouth cavity without cheilostomal ridges or plates, without teeth but walls with multiple thickened plates.

E.g. *Acrobeloides*, *Axonolaimus*, *Limonchulus*, *Teratocephalus*, *Vasostoma*

E. Scraper
Feed by scraping microbes from their attachments to substrate particles.

Substantial mouth cavity with cheilostomal ridges or plates, and either with substantial cuticularized tooth close to the mouth opening of a shallow buccal cavity less than 1 head diameter deep, or else with smaller teeth located further from the mouth opening of a deeper buccal cavity more than 1 body diameter deep

E.g. *Campydoroides*, *Chromadora*, *Micoletzklya*, *Onchulus*, *Platycoma*, *Udonchus*

2. Predator
Feed on animals of a similar size to the nematode.

Large nematode with either a large buccal cavity with thick walls and one or more teeth and/or an area of rasp-like denticles, or else a large, hollow stylet

A. Ingester
Feed by taking prey into the mouth and there using teeth and/or denticles to access the contents

A large and heavily cuticularized buccal cavity and one or more teeth and/or an area of rasp-like denticles.

E.g. *Anatonchus*, *Belbolla*, *Butlerius*, *Enoploides*, *Oncholaimus*, *Onyx*

B. Piercer
Feed by piercing prey using a large, thick, hollow stylet

Buccal cavity small to medium-sized, with or without cheilostomal plates or ridges and thickened cuticular pieces, but with large stylet generally without knobs, with wide lumen, lips mobile.

E.g. *Aporcelaimellus*, *Discolaimus*, *Seinura*, *Trachypleurosum*

3. Parasite
Highly-variable trophic relationship ranging from non-feeding to completely dependent on the host, and ranging from consumption of only a small proportion of the host to almost complete consumption.

Associated with a larger organism for all or part of life cycle. Stoma highly variable, with or without cheilostomal plates or teeth, mouth of variable size with variable wall thickness and numbers of teeth or denticles; stylet present or absent.

A. Plant
Mostly feeding on plant tissues with trophic relationship ranging from complete dependence on the plant (most common) to non-feeding use of the plant as a substrate only (less common).

Within or outside higher plants for all or part of life cycle, either above or below ground. Stoma generally with stylet, except in some wood or bark associates which are also in other trophic groups and have the stomal characteristics of the other group.

i. Internal modifier
Juveniles and adult females feed on modified plant cells formed into a specialized feeding or protective site for the nematode by the plant under the influence of glandular secretions injected into the plant by the nematode. Adult males may not feed.

Adult males of some species, adult females and juveniles with small- to medium-length stylet terminated by distinct but not large knobs. Adult males of some species with vestigial stylet. Adult females remain stationary at the feeding site within the plant and have a swollen or greatly thickened body containing large numbers of eggs. Parasitic juveniles also stationary at the feeding site and with swollen or greatly thickened body. Pre-parasitic juveniles and adult males vermiform or greatly thickened and inside or outside the plant.

a. Aerial
All stages feed on plant cell contents causing modification to the plant but adults may also enter non-feeding quiescent state.

All stages having small stylet (<10 µm long) terminated by small knobs (<2µm across). All stages found in aerial parts of plants (seeds, leaves, flower buds), and may be found in soil, water or an insect vector. Adult male and female body greatly thickened. Juvenile thinner, vermiform.

E.g. *Anguina*, *Fergusobia*, *Ficotylus*

b. Below ground
Adult females and juveniles feed on plant cell contents causing modification to the plant but adult females may persist as dead egg sacs (cysts) and adult males do not feed.

Adult males of some species, adult females and juveniles having slender medium-length stylet (10 to 20 µm long) terminated by small knobs (3 to 5 µm across). Live adult females found only in roots at the modified feeding site. Juveniles found in plant roots at a feeding site or in soil. Adult males found in soil or 4th-stage juvenile cuticle within the root. Dead females containing eggs (cysts) found in roots, soil or water. Adult female body swollen or greatly thickened. Juveniles variably swollen or thickened if found in roots or vermiform if in soil, males vermiform.

E.g. *Meloidogyne*, *Heterodera*, *Rotylenchulus*

ii. Internal migrator
All life stages in most species feed on plant cell contents causing damage to the cell. Adult males of some species do not feed.

All life stages generally having short- to medium-length stylet (5 to 25µm long) and terminal knobs absent to large. Stylet vestigial in adult males of some species. All life stages vermiform migrating through stems, leaves, roots or corms. All life stages also found in soil outside the plant.

a. Aerial
All life stages feed on plant cell contents causing damage to the cells.

All life stages having a short, slender stylet (5 to 15µm long) with terminal knobs absent or small (<3 µm across). All life stages vermiform migrating through non-woody stems or leaves. All life stages also found in soil outside the plant.

E.g. *Aphelenchoides*, *Ditylenchus*, *Pseudhalenchus*

b. Below ground
Mostly all life stages feed on plant cell contents causing damage to the cell. Adult males of some species do not feed.

All life stages generally having a thick medium-length stylet (10 to 25µm long) terminated by large knobs (5 to 6 µm across) but stylet vestigial in adult males of some species. All life stages vermiform migrating through roots and corms. All life stages also found in soil outside the plant.

E.g. *Hirschmanniella*, *Pratylenchus*, *Radopholus*

iii. External root-feeder
All life stages in most species feed on plant root cell contents causing damage to the cell. Adult males of some species do not feed.

All life stages generally having a small to long stylet (10 to 150µm long) with terminal knobs or flanges small to large (3 to 8µm across). Stylet vestigial in adult males of some species. All life stages vermiform migrating through soil to attack plant roots from outside.

a. Sub-surface feeder
All life stages in most species feed on non-epidermal plant root cell contents causing damage to the cell. Adult males of some species do not feed.

All life stages generally having a medium-length to long stylet (20 to 150µm long) with terminal knobs or flanges large (5 to 8µm across). Stylet vestigial in adult males of some species. All life stages vermiform migrating through soil or attached to plant roots.

E.g. *Dolichodorus*, *Helicotylenchus*, *Longidorus*, *Morulaimus*, *Macroposthonia*, *Xiphinema*

b. Surface feeder
All life stages in most species feed on epidermal plant root cell contents causing damage to the cell. Adult males of some species do not feed.

All life stages generally having a short- to medium-length hollow stylet (10 to 20µm long) with small terminal knobs (3 to 5µm across), or else a longer, thin, curved, solid stylet (40 to 200µm long) with small flanges. All life stages vermiform migrating through soil or attached to plant roots.

E.g. *Coslenchus*, *Paratrichodorus*, *Pungentus*, *Tylenchorhynchus*

iv. External root browser
All life stages browse on plant root-hair, moss or lichen cell contents causing little damage to the cell.

All life stages having a short, slender stylet (<15µm long) with small terminal knobs (<4µm across). All life stages vermiform migrating through soil, attached to plant roots, moss or lichen.

E.g. *Aphelenchus, Axonchium*, *Californidorus, Ditylenchus*, *Tylenchus*

v. Wood or bark associate
Feeding on woody plant tissues, fungi associated with wood or bark, other nematodes or invertebrates associated with wood or bark.

Within or outside wood or bark plants for all or part of life cycle, above ground. Stoma variable because most species are also in other trophic groups and have their stomal characteristics.

E.g. *Aphelenchoides*, *Bursaphelenchus*, *Deladenus*, *Laimaphelenchus*, *Macrolaimus*

B. Invertebrate
Many species using host as a dispersal mechanism or vector to a another feeding site, but also using host

tissues for feeding or acting as a vector for other organisms that are the nematodes' food (for example the insect-pathogenic bacteria vectored between insects and then fed on by the nematode once the insect is dead). Consequence of nematodes for host range from benign to uniformly fatal.

Within or outside invertebrates for all or part of life cycle. Stoma may have a stylet, with or without terminal knobs, or else have the stomal characteristics of other trophic groups.

i. Arthropod host
Many species using host as a dispersal mechanism or vector to a another feeding site (either with high microbial abundance, a plant or a vertebrate), but also using host tissues for feeding or acting as a vector for other organisms that are the nematodes' food (for example the insect-pathogenic bacteria vectored between insects and then fed on by the nematode once the insect is dead).

Within or outside arthropods for all or part of life cycle. Stoma may have a stylet, with or without terminal knobs, or else have the stomal characteristics of other trophic groups.

E.g. *Abathymermis, Mermis*, *Muspicea*, *Neotylenchus, Oligaphelenchoides*, *Onchocerca*, *Parasitaphelenchus*, *Parasitodiplogaster*, *Parasitorhabditis*, *Trophomera*

ii. Other host
Some species using host as a dispersal mechanism or vector to a another feeding site (either with high microbial abundance, a plant or a vertebrate), but many use host tissues for feeding. Some species acting as a vector for other organisms that are the nematodes' food (for example the pathogenic bacteria vectored between gastropods and then fed on by the nematode once the gastropod is dead). Association with invertebrate may be opportunistic.

Within or outside invertebrate for all or part of life cycle. Stoma may have a stylet, with or without terminal knobs, or else have the stomal characteristics of other trophic groups.

E.g. *Angiostrongylus*, *Gordiomermis*, *Marimermis, Nemhelix*, *Neostrongylus, Noteodiplogaster*, *Phasmarhabditis*

C. Vertebrate
Most species using host tissues for feeding. A very few using host as a dispersal mechanism or vector to another feeding site. May remain outside host, enter gut, or enter body cavity, and may migrate within hosts. Consequence of nematodes for host range from benign to severe, but rarely fatal without other contributing factors.

Within vertebrates for all or part of life cycle. Many species with free-living stage or part of life cycle in intermediate host. Stoma occasionally with a stylet without terminal knobs (*Trichinella* larvae), but mostly with substantial mouth cavity, often with substantial teeth near the anterior. Some genera have no teeth.

i. Fish host
Using fish tissues for feeding. A few using host as a dispersal mechanism or vector to another host. May remain outside host in the skin, enter gut, or enter body cavity, and may migrate within hosts. Consequence of nematodes for host range from benign to severe, but rarely fatal without other contributing factors.

Within fish for part of life cycle which may be larval or adult. Many species with free-living stage or part of life cycle in intermediate or definitive host. Mostly with substantial mouth cavity, often with substantial teeth near the anterior, but also without teeth.

e.g. *Anguillicola*, *Anisakis*, *Camallanus*, *Cystidicola*, *Philometra*, *Phocascaris*, *Terranova*

ii. Amphibian host
Using amphibian tissues for feeding. A few using host as a dispersal mechanism or vector to another

host. May remain outside host in the skin, enter gut, or enter body cavity, and may migrate within hosts. Consequence of nematodes for host range from benign to severe, but rarely fatal without other contributing factors.

Within amphibians for part of life cycle which may be larval or adult. Many species with free-living stage or part of life cycle in intermediate or definitive host. Mostly with substantial mouth cavity, often with substantial teeth near the anterior, but also without teeth.

e.g. *Cosmocerca*, *Camallanus*, *Oxyascaris*, *Pharyngodon*, *Spiroxys*

iii. Reptile host

Using reptile tissues for feeding. A few using host as a dispersal mechanism or vector to another host. May enter gut, or body cavity, and may migrate within hosts. Consequence of nematodes for host range from benign to severe, but rarely fatal without other contributing factors.

Within reptiles for part of life cycle which may be larval or adult. Many species with free-living stage or part of life cycle in intermediate or definitive host. Mostly with substantial mouth cavity, often with substantial teeth near the anterior, but also without teeth.

e.g. *Abbreviata*, *Ophidascaris, Thelandros*

iv. Bird host

Using bird tissues for feeding as definitive host. May enter gut, or body cavity, and may migrate within hosts. Consequence of nematodes for host range from benign to severe, but rarely fatal without other contributing factors.

Within birds for part of life cycle which may be larval or adult. Many species with free-living stage or part of life cycle in intermediate host, also with direct host to host transmission. Mostly with substantial mouth cavity, often with substantial teeth near the anterior, but also without teeth.

e.g. *Acuaria, Capillaria*, *Contracaecum*, *Cyrnea*, *Heterakis*, *Ornithostrongylus*, *Tetrameres*

v. Mammal host

Using mammal tissues for feeding as definitive host. May enter gut, or body cavity, and may migrate within hosts. Consequence of nematodes for host range from benign to severe, but rarely fatal without other contributing factors.

Within mammals for part of life cycle which may be larval or adult. Many species with free-living stage or part of life cycle in intermediate host, also with direct host to host transmission. Mostly with substantial mouth cavity, often with substantial teeth near the anterior, but also without teeth.

e.g. *Ancylostoma*, *Anisakis*, *Ascaris*, *Dirofilaria*, *Strongyloides*, *Trichinella*

D. Host unknown

Found as free-living forms only, may be adult or juvenile, but are assumed to be non-feeding stages of otherwise parasitic species, based on the morphology of the mouth, oesophagus, intestine and anus.

Mouth either rudimentary or absent, oesophagus mostly modified to cells storing lipid or other high-energy compounds, intestine either rudimentary or used as storage for food reserves and often disjunct from oesophagus, anus mostly absent.

e.g. *Abathymermis*, *Agamospirura*, *Mermis*

Key to morphology of individuals of different trophic groups

Number in parentheses beside couplet number refers to the couplet preceding it in the key.

1	Nematode located on or within vertebrate body or gut	**Parasite-Vertebrate**
	Nematode not located on or within vertebrate body or gut	2
2(1)	Nematode located on or within arthropod	3
	Nematode not associated with arthropod	6
3(2)	Stylet present	4
	Stylet absent	5
4(3)	1 to 3 large nematodes only, haemolymph clear	**Parasite-Invertebrate-Arthropod** (Mermithidae or Sphaerulariidae)
	Many small nematodes, haemolymph clear or cloudy	**Parasite-Invertebrate-Arthropod** (Aphelenchidae or Tylenchidae)
5(3)	Host haemolymph cloudy	**Parasite-Invertebrate-Arthropod** (*Heterorhabditis* or *Steinernema*) **Microbial Feeder-Processor-Particulate**
	Host haemolymph clear	**Parasite-Invertebrate-Arthropod** (genus other than *Heterorhabditis* or *Steinernema*) **Parasite-Vertebrate** (intermediate host)
6(2)	Nematode located on or within invertebrate other than arthropod	**Parasite-Invertebrate-Other**
	Nematode not located on invertebrate	7
7(6)	Nematode located on or within plant or plant part	8
	Nematode not located on or within plant or plant part	31
8(7)	Nematode located on or within aerial part of plant (stem, leaves or seeds)	9
	Nematode located on or within below-ground part of plants (roots, stolons, corms, tubers or bulbs)	19
9(8)	Nematode located within plant seeds	**Parasite-Plant-Aerial-Internal modifier**
	Nematode not located within plant seeds	10
10(9)	Nematode located in flower or fruit bud	**Parasite-Plant-Aerial-Internal modifier**
	Nematode not located in flower or fruit bud	11
11(10)	Nematode located within leaves or stem	12
	Nematode not located within leaves or stem	**Parasite-Plant-Wood or bark**
12(11)	Nematode located on or within plant leaves	13
	Nematode located on or within plant stem	15
13(12)	Nematode located on surface of leaf	**Parasite-Invertebrate-Arthropod** (Mermithidae)
	Nematode within leaf	14
14(13)	Leaf not galled, may be distorted	**Parasite-Plant-Aerial-Internal migrator** (*Aphelenchoides* or *Ditylenchus*)
	Leaf galled	**Parasite-Plant-Aerial-Internal modifier** (*Fergusobia* and related genera) **Parasite-Invertebrate-Arthropod**
15(11)	Plant live	16
	Plant dead	**Parasite-Plant-Wood or bark**
16(15)	Nematode within plant stem	17
	Nematode on surface of plant stem	18
17(16)	Stem not woody (herbaceous)	**Parasite-Plant-Internal migrator-Aerial**
	Stem woody	**Parasite-Plant-Wood or bark** (*Bursaphelenchus*)
18(16)	Stem surface smooth	**Parasite-Plant-Internal migrator-Aerial**
	Stem surface with fibrous bark	**Parasite-Plant-Wood or bark**
19(8)	Stylet	20
	No stylet (may be associated with decaying plant material or microbial decomposers)	30
20(19)	All or a substantial portion of nematode body within root	21
	Most of nematode body on surface of root	27
21(20)	Root modified to swelling	**Parasite-Plant-Internal modifier-Below ground**
	Root not swelled	22
22(21)	Nematode body swollen	**Parasite-Plant-Internal modifier-Below ground** (parasitic juvenile or adult female)
	Nematode body not swollen	23
23(22)	Nematode adult female with vulva and/or eggs	**Parasite-Plant-Internal migrator-Below ground**
	Nematode not adult female, no vulva or eggs	24
24(23)	Stylet thick, with large terminal knobs	**Parasite-Plant-Internal migrator-Below ground**
	Stylet slender, with small terminal knobs	25
25(24)	Juvenile nematode	**Parasite-Plant-Internal modifier-Below ground**
	Adult male nematode	26
26(25)	Stylet and oesophagus not vestigial	**Parasite-Plant-Internal modifier-Below ground**
	Stylet and oesophagus vestigial	**Parasite-Plant-Internal modifier-Below ground** **Parasite-Plant-Internal migrator-Below ground**
27(19)	Stylet length < 20µm long, with terminal knobs <5µm across	28
	Stylet length > 20µm long, with terminal knobs >5µm across	29

28(27) Stylet thick, robust, >10µm or 1 head diameter long, knobs medium (3 to 5 µm across) . . . . . **Parasite-Plant-External root feeder-Surface**
Stylet thin, delicate, <15µm or 1.5 head diameters long, knobs small (<4µm across), stylet delicate . . . . . **Parasite-Plant-External browser**
29(27) Stylet anterior portion solid, evenly curved, posterior portion with small terminal flange . . . . . **Parasite-Plant-External root feeder-Surface**
Stylet anterior portion hollow, straight or curved unevenly, posterior portion with no terminal flange, large flanges or knobs. . . . . **Parasite-Plant-External root feeder-Sub-surface**
30(19) Mouth cavity with teeth or denticles, 1 or 2 plates in each wall . . . . . **Microbial feeder-processor-particulate**
Mouth cavity without teeth, but with multiple plates in the walls . . . . . **Microbial feeder-crusher**
31(7) Mouth present or absent, mouth cavity absent, oesophagus not muscular, modified to food storage cells, intestine disconnected from oesophagus, anus absent . . . . . **Parasite-Host Unknown**
. . . . . **Parasite-Invertebrate-Arthropod**
. . . . . **Parasite-Invertebrate-Other**
Mouth present, cavity present or absent, oesophagus at least partially muscular, not modified to food storage cells, intestine connected to oesophagus, anus present 32
32(31) Stylet present 33
Stylet absent 62
33(32) Stylet without terminal flanges or knobs 34
Stylet with terminal expansion in the form of a flange or flanges, or knobs 42
34(33) Stylet broad, diameter >30% length, aperture >30% length, body large (>1000µm long) . . . . . **Predator-Piercer**
Stylet narrower, diameter <30% length, aperture < 30% length 35
35(34) Lips curled forward . . . . . **Predator-Piercer**
Lips not curled 36
36(35) Cephalic framework large and consisting of heavily cuticularized pieces. . . . . **Predator-Piercer**
Cephalic framework absent or small and lightly cuticularized 37
37(36) Stylet long (more than 40µm long), narrow (diameter < 10% length). 38
Stylet short, aspect ratio wider 39
38(37) Anterior stylet solid . . . . . **Parasite-Plant-External root feeder-Surface** (Trichoridae)
Anterior stylet hollow. . . . . **Parasite-Plant-External root feeder-Sub-surface** (Xiphinematidae)
39(37) Oesophageal bulb posterior to nerve ring. 40
Oesophageal bulb anterior to nerve ring 41
40(39) Terminal oesophageal bulb short (length <2x body diameter). . . . . **Parasite-Plant-External browser** (Leptonchidae)
Terminal oesophageal bulb long (length >2x body diameter) . . . . . **Microbial feeder-Piercer** (Other Dorylaimida)
41(39) Stylet lumen broad . . . . . **Predator-Piercer** (Seinuridae)
Stylet lumen narrow, short . . . . . **Parasite-Plant-External browser**(Aphelenchida)
. . . . . **Microbial Feeder-Piercer**
42(33) Body swollen . . . . . **Parasite-Plant-Internal modifier-Below ground** (Heteroderidae)
Body vermiform 43
43(42) Stylet >25µm long 44
Stylet <25µm long 45
44(43) Anterior stylet solid . . . . . **Parasite-Plant-External root feeder-Surface** (Trichoridae)
Anterior stylet hollow. . . . . **Parasite-Plant-External root feeder-Sub-surface** (Xiphinematidae, Tylenchida)
45(43) Stylet >20µm long 46
Stylet <20µm long 50
46(45) Head low. . . . . **Parasite-Plant-Internal modifier-Below ground**
Head high . . . . . **Parasite-Plant-External root feeder-Sub-surface**
47(45) Nerve ring posterior to oesophageal bulb. . . . . **Microbial feeder-Piercer**
. . . . . **Parasite-Plant-External browser**
Nerve ring anterior to oesophageal bulb 48
48(47) Median oesophageal bulb absent . . . . . **Microbial feeder-Piercer**
. . . . . **Parasite-Plant-External browser**
Median oesophageal bulb present 49
49(48) Cephalic framework strong, terminal knobs large (>5µm across) . . . . . **Parasite-Plant-Internal migrator-Below ground**
Cephalic framework weak or absent, terminal knobs small (<5µm across) . . . . . **Parasite-Plant-External root feeder-Sub-surface**
50(45) Stylet <10µm long . . . . . **Parasite-Plant-External browser**
Stylet >10µm long 51
51(50) Juvenile. 52
Adult male 54
Adult female 62
52(51) Tail with long hyaline tip, rounded tip . . . . . **Parasite-Plant-Internal modifier-Below ground**
Hyaline tail tip short or absent, shape variable. 53
53(52) Tail long, filiform . . . . . **Parasite-Plant-External browser**

Tail shorter, not filiform . . . . . **Parasite-Plant-External root feeder-Surface**
. . . . . **Parasite-Plant-External browser**
. . . . . **Microbial feeder-Piercer**

54(51) Stylet vestigial, oesophagus poorly defined, thin 55
Stylet not vestigial, oesophagus with defined structure, thick in places 58

55(54) Spicules terminal, tail rounded . . . . . **Parasite-Plant-Internal modifier-Below ground**
Spicules not terminal, tail conoid 56

56(55) Body thick (length <20 times maximum diameter) . . . . . **Parasite-Plant-External root feeder-Sub-surface**
Body normal shape (>20 times maximum diameter) 57

57(56) Head bulbous, with distinct constriction, high . . . . . **Parasite-Plant-Internal migrator-Below ground**
Head not bulbous (tapering, without distinct constriction (not distinctly offset) high or low . . . . . .
. . . . . **Parasite-Plant-External root feeder-Sub-surface**

58(54) Stylet knobs large (>5µm across), strong cephalic framework . . . . . .
. . . . . **Parasite-Plant-Internal migrator-Below ground**
Stylet knobs small (<5µm across), light cephalic framework 59

59(58) Tail very long, filiform . . . . . **Parasite-Plant-External browser**
. . . . . **Parasite-Plant-External root feeder-Surface**
Tail shorter, not filiform 60

60(59) Tail short, spicules very near end . . . . . **Parasite-Plant-Internal modifier-Below ground**
Tail longer, spicules at side 61

61(60) Nerve ring around intestine, oesophageal bulb occupies >60% of body diameter . . . . . **Microbial feeder-Piercer**
. . . . . **Parasite-Plant-Internal migrator-Aerial**
. . . . . **Parasite-Plant-External browser**
Nerve ring around oesophagus 62

62(61) Muscular oesophageal bulb length >2.5 times diameter . . . . . **Microbial feeder-Piercer**
. . . . . **Parasite-Plant-External root feeder-Surface**
. . . . . **Parasite-Plant-External browser**
Muscular oesophageal bulb length <2.5 times diameter . . . . . **Microbial feeder-Piercer**
. . . . . **Parasite-Plant-Internal modifier-Below ground**
. . . . . **Parasite-Plant-Internal migrator-Aerial**
. . . . . **Parasite-Plant-Internal migrator-Below ground**
. . . . . **Parasite-Plant-External root feeder-Surface**
. . . . . **Parasite-Plant-External browser**

63(51) One oesophageal bulb 64
Two oesophageal bulbs or swellings 65

64(63) Nerve ring posterior to oesophagus, oesophageal bulb occupies most of body diameter . . . . . .
. . . . . **Parasite-Plant-External browser**
. . . . . **Microbial feeder-Piercer**
Nerve ring anterior to intestine, stylet moderate or short . . . . . **Parasite-Plant-External browser**

65(63) Stylet knobs large (>5µm across), strong cephalic framework . . . . . **Parasite-Plant-Internal migrator-Below ground**
Stylet knobs small (<5µm across), light cephalic framework 66

66(65) Tail very long, filiform . . . . . **Parasite-Plant-External browser**
Tail shorter, not filiform . . . . . **Parasite-Plant-External root feeder-surface**
. . . . . **Parasite-Plant-External browser**
. . . . . **Microbial feeder-Piercer**

67(31) Mouth cavity tiny or absent, oesophagus not muscular, not connected to gut and modified as food storage cells . . . . . .
. . . . . **Parasite-Invertebrate**
Mouth cavity connected to oesophagus and intestine 68

68(67) Mouth cavity blocked or filled . . . . . **Microbial feeder-Processor-Particulate**
. . . . . **Parasite-Invertebrate**
Mouth cavity not blocked or filled 69

69(68) Mouth narrow (<20% head diameter) 70
Mouth broad (>20% head diameter) 73

70(69) Stoma with no teeth (within mouth cavity or not) 71
Stoma with teeth (within mouth cavity or not) . . . . . **Microbial feeder-Processor-suspension**

71(70) Mouth with more than 2 separate thickened plates in wall . . . . . **Microbial feeder-Crusher**
Mouth with 2 or less thickened plates in wall 72

72(71) Mouth with longitudinal ridges around opening (cheilorhabdions elaborated into longitudinal ridges) . . . . . .
. . . . . **Microbial feeder-Processor-suspension**
Mouth without longitudinal ridges around opening ridges simple (cheilorhabdions not elaborated) . . . . . .
. . . . . **Microbial feeder-Sucker-suspension**

73(69) Stoma with no teeth (within mouth cavity or not) 74
Stoma with teeth (within mouth cavity or not) 77

74(73) Mouth with more than 2 separate thickened plates in wall . . . . . **Microbial feeder-Crusher**

Mouth with 2 or less thickened plates in wall 75
75(74) Mouth with longitudinal ridges around opening (cheilorhabdions elaborated into longitudinal ridges), mouth cavity <50% diameter deep . . . . . **Microbial feeder-Processor-suspension**
Mouth without longitudinal ridges around opening ridges simple (cheilorhabdions not elaborated), mouth cavity >50% diameter deep. 76
76(75) Mouth containing denticles . . . . . **Microbial feeder-Processor-Particulate**
Mouth not containing denticles . . . . . **Microbial feeder-Sucker-Particulate**
77(73) Tooth near entrance to mouth . . . . . **Microbial feeder-Scraper**
Tooth not near entrance to mouth 78
78(77) Body small to medium size, mouth with mostly thin cuticular lining, diameter <50% of head diameter . . . . . **Microbial feeder-Processor-Particulate**
Body medium to large size, mouth with mostly greatly thickened cuticle, diameter >50% of head diameter **Predator-Chewer**

Note that many nematodes fall into more than one trophic group, and that the different types of parasites of plants are almost indistinguishable in some cases.

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TABLE 3. Trophic groups for an alphabetic list of every valid genus of nematodes recognized by Hodda (2021a) to the end of 2019. Columns of Primary categories separated by thick lines, Secondary categories by double lines and minor categories by single lines. Feeding habit abbreviations listed from left to right as per footnote.

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Abathymermis																		X							X
Abbreviata																					X	X			
Abelbolla								X																	
Abirovulva																		X							
Ablechroiulus		X																							
Aborjinia																			X						
Abursanema					X												X								
Acanthocheilonema																								X	
Acanthocheilus																				X					
Acantholaimus							X																		
Acanthomicrolaimus				X			X																		
Acanthonchus							X																		
Acanthopharynx								X																	
Acanthophryngoides								X																	
Acanthorhabdias		X																				X			
Acanthostrongylus																								X	
Acanthoxyurus																								X	
Acanthungella																			X						
Acephalodorylaimus					X																				
Acheilostoma																								X	
Achlysiella											X		X												
Achromadora							X																		
Ackertia																								X	
Acmaeolaimus	X																								
Acontylus													X												
Acrobeles						X																			
Acrobelinema						X																			
Acrobeloides						X																			
Acrobelophis						X																			

Primary categories: **Mic**=Microbial Feeder; **Pred**=Predator; **Para**=Parasite.

Secondary categories: (Microbial Feeders) **suck**=suckers; **proc**=processors; **pierc**=piercers; **crush**=crushers; **scrap**=scrapers; (Predators) **inges**=ingesters; **pierc**=piercers; (Parasites) **plant**=plant feeders; **invert**=invertebrate associates; **vert**=vertebrate associates; **host unknown**=host unknown.

Minor categories: (Microbial Feeders) **susp**=suspension feeders; **part**=particulate feeders; (Parasites) **int**=internal feeders; **ext root**=external root feeders; **ext brows**=external browser; **wood or bark**=wood or bark associate; **mod**=modifier; **mig**=migrator; **aer**=aerial; **b.g.**=below ground; **sub-s**=sub surface feeder; **surf**=surface feeder; **arth**=arthropod associate; **oth**=other invertebrate associate; **fish**=fish associate; **amphib**=amphibian associate; **rep**=reptile associate; **bird**= bird associate; **mamm**=mammal associate

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Acrolobus						X																			
Acromoldavicus						X																			
Acronema																			X						
Acrostichus						X																			
Acroukrainicus						X																			
Actinca					X				X																
Actinolaimoides					X																				
Actinolaimus									X																
Actinonema							X																		
Actus				X				X																	
Acuaria																						X			
Acugutturus																		X							
Acunemella																X									
Adelonema																							X		
Adelphos							X																		
Adenodelphis																			X					X	
Adenolaimus															X	X									
Adieronema																			X						
Admirandus								X																	
Adoncholaimus	X							X																	
Adungella																			X						
Aegialoalaimus	X																								
Aelurostrongylus																			X				X		
Aenigmenchus					X																				
Aequalodontium						X																			
Aetholaimus									X																
Afenestrata											X														
Afractinca					X				X																
Afractinolaimus									X																
Africana																					X				

Primary categories: **Mic**=Microbial Feeder; **Pred**=Predator; **Para**=Parasite.

Secondary categories: (Microbial Feeders) **suck**=suckers; **proc**=processors; **pierc**=piercers; **crush**=crushers; **scrap**=scrapers; (Predators) **inges**=ingesters; **pierc**=piercers; (Parasites) **plant**=plant feeders; **invert**=invertebrate associates; **vert**=vertebrate associates; **host unknown**=host unknown.

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Africanema		X																							
Africanthion								X																	
Afritylenchus													X												
Afrocarnoya																		X							
Afrodorylaimus					X				X																
Afronygus					X				X																
Agamascaris																					X				
Agamermis																		X							X
Agamofilaria																								X	
Agamomermis																		X							X
Agamospirura																			X	X					X
Agfa																			X						
Aglenchus																X									
Agmodorus					X											X									
Agriostomum																								X	
Akanthepsilonema	X																								
Akrotonus					X				X																
Alaeuris																						X			
Alaimella	X																								
Alaimonema							X																		
Alaimus	X																								
Alainchabaudia																						X			
Alaninema																			X						
Albiziaphelenchus																	X	X							
Algoanema							X																		
Aliascaris																			X	X					
Alinema																				X		X			
Alippistrongylus																								X	
Alirhabditis	X																								
Allantonema																		X							

Primary categories: **Mic**=Microbial Feeder; **Pred**=Predator; **Para**=Parasite.

Secondary categories: (Microbial Feeders) **suck**=suckers; **proc**=processors; **pierc**=piercers; **crush**=crushers; **scrap**=scrapers; (Predators) **inges**=ingesters; **pierc**=piercers; (Parasites) **plant**=plant feeders; **invert**=invertebrate associates; **vert**=vertebrate associates; **host unknown**=host unknown.

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Allintoshius																								X	
Allodapa																							X		
Allodiplogaster				X			X											X							
Allodorylaimus					X				X																
Alloionema				X															X						
Allomermis																		X							X
Allotrichodorus															X										
Allotylenchus																X									
Alocostoma																								X	
Amblydorylaimus					X				X																
Amblydorylaimus					X				X																
Amblyonema																				X					
Amidostomoides																						X			
Amidostomum																						X			
Ammotheristus		X																							
Amphibelondira					X											X									
Amphibiogoezia																					X				
Amphibiomermis																		X							X
Amphibiophilus																					X	X			
Amphicephaloides																								X	
Amphidelus	X																								
Amphidomermis																		X							X
Amphidorylaimus					X				X																
Amphimermis																		X							X
Amphimonhystera		X																							
Amphimonhystrella							X																		
Amphisakis																				X					
Amphisbaenema														X											
Amphispira			X																						
Amplicaecum																					X	X	X		

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Secondary categories: (Microbial Feeders) **suck**=suckers; **proc**=processors; **pierc**=piercers; **crush**=crushers; **scrap**=scrapers; (Predators) **inges**=ingesters; **pierc**=piercers; (Parasites) **plant**=plant feeders; **invert**=invertebrate associates; **vert**=vertebrate associates; **host unknown**=host unknown.

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Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Amplimerlinius															X										
Anadorella					X				X																
Anandranema																		X							
Ananus																			X						
Anaplectus	X																								
Anaspiculuris																								X	
Anatonchus								X																	
Anatrichosoma																								X	
Anatrichosoma																								X	
Anchidiplogaster				X			X																		
Anchobelondira					X											X									
Ancylostoma																								X	
Ancyracanthopsis																							X		
Ancyracanthus																		X		X			X		
Andersonfilaria																							X		
Andersonstrongylus																								X	
Andrassya	X																								
Angiostoma																			X						
Angiostrongylus																			X					X	
Anguillicola																				X					
Anguillicoloides																				X					
Anguillonema					X													X							
Anguillula		X																							
Anguina										X															
Anguinoides							X																		
Angulocirrus																								X	
Angusticaecum																					X				
Angustinema	X																								
Anisakis																				X					
Anivanema	X																								

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Anomalomermis																		X							X
Anomalostoma																		X							
Anomonema		X																							
Anomyctus					X																				
Anoncholaimus		X																							
Anonchus				X																					
Anoplostoma		X																							
Anoplostrongylus																								X	
Antarctenchus					X											X									
Antarcticonema	X																								
Antarctylus														X											
Antechiniella																								X	
Antechinostrongylus																								X	
Antholaimus									X																
Anthonema		X																							
Anticoma	X																								
Anticomopsis	X																								
Anticyathus		X																							
Anticyclus		X		X			X																		
Antomicron	X																								
Antopus	X																								
Anuronema																		X							
Aonchotheca																								X	
Aorolaimus														X											
Aoruroides																		X							
Aorurus																		X							
Apenodraconema	X																								
Aphanimermis																		X							X
Aphanolaimus		X																							
Aphanonchus		X																							

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Aphasmatylenchus														X											
Aphelenchoides					X							X	X			X	X								
Aphelenchulus																		X							
Aphelenchus					X											X									
Apifilaria																		X							
Aplectana																					X	X			
Apodontium		X																							
Apoleptonchus					X											X									
Aponchium							X																		
Aponcholaimus	X																								
Aponema																									
Aporcedorus					X				X																
Aporcelaimellus									X																
Aporcelaimoides					X				X																
Aporcelaimus					X				X																
Aporcelinus									X																
Aporcella					X				X																
Apratylenchoides														X											
Aprocta																						X			
Aproctella																						X			
Aproctiana																						X			
Aproctoides																						X			
Aproctonema																		X							
Aprutides					X				X																
Aquaemermis																		X							X
Aquatides					X				X																
Arabanema		X																							
Arachnomermis																		X							X
Araeolaimus	X																								
Araguanema																			X						

Primary categories: **Mic**=Microbial Feeder; **Pred**=Predator; **Para**=Parasite.

Secondary categories: (Microbial Feeders) **suck**=suckers; **proc**=processors; **pierc**=piercers; **crush**=crushers; **scrap**=scrapers; (Predators) **inges**=ingesters; **pierc**=piercers; (Parasites) **plant**=plant feeders; **invert**=invertebrate associates; **vert**=vertebrate associates; **host unknown**=host unknown.

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Aranimermis																		X							X
Arborityncbus														X											
Archeonema																								X	
Archeostrongylus																								X	
Archepsilonema	X																								
Arctidorylaimus					X				X																
Arctiplectus		X																							
Arenasoma		X																							
Arganema					X											X									
Arnfieldia																								X	
Aronema								X																	
Arthrocephalus																								X	
Arthrostoma																								X	
Artigasia																		X							
Arundelia																								X	
Asakawanema																								X	
Ascaridia																							X		
Ascaris																								X	
Ascarites																						X			
Ascarophis																		X		X					
Ascarops																								X	
Ascaroterakis																								X	
Ascolaimus		X																							
Ashworthius																								X	
Asperotobrilus				X																					
Aspiculuris																								X	
Aspidodera																								X	
Aspidonema		X																							
Astomonema	X																								
Asymmetracantha																								X	

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Asymmetrella								X																	
Asynmelaimus				X																					
Atalodera											X														
Ataronema																					X				
Atetylenchus																X									
Athernema					X											X									
Athusia																			X						
Atlantadorus															X										
Atractis																						X			
Atrochromadora							X																		
Atylenchus															X										
Auanema																									
Auchenacantha																								X	
Aulacnema																			X						
Aulolaimoides															X	X									
Aulolaimus	X																								
Aulonocephalus																						X			
Aulosphora														X											
Australodorus															X										
Austraplectana																					X				
Austromermis																		X							X
Austronema		X																							
Austrostrongylus																								X	
Austroxyuris																								X	
Avellaria																								X	
Aviculariella																							X		
Avifilaris																							X		
Avilandras																								X	
Avioserpens																							X		
Axonchium					X				X							X									

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Axonchoides					X											X									
Axonolaimus						X																			
Baikalomermis																		X							X
Bainechina																								X	
Bairdascaris																								X	
Bakeria																					X	X			
Bakernema														X											
Baladorylaimus					X																				
Baldwinema																		X							
Bancroftinema																				X			X		
Baqriella					X																				
Barbonema	X																								
Barracudia																				X					
Baruscapillaria																						X	X		
Basilaphelenchus					X												X								
Basirella																		X							
Basiria																X									
Basirotyleptus					X											X									
Bastiania		X																							
Bathmostomum																								X	
Bathychaetosoma																									
Bathyepsilonema	X																								
Bathyeurystomina								X																	
Bathylaimella		X																							
Bathylaimus		X					X																		
Bathymermis																		X							X
Bathynox							X																		
Bathyodontus		X																							
Batracholandros																					X				
Batrachonema																					X				

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Batrachostrongylus																					X				
Baujardia				X																					
Bauruascaris																						X			
Baylisascaris																								X	
Bealius					X												X								
Beaninema																				X					
Befilaria																						X			
Belaxellus					X				X																
Belbolla								X																	
Belgopeltula	X																								
Bellodera											X														
Belondira					X											X									
Belondirella					X											X									
Belonolaimus														X											
Bendiella								X																	
Benthimermis																				X					X
Berntsenus					X												X	X							
Bertzuckermania					X											X									
Betulodera											X														
Beveridgea																								X	
Beveridgiella																								X	
Bhalfilaria																							X		
Biacantha																								X	
Biarmifer							X																		
Bicirronema						X																			
Bidentostomum																								X	
Bidigiticauda																								X	
Biguetius																								X	
Bilobodera											X														
Bilobostoma																		X							

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Binema																		X							
Bioccastrongylus																								X	
Biogastranema																								X	
Bisbalia																								X	
Bispiculum																		X							
Bissonema																		X							
Bitylenchus															X										
Blaberinema																		X							
Blandicephalanema														X											
Blanusia																						X			
Blatticola																		X							
Blattophila																		X							
Blazionema																		X							
Blepharomermis																		X							X
Bodonema	X																								
Boehmiella																								X	
Bolbellia								X																	
Bolbinium	X																								
Bolbolaimus				X			X																		
Bolbonema	X																								
Boleodorus					X										X										
Bongersia	X																								
Boomerangia														X											
Boraceianema																		X							
Borania																								X	
Boreolaimus					X				X																
Boreomicrolaimoides							X																		
Borrellostrongylus																						X			
Bostrichodera																								X	
Boucherius	X																								

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Bourgelatia																								X	
Bourgelatioides																								X	
Bovienema																		X							
Boydinema																								X	
Brachonchulus				X				X																	
Brachyclonus																								X	
Brachydorus															X										
Bradybucca								X																	
Bradylaimus							X																		
Bradynema																		X							
Bradypostrongylus																								X	
Brasilaimus					X				X																
Brasilnema																				X					
Breinlia																								X	
Brevibucca		X																							
Brevigraphidium																								X	
Brevinema																		X							
Brevistriata																								X	
Brevithominx																								X	
Brittonema					X				X																
Bronchonema																								X	
Brugia																		X						X	
Brumptaemilius																		X							
Brygoonema																								X	
Buccolaimus								X																	
Buckleyatractis																						X			
Buckleyella																				X					
Buckleynema																				X					
Buetschlinema				X																					
Bufonerakis																					X				

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Bullaenema					X																				
Bunomystrongylus																								X	
Bunonema		X		X																					
Bunostomum																								X	
Burmanema																			X						
Bursadera											X														
Bursaphelenchus					X												X	X							
Bursilla				X																					
Butlerius				X				X																	
Buzionema																		X							
Caballeronema																				X					
Caballonema																								X	
Cacolaimus								X																	
Cacopaurus											X														
Cactodera											X														
Caenorhabditis	X	X																							
Caenostrongylus																								X	
Cagourakis																							X		
Calcaridorylaimus					X																				
Californidorus															X	X									
Caligocanna							X																		
Calligyrus	X																								
Callistoura																								X	
Calolaimus					X											X									
Calomicrolaimus				X			X																		
Caloosia														X											
Calvigula					X											X									
Calypsostrongylus																								X	
Calyptronema								X																	
Camallanides																					X				

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Camallanus																				X	X	X			
Camelodera											X														
Camelostrongylus																								X	
Cameronecator																								X	
Cameronia																		X							
Campanarougetia																				X					
Campbellenchus															X										
Camponotimermis																		X							X
Campydora					X																				
Campydoroides							X																		
Campylaimus		X																							
Capillaria																							X	X	
Capillostrongyloides																								X	
Capilonchus					X											X									
Capitomermis																		X							X
Caprionchulus				X																					
Captivonema	X																								
Caputonchus				X				X																	
Carabonema	X																	X							
Carcharolaimus									X																
Cardianema																						X			
Cardiofilaria																							X		
Cardiostrongylus																								X	
Caribenema									X																
Caribplectus		X																							
Carinoscapter		X																							
Carlosia																		X							
Carnoya																		X							
Carnoychaeta																		X							
Carolinensis																								X	

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Caroloxyuris																								X	
Carostrongylus																								X	
Carphodorus														X											
Caryboca									X																
Cascofilaria																		X							
Cassunema																								X	
Castorstrongylus																								X	
Catanema			X																						
Catoralaimellus						X																			
Cattiena																		X							
Caveonchus					X											X									
Caviputa	X																								
Cenolaimus		X																							
Cephalanticoma							X																		
Cephalenchus															X										
Cephalobellus																		X							
Cephalobium																		X							
Cephaloboides				X																					
Cephalobus						X																			
Cephalochaetosoma	X																								
Cephalodorylaimus					X																				
Cephaluris																						X			
Ceramonema	X						X																		
Ceratomermis																		X							X
Ceratoplectus	X																								
Ceratosolenus		X		X				X										X							
Ceratospira																						X			
Cercogylus																								X	
Cercopithifilaria																		X						X	
Cervidellus						X																			

Primary categories: **Mic**=Microbial Feeder; **Pred**=Predator; **Para**=Parasite.

Secondary categories: (Microbial Feeders) **suck**=suckers; **proc**=processors; **pierc**=piercers; **crush**=crushers; **scrap**=scrapers; (Predators) **inges**=ingesters; **pierc**=piercers; (Parasites) **plant**=plant feeders; **invert**=invertebrate associates; **vert**=vertebrate associates; **host unknown**=host unknown.

Minor categories: (Microbial Feeders) **susp**=suspension feeders; **part**=particulate feeders; (Parasites) **int**=internal feeders; **ext root**=external root feeders; **ext brows**=external browser; **wood or bark**=wood or bark associate; **mod**=modifier; **mig**=migrator; **aer**=aerial; **b.g.**=below ground; **sub-s**=sub surface feeder; **surf**=surface feeder; **arth**=arthropod associate; **oth**=other invertebrate associate; **fish**=fish associate; **amphib**=amphibian associate; **rep**=reptile associate; **bird**= bird associate; **mamm**=mammal associate

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Cervoannulatus					X											X									
Cervonema	X																								
Cervonemella																								X	
Chabaudechina																								X	
Chabaudiella																							X		
Chabaudistrongylus																								X	
Chabaudstrongylus																								X	
Chabertia																								X	
Chabertiella																								X	
Chabfilaria																								X	
Chabirenia		X																				X			
Chaetonema		X																							
Chalcidonema																		X							
Chambersiella		X																							
Chandlerella																							X		
Chandleronema																								X	
Chapiniella																						X			
Cheilobus		X																X							
Cheilonematodum																							X		
Cheilospirura																							X		
Cheironchus								X																	
Cheiropteronema																								X	
Cheloniheterakis																						X			
Cherylia																		X						X	
Chevreuxia																							X		
Chilenchus					X											X									
Chilonema																		X							
Chiloplacoides						X																			
Chiloplacus						X																			
Chiropterofilaria																								X	

Primary categories: **Mic**=Microbial Feeder; **Pred**=Predator; **Para**=Parasite.

Secondary categories: (Microbial Feeders) **suck**=suckers; **proc**=processors; **pierc**=piercers; **crush**=crushers; **scrap**=scrapers; (Predators) **inges**=ingesters; **pierc**=piercers; (Parasites) **plant**=plant feeders; **invert**=invertebrate associates; **vert**=vertebrate associates; **host unknown**=host unknown.

Minor categories: (Microbial Feeders) **susp**=suspension feeders; **part**=particulate feeders; (Parasites) **int**=internal feeders; **ext root**=external root feeders; **ext brows**=external browser; **wood or bark**=wood or bark associate; **mod**=modifier; **mig**=migrator; **aer**=aerial; **b.g.**=below ground; **sub-s**=sub surface feeder; **surf**=surface feeder; **arth**=arthropod associate; **oth**=other invertebrate associate; **fish**=fish associate; **amphib**=amphibian associate; **rep**=reptile associate; **bird**= bird associate; **mamm**=mammal associate

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Chisholmia																								X	
Chitinotylenchus					X											X									
Chitwoodchabaudia																				X					
Chitwoodia	X																								
Chitwoodiella																		X							
Chitwoodiellus					X											X									
Chitwoodieloides					X											X									
Chitwoodius					X											X									
Chitwoodspirura																								X	
Chlamydoprocta																								X	
Chloronemella		X																							
Choanolaimus								X																	
Chondronema																		X							
Choniangium																								X	
Choniolaimus							X																		
Chordatortilis																							X		
Chordocephalus																							X		
Choriorhabditis				X																					
Christiella																		X							
Chromadora							X																		
Chromadorella							X																		
Chromadorina							X																		
Chromadorissa							X																		
Chromadorita							X																		
Chromadoropsis							X																		
Chromaspirina								X																	
Chronogaster		X																							
Chrysomelimermis																		X							X
Chrysonema					X																				
Cienfuegia				X																					

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Cinctonema	X																								
Cissophyllus																						X			
Citellina																								X	
Citellinema																								X	
Citellinoides																								X	
Chathariniella																				X					
Cladocephalus															X	X									
Clarkus				X				X																	
Clavicauda					X											X									
Clavicuadoides					X				X																
Clavinema																				X					
Clementeia																		X							
Cloacina																								X	
Cnizostrongylus																								X	
Coarctadera				X														X							
Cobbia							X																		
Cobbionema								X																	
Cobboldina																								X	
Cobbonchulus				X				X																	
Cobbonchus				X				X																	
Codiostomum																							X		
Colbranium														X											
Colobostrongylus																								X	
Colporhabditis																									
Columbostrongylus																							X		
Comephoronema																				X					
Comesa							X																		
Comesoma		X																							
Comesomoides		X																							
Congerinema																				X					

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Conilia							X	X																	
Coninckia	X																								
Conispiculum																						X			
Contortylenchus																		X							
Contracaecum																				X			X		
Coomansinema									X																
Coomansus				X				X																	
Cooperia																								X	
Copalonema																	X								
Copemania																								X	
Coprotylenchus					X													X							
Cordicauda																								X	
Cordonicola																		X							
Corethrellonema																		X							
Cornilaimus		X																							
Cornurella				X																					
Corollonema																								X	
Corollostrongylus																								X	
Coronocephalus																		X							
Coronocyclus																								X	
Corononema		X																							
Coronostoma																		X							
Coronostrongylus																								X	
Corpicracens																		X							
Corydiella																		X							
Corythostoma	X																								
Cosalaimus	X																								
Coslenchus															X	X									
Cosmocephalus																							X		
Cosmocerca																					X	X			

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Cosmocercella																					X	X			
Cosmocercoides																					X	X			
Cosmostrongylus																								X	
Cosmoxynema																				X					
Cosmoxynemoides																				X					
Costanemella				X			X																		
Courduriella																								X	
Cranifera																		X							
Craspedonema		X																							
Crassibucca				X				X																	
Crassicauda																								X	
Crassinema																		X							
Crassogula					X				X																
Crassolabium					X				X																
Crassolaimus							X																		
Crassonchus				X				X																	
Crateronema					X																				
Craterostomum																								X	
Creagrocercus																			X						
Crenatobronema																				X					
Crenopharynx							X																		
Crenosoma																			X					X	
Crestanema							X																		
Crestonchulus				X				X																	
Cretaciaphelenchoides																		X							
Cretacimermis																		X							X
Cretodiplogaster																		X							
Cribronema						X																			
Cricodorylaimus					X				X																
Cricolaimus							X																		

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TABLE 3. (Continued)

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Criconema														X											
Criconemoides														X											
Criptonchus				X																					
Cristamphidelus	X																								
Cristitectus																				X					
Crocodorylaimus					X				X																
Crocodylocapillaria																						X			
Croconema							X																		
Croserinema														X											
Crossocephalus																								X	
Crossonema														X											
Crossophorus																								X	
Cruorifilaria																								X	
Crustafila				X														X							
Crustorhabditis		X																							
Cruzia																						X			
Cruznema				X															X						
Crycophorus																								X	
Cryonema				X																					
Cryphodera											X														
Cryptaphelenchoides					X												X	X							
Cryptaphelenchus					X												X	X							
Cryptenoplus								X																	
Cryptolaimus	X																								
Cryptonchus				X																					
Ctenascarophis																				X					
Ctenodactylina																								X	
Cucullanus																				X					
Cucullitylenchus					X											X									
Culicimermis																		X							X

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TABLE 3. (Continued)

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Curvicaudatum																							X	
Curviditis				X																				
Curvidorylaimus					X																			
Curvolaimus				X																				
Cuticonema		X																						
Cuticularia				X																				
Cyartonema	X																							
Cyatholaimus							X																	
Cyathonchus				X																				
Cyathoshiva							X																	
Cyathospirura																							X	
Cyathostoma																						X	X	
Cyathostomum																							X	
Cyclobulura																							X	
Cyclodontostomum																							X	
Cyclopsinema																		X						
Cyclostrongylus																							X	
Cyclozone																				X				
Cygnonema	X																							
Cylicocyclus																							X	
Cylicodontophorus																							X	
Cylicolaimus								X																
Cylicospirura																							X	
Cylicostephanus																							X	
Cylicostrongylus																					X			
Cylindrolaimus	X																							
Cylindropharynx																							X	
Cynura	X	X																						
Cyrnea																						X		
Cyrtosomum																					X			

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Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Cystidicola																				X					
Cystidicoloides																				X					
Cystocaulus																								X	
Cystofilaria																								X	
Cystoopsis																				X					
Cytolaimium		X																							
Dacnitis																				X					
Dacnitoides																				X					
Dactylaimoides				X																					
Dactylaimus		X																							
Dactyluraxonchium					X											X									
Dagda							X																		
Daniconema																				X					
Daptonema		X																							
Dartevellenia																								X	
Dasylaimus							X																		
Dasynemella							X																		
Dasynemoides	X																								
Daubaylia		X																							
Daubneyia																								X	
Davenema																		X							
Dayellus							X																		
Decamermis																		X							X
Decrusia																								X	
Deficephalobus						X																			
Deladenus					X												X	X							
Delatylus					X												X	X							
Deletrocephalus																							X		
Deleyia		X																							
Delicata																								X	

Primary categories: **Mic**=Microbial Feeder; **Pred**=Predator; **Para**=Parasite.

Secondary categories: (Microbial Feeders) **suck**=suckers; **proc**=processors; **pierc**=piercers; **crush**=crushers; **scrap**=scrapers; (Predators) **inges**=ingesters; **pierc**=piercers; (Parasites) **plant**=plant feeders; **invert**=invertebrate associates; **vert**=vertebrate associates; **host unknown**=host unknown.

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Deliria																						X		
Deltanema							X																	
Demaniella				X																				
Demonema								X																
Dentatonema							X																	
Denticulella							X																	
Denticulospirura																							X	
Dentinema																			X					
Dentiphilometra																			X					
Dentirumai																			X					
Dentolaimoides								X																
Dentomermis																		X						X
Dentostomella																							X	
Deontolaimus	X						X																	
Deontostoma							X																	
Dermatopallarya																							X	
Dermatoxys																							X	
Desmicola																		X						
Desmidocerca																						X		
Desmidocercella																						X		
Desmodora							X																	
Desmodorella							X																	
Desmognathinema																				X				
Desmolaimoides		X																						
Desmolaimus		X																						
Desmolorenzenia	X																							
Desmoscolex	X						X																	
Desmotimmia	X																							
Desmotricoma	X																							
Desportesius																						X		

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Dessetfilaria																							X		
Dessetia																								X	
Dessetostrongylus																								X	
Devibursaphelenchus					X																				
Diaphanocephalus																						X			
Diastolaimus		X																							
Dicelis																			X						
Diceloides																			X						
Dicerocola																								X	
Diceronema																								X	
Dicheilonema																							X		
Dichelyne																				X					
Dichromadora							X																		
Dictyocaulus																								X	
Didelphonema																								X	
Didelphostrongylus																								X	
Didelphoxyuris																								X	
Didelphyoptera																						X			
Didelphysoma																						X			
Didelta		X																							
Didilia																		X							
Digitiphilometroides																				X					
Dinetia	X																								
Dintheria	X																								
Dioctophyme																								X	
Dioctowittus																						X			
Diodontolaimus							X																		
Diomedenema																							X		
Dipetalonema																								X	
Diphtherophora					X																				

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Diplobathylaimus		X																							
Diplogaster				X			X	X																	
Diplogasteriana				X			X																		
Diplogasteritus				X																					
Diplogasteroides				X														X							
Diplogastrellus				X			X											X							
Diplolaimella		X																							
Diplolaimelloides	X																								
Diplonema																		X							
Diplopeltis	X	X																							
Diplopeltoides	X																								
Diplopeltula	X																								
Diploscapter		X																							
Diploscapteroides				X																					
Diplotriaena																						X			
Diptenchus					X											X									
Dipteromermis																		X							X
Dirofilaria																								X	
Dirofilariaeformia																								X	
Dirofilarionema																								X	
Discocriconemella														X											
Discoditis				X																					
Discolaimium									X																
Discolaimoides					X				X																
Discolaimus									X																
Discomermis																		X							X
Discomyctus					X											X									
Disconema	X																								
Discopersicus																X									
Discotylenchus																X									

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Dispira							X																		
Distolabrellus				X														X							
Ditlevsenella								X																	
Ditremamermis																		X							X
Ditylenchus					X							X			X	X	X								
Divisispiculimermis																		X							X
Diximermis																		X							X
Doanhnema																								X	
Dogielophis																				X					
Dolichodera											X														
Dolichodorus														X											
Dolicholaimus							X	X																	
Dolichorhabditis				X																					
Dolichosomatum		X																							
Doliolaimus								X																	
Dollfusnema																						X			
Dollfusstrongylus																								X	
Dominicactinolaimus									X																
Domorganus	X																		X						
Donsinema		X																							
Donsinemella		X																							
Dorcopsinema																								X	
Dorcopsistrongylus																								X	
Dorella					X											X									
Doronchus				X				X																	
Dorydorella																X									
Dorylaimellus					X											X									
Dorylaimoides					X				X																
Dorylaimopsis				X			X																		
Dorylaimus					X				X																

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Doryllium					X											X									
Doryonchus								X																	
Dracogalerus	X																								
Dracognomus	X																								
Dracograllus	X																								
Draconactus	X																								
Draconema	X																								
Dracotoronema	X																								
Dracunculus																		X					X		
Draschia																							X		
Drasico																			X						
Drepanodorylaimus					X																				
Drilocephalobus						X																			
Drilomermis																		X							X
Drilonema																			X						
Dromaeostrongylus																							X		
Dujardinascaris																				X		X			
Dukerostrongylus																							X		
Dunnifilaria																							X		
Duosulcius																X									
Duplicaecum																						X			
Durettechina																							X		
Durettenema																							X		
Durettestrongylus																							X		
Duriella					X											X									
Durikainema																		X					X		
Durinema					X																				
Echinocephalus																			X	X					
Echinocoleus																							X		
Echinodesmodora							X																		

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Echinodorus					X																				
Echinomermella																			X						X
Echinotheristus		X																							
Echinuria																							X		
Echinurioides																							X		
Echonema		X																							
Ecphyadophora					X											X									
Ecphyadophoroides					X											X									
Ecuadorus															X										
Ecumenicus					X				X																
Edesonfilaria																								X	
Egtitis									X																
Ekphymatodera											X														
Ektaphelenchoides					X												X	X							
Ektaphelenchus					X												X	X							
Elaeolenchus																		X							
Elaeophora																								X	
Elaphonema					X																				
Elaphostrongylus																								X	
Eleutherolaimus		X																							
Elzalia							X																		
Enchelidiella								X																	
Enchelidium								X																	
Enchodeloides					X											X									
Enchodelus					X				X																
Enchodorus					X											X									
Encholaimus					X											X									
Endeolophos							X																		
Enoplochilus							X	X																	
Enoploides								X																	

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Enoplolaimus								X																	
Enoplus								X																	
Entaphelenchus																		X							
Enterobius																								X	
Entomelas				X																		X			
Eomermis																		X							X
Eophasma																		X							
Epacanthion								X																	
Epacrolaimus					X				X																
Epicharinema															X										
Epidorylaimus					X																				
Epimenides				X																					
Epitobrilus				X																					
Epomidiostomum																						X			
Epsilonema	X																								
Equilophos																							X		
Equinurbia																							X		
Ereptonema		X																							
Esocinema																			X						
Etamphidelus	X																								
Ethmodora							X																		
Ethmolaimus							X																		
Eubostrichus	X																								
Eucephalobus						X																			
Euchromadora							X																		
Euchromanema							X																		
Eucoleus																						X	X		
Eucyathostomum																							X		
Eudorylaimus					X				X																
Eudromoxyura					X				X													X			

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Eudronema				X														X							
Eufilaria																							X		
Eumermis																		X							X
Eumonhystera	X																								
Euryconema																		X							
Eurymermis																		X							X
Eurystomina								X																	
Eustrongylides																								X	
Eusynonchus	X																								
Euteratocephalus						X																			
Eutobrilus				X																					
Eutylenchus																X									
Euzetoda																								X	
Evaginuris																								X	
Excisa																							X		
Expressonema						X																			
Ezonema																			X						
Falcaustra																			X	X	X				
Falcihasta					X											X									
Fastigiuris																								X	
Fellicola																			X						
Fenestrolaimus								X																	
Fergusobia					X					X								X							
Feroxides					X											X									
Fescia		X																							
Ficophagus					X													X							
Ficotylus										X								X							
Fictor				X			X	X																	
Filaria																								X	
Filarinema																								X	

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Filariopsis																								X	
Filarissima																								X	
Filaroides																								X	
Filenchus					X											X									
Filicapitis																								X	
Filidicolaimus					X																				
Filipjeva		X																							
Filipjevia		X																							
Filiponema																			X						
Filitonchoides							X																		
Filitonchus							X																		
Filoncholaimus								X																	
Filostrongylus																								X	
Filotermes																		X							
Fissicauda																								X	
Fitzsimmonsnema																						X		X	
Flagicaudoides				X																					
Flannerystrongylus																								X	
Fleuronema								X																	
Foleyella																					X	X			
Foleyellides																					X				
Foliostoma																								X	
Fontesia																								X	
Fontonema																		X							
Formicitylenchus																		X							
Formicodiplogaster				X			X											X							
Fotolaimus								X																	
Fraglenchus															X	X									
Freitasascaris																						X			
Freitascapillaria																				X					

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Freitasia																						X			
Freitastrongylus																								X	
Fuellebornema																								X	
Fukumotonema																								X	
Funaria					X											X									
Fungiotonchium					X												X	X							
Furconema																								X	
Fuscheila									X																
Fuscicorpa																								X	
Fusivermis	X																								
Fusonema							X																		
Gaigeria																								X	
Gairleanema							X																		
Galebia																		X							
Galeiceps																				X				X	
Galinanema																		X							
Gallegostrongylus																								X	
Galoncus																								X	
Gammanema								X																	
Gammarinema		X																							
Gammaromermis																		X							X
Gastromermis																		X							X
Gatesnema																			X						
Gazellostrongylus																								X	
Gendrespirura																								X	
Gendria																				X	X				
Geocenamus															X										
Geomonhystera	X		X																						
Geopetitia																							X		
Geoscaphenema																		X							

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Geraldius		X																							
Gerlachius	X																								
Gerthus					X											X									
Gessyella																				X					
Gibsonnema																				X					
Gilsonema																		X							
Glaber																		X							
Glistrongylus																								X	
Globocephaloides																								X	
Globocephalus																								X	
Globodera											X														
Glochidorella					X											X									
Glochinema	X																								
Glomerinema																		X							
Gnathostoma																				X					
Gnomoxyala		X																							
Gobindonema																								X	
Goezia																				X					
Goferus					X											X									
Goffartia		X																							
Golovatchinema																		X							
Gomphionchus							X																		
Gomphionema							X																		
Gongylonema																							X	X	
Gonionchus							X																		
Gonofilaria																						X			
Goodeyella											X														
Gopalus					X																				
Gopheruris																						X			
Gordiomermis																			X						X

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Gracilancea															X										
Grahamius	X																								
Grammocephalus																								X	
Granonchulus				X				X																	
Granulinema																				X					
Graphidiella																								X	
Graphidioides																								X	
Graphidiops																								X	
Graphidium																								X	
Graphinema																								X	
Graphonema							X																		
Grassenema																						X		X	
Greeffiella	X																								
Greeffiellopsis	X																								
Gryllophila																		X							
Gubalonus				X			X																		
Gubernaculimermis																		X							X
Gubernaculomeres																							X		
Guerrerostrongylus																								X	
Guitartia							X																		
Gullanema		X																							
Gurltia																								X	
Guyanema																				X					
Gyalocephalus																								X	
Gymnotylenchus					X											X	X								
Gymnotyleptus					X											X									
Gynaecometra																								X	
Gynopoecilia																		X							
Gyrinicola																					X				
Habronema																		X						X	

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Hadjelia																						X		
Hadrodenus																X								
Hadronchoides				X				X																
Hadronchulus				X				X																
Hadronchus				X				X																
Haematozoon																						X		
Haemonchus																							X	
Hakynema																			X					
Halalaimus	X																							
Halanonchus		X																						
Halaphanolaimus	X																							
Halenchus							X					X												
Halicephalobus		X																					X	
Halichoanolaimus								X																
Halicylindrolaimus	X																							
Halinema		X																						
Haliplectus	X																							
Halocercus																							X	
Halodorylaimus					X																			
Halodorylaimus					X																			
Halomonhystera		X		X																				
Hamatospiculum																						X		
Hammerschmidtiella																		X						
Hapalomus	X																							
Haplacis																							X	
Haplodidentus																			X	X				
Haplonema																			X					
Haptotricoma	X																							
Haroldakis																						X		
Harpagonchoides																			X					

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Harpagonchus																			X						
Hartertia																							X		
Hartwichia																						X			
Hasanuddinia																								X	
Hasegawanema																								X	
Hassalstrongylus																								X	
Hastospiculum																						X			
Hatterianema																						X			
Haycocknema																		X						X	
Hedruris																					X	X			
Hekarella																		X							
Heleidomermis																		X							X
Helicobelondira					X																				
Heliconema																				X					
Helicotylenchus														X											
Heligmodentostoma																								X	
Heligmonella																								X	
Heligmonina																								X	
Heligmonoides																								X	
Heligmoptera																								X	
Heligmosomoides																								X	
Heligmosomum																								X	
Heligmostrongylus																								X	
Heligmus																				X					
Helionema					X													X							
Helmabia					X																				
Helminthoxys																								X	
Hemicaloosia														X											
Hemicriconemoides														X											
Hemicycliophora														X											

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Hemiplectus		X																							
Hempelia																							X		
Hepatinema																				X					
Hepatojarakus																							X		
Hepatospina																								X	
Heptochona																				X					
Herpetostrongylus																						X			
Heterakis																							X	X	
Heterocephalobellus						X																			
Heterocephalobus						X																			
Heterocheilus																								X	
Heterodera											X														
Heterodorus					X																				
Heterogonema																		X							
Heteromorphotylenchus					X													X							
Heteromyoxyuris																								X	
Heteropleuronema				X				X																	
Heterorhabditis																		X							
Heterospiculum																							X		
Heterostrongylus																								X	
Heterotylenchus					X													X							
Heterotyphlum																				X			X		
Heteroxynema																								X	
Heth																		X							
Hexamermis																		X							X
Hexametra																						X			
Hexapapillostomum																							X		
Hexatylus					X																				
Heydenius																		X							X
Heynsaxonchium					X											X									

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Hieminema		X		X																					
Hilgertia																								X	
Himatidiophila				X																					
Hippopotamenema																						X			
Hirschmanniella													X												
Histiocephalus																							X		
Histiostrongylus																								X	
Histodytes																			X						
Histotylenchus															X										
Hoazinstrongylus																							X		
Hoepplius																								X	
Hofmaenneria		X																							
Homungella																			X						
Hoplodontophorus																								X	
Hoplolaimus														X											
Hoplotylus													X												
Hopperia							X																		
Hovorkonema																							X		
Howardula																		X							
Hsiungia																								X	
Huffmanela																								X	
Hughjonestrongylus																								X	
Hugotdiplogaster																			X						
Hugotnema																								X	
Hulqus					X																				
Hyalaimus	X																								
Hydrochoerisnema																								X	
Hydromermis																		X							X
Hylonema											X														
Hyostrongylus																								X	

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Hypocristata																								X	
Hypodontolaimus							X																		
Hypodontus																								X	
Hyptiolaimus								X																	
Hysterothylacium																			X						
Hystrichis																								X	
Hystrignathus																		X							
Ibipora														X											
Ibrahimia																						X			
Ichthyocephaloides																		X							
Ichthyofilaria																				X					
Ichthyostrongylus																				X					
Ichthyouris																				X					
Icosiella																					X				
Icthyocephalus																		X							
Idioblaptus																		X							X
Idiodorylaimus					X				X																
Idiuoxyuris																								X	
Ierestrongylus																								X	
Illium		X																							
Immanigula					X											X									
Imosmermis																		X							X
Impalaia																								X	
Imparispiculus																								X	
Incanema					X											X									
Incurvinema																		X							
Indiana																		X							
Indocapillaria																				X					
Indocephalobus		X																X						X	
Indoditylenchus																X									

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Minor categories: (Microbial Feeders) **susp**=suspension feeders; **part**=particulate feeders; (Parasites) **int**=internal feeders; **ext root**=external root feeders; **ext brows**=external browser; **wood or bark**=wood or bark associate; **mod**=modifier; **mig**=migrator; **aer**=aerial; **b.g.**=below ground; **sub-s**=sub surface feeder; **surf**=surface feeder; **arth**=arthropod associate; **oth**=other invertebrate associate; **fish**=fish associate; **amphib**=amphibian associate; **rep**=reptile associate; **bird**= bird associate; **mamm**=mammal associate

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Indofilaria																								X	
Indorhabditis				X																					
Ingenia		X																							
Inglamidum																								X	
Inglechina																								X	
Ingliseria																							X		
Inglisonema																							X		
Inglisubulura																							X		
Ingwenascaris																						X			
Innocuonema							X																		
Intasia	X																								
Ionema		X																							
Iotonchium					X												X	X							
Iotonchulus				X				X																	
Iotonchus				X				X																	
Ipatjevimermis																		X							X
Iponema																			X						
Irantylenchus																X									
Ironella							X	X																	
Ironus				X			X																		
Isacanthonchus							X																		
Ischilinema																								X	
Ischiodorylaimus					X				X																
Isobinema																		X							
Isolaimium		X																							
Isomermis																		X							X
Isospirura																								X	
Isthmusimermis																		X							X
Itaguaiana																		X							
Ivaschkinonema																								X	

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Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Ixonema							X																		
Jaidenema																		X							
Japanema					X											X		X							
Jarryella																		X							
Javellia																								X	
Jensenonchus				X				X																	
Jibacoa																		X							
Johnpearsonia																					X				
Johnstonia																		X							
Johnstonmawsonia																				X					
Johnstonmawsonoides																				X					
Josefilaria																								X	
Judonchulus				X				X																	
Justinema																								X	
Kahmannia																								X	
Kalicephalus																						X			
Kallidorylaimus					X				X																
Kalmanmolnaria																				X					
Kamegainema																					X				
Kantbhala															X	X									
Karkinochromadora							X																		
Kashmira																X									
Kathlania																				X	X	X			
Kentropyxia																					X				
Kenyanema		X																							
Keralanema		X																							
Keratonema	X																								
Khalilia																								X	
Kiluluma																								X	
Kinonchulus				X																					

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Kirjanovia																									
Kittidorylaimus					X																				
Kiwinema																						X			
Klossiella																		X							
Klossinemella																				X					
Klossnema																		X							
Klugea	X																								
Kochinema					X				X																
Koerneria				X														X							
Kolodorylaimus					X				X																
Kosswigonema							X	X																	
Krampia																									
Kraspedonema							X																		
Krefftascaris																						X			
Kreisiella																						X			
Kreisoncholaimus								X																	
Kreisonema							X																		
Krishnasamyos																							X		
Kuala																							X		
Kunjudorylaimus					X																				
Kuntzistrongylus																							X		
Kurikania				X																					
Kurochkinitylenchus					X													X							
Labeonema																				X					
Labiduris																						X			
Labiobulura																							X		
Labiostomum																						X	X		
Labiostrongylus																							X		
Labronema					X				X																
Labronemella					X				X																

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Labrys															X	X									
Laevides					X				X																
Lagenonema					X																				
Lagochilascaris																								X	
Lagostonema																								X	
Lagostrongylus																								X	
Laimaphelenchus					X												X	X							
Laimella							X																		
Laimydorus					X				X																
Lamanema																								X	
Lamyronema		X		X																					
Lanceimermis																		X							X
Lanzavecchia					X											X									
Lappetascaris																				X					
Lappnema																		X						X	
Latocephalus					X																				
Latronema							X	X																	
Lauratonema		X																							
Lauratonemella		X																							
Lauratonemoides		X																							
Lauroia																								X	
Lauronema																		X							
Laurophragus					X											X									
Laurostrongylus																								X	
Laurotravassoxyuris																				X					
Lawtonema					X											X									
Laxamphidelus	X																								
Laxonema	X																								
Laxus	X																								
Ledovitia								X																	

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Leidynema																		X							
Leidynemella																		X							
Leiperenia																								X	
Leiperiatus																								X	
Leipernema																								X	
Leipoanema																							X		
Leiuris																								X	
Lelenchus					X											X									
Lemdana																							X		
Lemuricola																								X	
Lemurostrongylus																								X	
Lenonchium					X				X																
Lepidonema																		X							
Leptepsilonema	X																								
Leptodera				X														X							
Leptojacobus				X			X											X							
Leptolaimoides	X																								
Leptolaimus	X																								
Leptonchus					X											X									
Leptonemella	X																								
Leptoplectonema	X																								
Leptosomatides	X																								
Leptosomatina	X																								
Leptosomatum	X																								
Leptosomella	X																								
Lepusius																								X	
Lesjan				X																					
Lesleyella																								X	
Levipalatum				X			X											X							
Libyostrongylus																							X		

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Limnomermis																		X							X
Limonchulus						X	X	X																	
Linhomoella		X																							
Linhomoeus							X																		
Linhystera	X																								
Linolaimus	X																								
Linseyus					X											X									
Linstowimermis																		X							X
Linstowinema																								X	
Linustrongylus																								X	
Lispirurus																							X		
Listia		X																							
Litinium	X																								
Litoditis				X																					
Litomosa																								X	
Litomosoides																								X	
Litonema	X																								
Litotes	X																								
Litylenchus												X													
Loa																								X	
Loaina																								X	
Lobatorobius																								X	
Lobocapillaria																				X					
Lobocriconema														X											
Lockenloia																				X					
Loffienema																									
Loncharionema															X	X									
Longibucca	X																							X	
Longibulbophora	X																								
Longicyatholaimus							X																		

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Longidorella															X										
Longidoroides														X											
Longidorus														X											
Longilaimus	X																								
Longimermis																		X							X
Longior																		X							
Longistriata																								X	
Longistrongylus																								X	
Longitubopharynx	X																								
Loofilaimus					X				X																
Lordellonema					X				X																
Loxodontofilaria																								X	
Lucionema																				X					
Luella					X												X	X							
Lugamermis																		X							X
Lukonema																		X						X	
Lutznema																							X		
Luzonema																				X					
Lyranema								X																	
Macacanema																		X						X	
Macdonaldius																						X			
Maciela																								X	
Mackerrastrongylus																								X	
Macramphida																			X						
Macrochromadora							X																		
Macrodontium							X																		
Macrolaimellus						X																			
Macrolaimus		X															X								
Macronchus							X																		
Macropicola																								X	

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Macroponema																								X	
Macropostrongyloides																								X	
Macropostrongylus																								X	
Macropoxyuris																								X	
Macrostrongylus																								X	
Macrotobrilus				X																					
Macrotrophurus														X											
Macuahuitloides																								X	
Madafilaroides																								X	
Madangiostrongylus																								X	
Madathamugadia																						X			
Madelinema																							X		
Madochotera																					X				
Mainspinostrongylus																								X	
Makatinus									X																
Malaistrongylus																								X	
Malakhovia	X																								
Malaspinanema																		X							
Malayfilaria																		X						X	
Malayocamallanus																				X					
Malayometastrongylus																								X	
Maldivea		X																							
Malekus					X																				
Malenchus																X									
Malvinema																								X	
Mammalakis																								X	
Mammanidula																								X	
Mammomonogamus																								X	
Manganonema	X																								
Mansonella																								X	

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Manunema	X																								
Maplestonema																								X	
Maracaya																						X			
Maragnopsia																									
Margaronchuloides				X				X																	
Margaronchulus				X				X																	
Margollus					X											X									
Margonema		X																							
Marimermis																			X						
Mariostrongylus																								X	
Mariporrocaecum																				X					
Marisalbinema	X	X																							
Marispelodera				X																					
Marshallagia																								X	
Marsupostrongylus																								X	
Martadamsonius																		X							
Martininema					X												X	X							
Marylynnia							X																		
Maseria																		X						X	
Mastigonema																				X					
Mastigospirura																				X					
Mastophorus																								X	
Matthesonema																			X						
Maupasina																		X						X	
Mawsonascaris																				X					
Mawsonema																								X	
Mawsonfilaria																							X		
Maxomystrongylus																								X	
Maxvachonia																					X				
Mazzia																								X	

Primary categories: **Mic**=Microbial Feeder; **Pred**=Predator; **Para**=Parasite.

Secondary categories: (Microbial Feeders) **suck**=suckers; **proc**=processors; **pierc**=piercers; **crush**=crushers; **scrap**=scrapers; (Predators) **inges**=ingesters; **pierc**=piercers; (Parasites) **plant**=plant feeders; **invert**=invertebrate associates; **vert**=vertebrate associates; **host unknown**=host unknown.

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Mbaisonema																								X	
Mbanema																			X						
Mecistocirrus																								X	
Medibulla																		X							
Mediolaimus			X																						
Megacooperia																								X	
Megadesmolaimus		X																							
Megadontolaimus							X																		
Megalamphis							X																		
Megalobatrachonema																					X	X			
Megalomermis																		X							X
Megamphidelus	X																								
Megaonchulus				X				X																	
Mehdiascaris																				X					
Mehdiella																						X			
Mehdilaimus	X																								
Mehdinema																		X							
Meiodorus														X											
Meloidodera											X														
Meloidoderella											X														
Meloidoderita											X														
Meloidogyne											X														
Meloinema											X														
Melolonthinimermis																		X							X
Melomystronglylus																								X	
Meningonema																								X	
Mentecle																		X							
Merlinius														X											
Mermis																		X							X
Mermithonema																		X							

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Mertensinema																					X				
Mesacanthion								X																	
Mesacanthoides								X																	
Mesamidostomum																						X			
Mesidionema																			X						
Mesocriconema														X											
Mesodorylaimus					X				X																
Mesomermis																		X							X
Mesonema																			X						
Mesorhabditis				X																					
Metabronema																				X					
Metachromadora								X																	
Metachromadoroides							X																		
Metacomesoma						X																			
Metacrobeles						X																			
Metacrolobus						X																			
Metactinolaimus									X																
Metacyatholaimus							X																		
Metacylicolaimus							X																		
Metacyrnea																						X			
Metadasynemella	X																								
Metadasynemoides	X																								
Metadesmodora		X																							
Metadesmolaimus		X																							
Metadorylaimus					X											X									
Metaglochinema	X																								
Metalaimus		X																							
Metalinhomoeus		X																							
Metamphidelus	X																								
Metanisakis																				X					

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Metaparasitylenchus																		X							
Metaparoncholaimus								X																	
Metaphanoderma							X																		
Metaporcelaimus					X				X																
Metaraeolaimoides	X																								
Metarhabditis																								X	
Metasabatiera		X																							
Metascaris																								X	
Metasphaerolaimus								X																	
Metastrongylus																								X	
Metateratocephalus						X																			
Metathelazia																								X	
Metaxonchium					X																				
Metenoploides								X																	
Metepsilonema	X																								
Meteterakis																					X	X			
Metheligmonella																								X	
Metoncholaimoides								X																	
Metoncholaimus								X																	
Mexiconema																				X					
Meximermis																		X							X
Meyersia								X																	
Meylia	X																								
Meylis					X											X									
Meylonema					X											X									
Micatonchus								X																	
Micipsella																								X	
Micoletzkya			X				X	X										X							
Micoletzkyia	X																								
Miconchus				X				X																	

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Micracanthonchus							X																		
Microdorylaimus					X				X																
Microfilaria																								X	
Microhadjelia																							X		
Microlaimus							X																		
Micromicron							X																		
Micronematodum																								X	
Micropleura																						X			
Microtetrameres																							X		
Miculenchus					X											X									
Migonella																								X	
Mikenema																								X	
Minolaimus	X																								
Minutostrongylus																								X	
Miodorylaimus					X																				
Miranema					X											X									
Mirzaiella																		X							
Mirzaloptera																						X			
Missimstrongylus																								X	
Misticius					X												X	X							
Mitoaxonchium					X																				
Mitranema					X											X									
Moaciria																						X			
Moennigia																								X	
Moguranema																								X	
Mohibiella																		X							
Molgolaimus				X																					
Molinacuaria																								X	
Molineus																								X	
Molinofilaria																								X	

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Molinostrongylus																								X	
Molossinema																								X	
Molostrongylus																								X	
Monanema																		X						X	
Monhystera	X																								
Monhysterides																					X				
Monhysteroides	X																								
Monhystrella	X																								
Monhystrium	X																								
Monilonema																								X	
Monodelphoxyuris																								X	
Monodontus																								X	
Mononchoides				X			X	X																	
Mononchulus				X				X																	
Mononchus				X				X																	
Monopetalonema																						X			
Monoposthia							X																		
Monoposthioides							X																		
Monotrichodorus															X										
Monovaria																								X	
Montistrongylus																								X	
Montonchus				X				X																	
Mooleptus																				X					
Morasia					X																				
Moravecia																				X					
Moravecnema																				X					
Morgascaridia																								X	
Morlaixia		X																							
Morulaimus														X											
Moshajia									X																

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Mudwigglus	X																								
Muellerius																								X	
Mukazia																X									
Mukhina		X															X								
Multicaecum																			X		X				
Multidens			X																						
Mulveyellus				X				X																	
Mumtazium					X				X							X									
Murielus																								X	
Murshidia																								X	
Muspicea																		X						X	
Musserakis																								X	
Mydonomus					X																				
Myenchus			X															X			X				
Myleusnema																				X					
Mylodiscoides					X																				
Mylodiscoides									X																
Mylodiscus					X																				
Mylonchulus				X				X																	
Myolaimus		X		X																					
Myoryctes																					X				
Myrmeconema																		X							
Nacobbus											X														
Nagelus														X											
Namaquanema					X																				
Namibnema																									
Nanidorus															X										
Nannolaimoides							X																		
Nannolaimus	X																								
Nanomermis																		X							X

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Napolitana																		X							
Narsingiella																								X	
Nasistrongylus																								X	
Necator																								X	
Necolaimus	X																								
Nemabia					X																				
Nemanema	X																								
Nemanoke																			X						
Nematimermis																		X							
Nematodirella																								X	
Nematodiroides																								X	
Nematodirus																								X	
Nematoideum																								X	
Nematomystes																								X	
Nemavermes																		X							
Nemhelix																			X						
Neoactinolaimus					X				X																
Neoalloionema			X	X															X						
Neoascarophis																				X					
Neobakernema														X											
Neocamacolaimus		X																	X						
Neochromadora							X																		
Neocooperia																								X	
Neocosmocercella																				X					
Neocylicostrongylus																				X					
Neodiplogaster			X	X				X										X							
Neodiplopeltula		X																							
Neoditylenchus					X										X	X	X								
Neodolichodorus														X											
Neodolichorhynchus														X											

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Neoentomelas		X																				X			
Neoheligmonella																								X	
Neoheterakis																							X		
Neohilgertia																								X	
Neohistiostrongylus																								X	
Neoichthyostrongylus																			X						
Neoleptus																					X				
Neolimnomermis																		X							X
Neolobocriconema														X											
Neomermis																		X							X
Neomesomermis																		X							X
Neometadorylaimus					X											X									
Neomisticius					X												X	X							
Neomurshidia																								X	
Neoomeia																				X					
Neoparacamallanus																			X	X					
Neoparaseuratum																				X					
Neoparasitylenchus																		X							
Neophilometroides																				X					
Neoprotozoophaga																					X	X			
Neopsilenchus																X									
Neorhabditis				X																					
Neorhabditostomum																								X	
Neosomatiana																					X				
Neospinitectus																				X					
Neospirocerca																								X	
Neosteinernema	X																	X							
Neostrongyloides																								X	
Neostrongylus																			X					X	
Neosynodontisia																				X					

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Minor categories: (Microbial Feeders) **susp**=suspension feeders; **part**=particulate feeders; (Parasites) **int**=internal feeders; **ext root**=external root feeders; **ext brows**=external browser; **wood or bark**=wood or bark associate; **mod**=modifier; **mig**=migrator; **aer**=aerial; **b.g.**=below ground; **sub-s**=sub surface feeder; **surf**=surface feeder; **arth**=arthropod associate; **oth**=other invertebrate associate; **fish**=fish associate; **amphib**=amphibian associate; **rep**=reptile associate; **bird**= bird associate; **mamm**=mammal associate

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Neothada					X											X									
Neotobrilus				X																					
Neotonchus							X																		
Neotylocephalus		X																							
Neoxysomatium																					X				
Nesomystrongylus																								X	
Neurella	X																								
Neyrapharyngodon																								X	
Nicascolaimus		X																							
Nicollina																					X			X	
Nigronchus				X				X																	
Nijhoffia							X																		
Nilonema																				X					
Nimigula					X											X									
Nippostrongylus																								X	
Nochtia																								X	
Noctuidonema																		X							
Noffsingeria	X																								
Noteodiplogaster																			X						
Nothacrobeles						X																			
Nothanguina										X															
Nothocriconemoides														X											
Nothotylenchoides															X	X									
Nothotylenchus					X										X	X									
Notochatosoma	X																								
Notonectomermis																		X							X
Notosabatieria							X																		
Nouvelnema																								X	
Novadelonema	X																								
Nudora							X																		

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Nugininema																								X	
Nullonchus				X				X																	
Nunema							X																		
Nycteridostrongylus																								X	
Nygellus					X				X																
Nygmatonchus							X																		
Nygolaimellus					X											X									
Nygolaimellus					X				X																
Nygolaimium									X																
Nygolaimoides									X																
Nygolaimus					X				X																
Obainia																		X							
Obeliscoides																								X	
Oceanicucullanus																				X					
Ochetocephalus																						X			
Ochoterenella																					X				
Octomermis																		X							X
Octomyomermis																		X							X
Octonchus								X																	
Odilia																								X	
Odonatomermis																		X							X
Odontanticoma							X																		
Odontobius			X																					X	
Odontogeton																								X	
Odontolaimus				X																					
Odontopharynx						X		X																	
Odontophora						X																			
Odontophoroides						X		X																	
Odontorhabditis				X																					
Odontospirura																								X	

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Odontoterakis																							X		
Oesophagodontus																								X	
Oesophagomermis																		X							X
Oesophagostomoides																								X	
Oesophagostomum																								X	
Ogma														X											
Ohbayashinema																								X	
Oigolaimella				X			X											X							
Oionchus				X				X																	
Okapinema																								X	
Okapistrongylus																								X	
Okinawandros																					X				
Okranema								X																	
Oligaphelenchoides																		X							
Oligodiplogaster																		X							
Oligonchulus				X				X																	
Oligoplectus		X																X							
Ollulanus																								X	
Omeia																					X				
Omicronema		X																							
Onchiolistia		X																							
Onchiomermis																		X							X
Onchium	X						X																		
Onchocerca																		X						X	
Onchocercella																						X			
Oncholaimelloides								X																	
Oncholaimellus								X																	
Oncholaimoides								X																	
Oncholaimus								X																	
Onchulus						X	X	X																	

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Oncophora																				X					
Onepunema	X																								
Oniscicula																			X						
Onychonema																			X						
Onyx								X																	
Oonaguntus					X																				
Oostenbrinkella					X											X									
Oostenbrinkia															X	X									
Operculorhabditis		X																							
Ophidascaris																						X			
Opisthodorylaimus					X				X																
Orientatractis																				X		X			
Orientostrongylus																								X	
Orientylus														X											
Oriverutoides					X																				
Oriverutus					X				X																
Ornithocapillaria																							X		
Ornithonema																							X		
Ornithostrongylus																							X		
Orphreyus														X											
Orrina										X		X													
Orthomermis																		X							X
Orthophallonema	X																								
Orthostrongylus																			X					X	
Orthothominx																								X	
Ortleppascaris																					X	X			
Ortleppnema																						X			
Ortleppstrongylus																								X	
Oryctonema																		X							
Oscheius				X																					

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Oslerus																								X	
Osstella																									
Ostertagia																								X	
Oswaldocruzia																					X	X			
Oswaldofilaria																						X			
Oswaldonema																								X	
Oswaldostrongylus																							X		
Otostrongylus																								X	
Ottolenchus																X									
Ovomermis																		X							X
Oxyascaris																					X				
Oxybelondira					X											X									
Oxydiroides					X																				
Oxydirus					X											X									
Oxynema																								X	
Oxyonchus								X																	
Oxysomatium																					X	X			
Oxyspirura																		X					X		
Oxystomina	X																								
Oxyuricassis																								X	
Oxyuris																								X	
Oxyuronema																								X	
Ozolaimus																						X			
Pachydorylaimus					X																				
Pakira	X																								
Palaeoallantonema																		X							
Palaeoanguina										X															
Palaeoaphelenchoides					X																				
Palaeoarachnus					X													X							
Palaeocosmocerca																			X						

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Palaeodiplogaster				X														X							
Palaeoenoploides								X																	
Palaeonema				X													X								
Palaeoparasitylenchus																		X							
Palaeorhabditis				X														X							
Palaeotetradonema																		X							
Paleoiotonchium					X													X							
Paleothelastoma																		X							
Panagrellus		X																							
Panagrobelium																									
Panagrobelus																	X								
Panagrodontus																	X	X							
Panagrolaimoides		X															X								
Panagrolaimus																		X							
Panagrolobus						X																			
Panagromacra																	X	X							
Panagroteratus						X																			
Pancreatonema																				X					
Pandolaimus		X																							
Panduripharynx							X																		
Papillabrum																		X							
Papillonema							X																		
Papillosetaria																								X	
Papillostrongylus																								X	
Papuadorus					X																				
Papuaphelenchus									X																
Parabronema																								X	
Paracamallanus																				X					
Paracameronia																		X							
Paracanthocheilonema																								X	

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Paracanthonchus							X																		
Paracapillaria																				X		X		X	
Paracapillaroides																				X					
Paracephalobus						X																			
Parachromadorita							X																		
Paracomesoma			X																						
Paracooperia																								X	
Paracooperioides																								X	
Paracrassibucca				X				X																	
Paracrenosoma																								X	
Paracrobeles						X																			
Paractinolaimus									X																
Paracuaria																						X			
Paracyatholaimoides							X																		
Paracyatholaimus							X																		
Paracylicolaimus							X																		
Paracyrnea																						X			
Paradeletrocephalus																						X			
Paradesmodora							X																		
Paradichromadora							X																		
Paradollfusnema																					X				
Paradorylaimus					X				X																
Paradoxolaimus							X																		
Paradoxorhabditis				X																					
Paradoxostrongylus																								X	
Paradraconema	X																								
Paradujardinia																								X	
Paraegialoalaimus	X																								
Paraethmolaimus							X																		
Parafilaria																								X	

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Parafilaroides																								X	
Paragnomoxyala																									
Paragonionchus				X																					
Paragraphidium																								X	
Parahadronchus				X				X																	
Paraheligmonella																								X	
Paraheligmonelloides																								X	
Paraheligmonelloides																								X	
Paraheligmonina																								X	
Paraheterotyphlum																						X			
Parahistiostrongylus																								X	
Paraichthyocephalus																		X							
Paraicosiella																								X	
Paraiotonchium						X											X	X							
Paralabiostrongylus																								X	
Paralaeuris																						X			
Paraleiuris																								X	
Paraleptonchus						X										X									
Paraleptonema																						X			
Paraleptosomatoides	X																								
Paraleptus																				X					
Paralibyostrongylus																								X	
Paralinhomoeus		X																							
Parallelocoilas							X																		
Paralongicyatholaimus							X																		
Paralongidorus														X											
Paramacropostrongylus																								X	
Paramadochotera																					X				
Paramarylynnia							X																		
Paramermis																		X							X

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Paramesacanthion								X																	
Paramesonchium				X			X																		
Paramicrolaimus		X																							
Paramidostomum																							X		
Paramonohystera		X																							
Paramononchus				X				X																	
Paramphidelus	X																								
Paramphimonhystrella	X																								
Paramylonchulus				X				X																	
Paranisakiopsis																				X					
Paranisakis																				X					
Paranticoma							X																		
Paranygolaimus					X				X																
Paraochoterenella																					X				
Paraorientatractis																						X			
Paraoxybelondira					X											X									
Paraoxydirus					X											X									
Paraoxyuronema																								X	
Parapalus					X				X																
Paraphanoderma							X																		
Paraphanolaimus		X																							
Parapharyngodon																					X				
Parapharyngostrongylus																								X	
Paraphelenchus					X																				
Paraphilometroides																				X					
Paraphysaloptera																					X				
Parapinnanema							X																		
Paraplectonema		X																							
Parapoteriostomum																								X	
Paraprocta																							X		

Primary categories: **Mic**=Microbial Feeder; **Pred**=Predator; **Para**=Parasite.

Secondary categories: (Microbial Feeders) **suck**=suckers; **proc**=processors; **pierc**=piercers; **crush**=crushers; **scrap**=scrapers; (Predators) **inges**=ingesters; **pierc**=piercers; (Parasites) **plant**=plant feeders; **invert**=invertebrate associates; **vert**=vertebrate associates; **host unknown**=host unknown.

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Paraplesiohedruris																					X				
Paraproctonema																		X							
Paraqudsiella					X																				
Paraquimperia																				X					
Pararaeolaimus	X																								
Pararhabditis				X																					
Pararhabdonema																								X	
Pararugopharynx																								X	
Parasabanema																								X	
Parasaurositus																						X			
Parasaveljevia								X																	
Parascaris																								X	
Parascarophis																				X					
Parascolaimus						X																			
Paraseinura									X																
Paraseuratoides																				X					
Paraseuratum																				X					
Parasitaphelenchus					X												X	X							
Parasitodiplogaster																		X							
Parasitorhabditis																		X							
Parasitylenchoides																		X							
Parasitylenchus					X													X							
Parasomatium																					X				
Parasphaerolaimus								X																	
Paraspiculuris																								X	
Paraspidodera																								X	
Paraspiralatus																		X					X		
Paraspirura																						X			
Parastomachoglossa					X				X																
Parastomonema	X																								

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Parastrongyloides																							X	
Parasubulura																							X	
Parasynodontisia																				X				
Paraterschellingia	X																							
Parathalassoalaimus	X																							
Parathelandros																					X	X		
Parathelandros																							X	
Paratimminema					X																			
Paratractis																						X		
Paratrichodorus														X										
Paratrichosoma																							X	
Paratricoma	X																							
Paratrilobus				X																				
Paratripyloides		X																						
Paratrophurus														X										
Paratuerkiana	X																							
Paratylencholaimus					X										X									
Paratylenchus														X										
Paraustrostrongylus																							X	
Paraustroxyuris																							X	
Paravulvus					X				X															
Paraxiphidorus					X									X										
Paraxonchium					X																			
Parazoniolaimus																							X	
Paregletylenchus					X													X						
Parelaphostrongylus																			X				X	
Parelzalia		X		X																				
Parenoplus								X																
Pareudesmoscolex	X																							
Pareurystomina								X																

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Parironus							X	X																	
Parkellus				X				X																	
Paroctonchus								X																	
Parodontophora						X																			
Paroigolaimella				X			X																		
Paronchocerca																						X			
Paroriverutus					X				X																
Parostertagia																							X		
Paroxystomina		X																							
Parvinema																							X		
Passalidophila																	X								
Passalurus																							X		
Passeristrongylus																						X			
Patagonema								X																	
Patagoniella																		X							
Patricialina																							X		
Paulianfilaria																					X		X		
Paurodontella					X																				
Paurodontoides					X												X								
Paurodontus					X												X								
Pearsonema																							X		
Pectinospirura																						X			
Pelagonemella		X																							
Pelaogonema		X																							
Pelecitus																						X			
Pelicanascaris																						X			
Pellioditis																									
Pelodera																									
Peltamigratus														X											
Penjatinema						X																			

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Pennisia																		X						X	
Pentadentoptera																								X	
Pentatomimermis																		X							X
Peplorhabditis				X																					
Peramelistrongylus																								X	
Peraphelenchus																		X							
Perepsilonema	X																								
Pericyema																								X	
Perioplectus		X																							
Perodira																			X						
Perspiria			X																						
Perutilimermis																		X							X
Peterngus				X			X	X																	
Petrovifilaria																						X			
Petrovinema																								X	
Phacochoerostrongylus																								X	
Phaenoncholaimus								X																	
Phalacronema																		X							
Phallaxonchium					X											X									
Phanoderma	X																								
Phanodermella	X																								
Phanodermopsis							X																		
Pharurus																								X	
Pharyngodon																					X	X			
Pharyngonema																			X						
Pharyngostrongylus																								X	
Phascolostrongylus																								X	
Phasmarhabditis			X																X						
Phellonema					X											X									
Pheromermis																		X							X

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Pheronous							X	X																	
Philometra																				X					
Philometroides																				X					
Philonema																		X		X					
Phlyctainophora																				X					
Phlyctainophora																				X					
Phocanema																				X					
Phocascaris																				X				X	
Phreatomermis																		X							X
Phyllolaimus							X																		
Phylloncholaimus								X																	
Physaloptera																				X		X		X	
Physalopteroides																						X			
Physocephalus																		X			X			X	
Pierantonia																			X						
Pierrickia		X																							
Pingus																				X					
Piratuba																						X			
Piratuboides																						X			
Piscicapillaria																				X					
Pithecostrongylus																								X	
Placentonema																								X	
Placoconus																								X	
Placodira						X																			
Platocamallanus																				X					
Platonova				X																					
Platycoma							X																		
Platycomopsis	X																								
Plectolaimus		X																							
Plectonchus		X																							

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TABLE 3. (Continued)

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Plectus		X																							
Plesioungella																			X						
Pleurotylenchus															X										
Plutellonema																			X						
Pneumocaulus																								X	
Pneumonema																									
Pneumospirura																								X	
Pneumostrongylus																			X					X	
Podocnematractis																						X			
Poekilostrongylus																					X				
Pogonomystrongylus																								X	
Poikilolaimus				X																					
Polenchus					X											X									
Polkepsilonema	X																								
Polydelphis																						X		X	
Polydelphyoptera																				X					
Polygastrophoides								X																	
Polygastrophora								X																	
Polyonchulus				X				X																	
Polysigma							X																		
Pomponema								X																	
Pontonema	X							X																	
Popovastrongylus																								X	
Porocoma	X																								
Poronemella					X				X																
Porrocaecum																							X		
Porternema					X																				
Portmacquaria							X																		
Postamphidelus	X																								
Posthalocercus																								X	

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Poteriostomum																								X	
Potorostrongylus																								X	
Potoroxyuris																								X	
Practinocephalus				X	X				X																
Praeacanthonchus							X																		
Praecocilenchus																		X							
Praeputirhabditis				X																					
Pratinema																		X							
Pratylenchoides													X												
Pratylenchus													X												
Prescafilotermes				X														X							
Prestwoodia																								X	
Primasubulura																								X	
Prionchulellus				X				X																	
Prionchuloides				X				X																	
Prionchulus				X				X																	
Prismatolaimus		X																							
Pristionchus				X			X	X																	
Pristionema	X																								
Probstmayria																								X	
Procamacolaimus	X						X																		
Procamallanus																				X					
Procephalobus																									
Prochaetosoma	X																								
Prochromadora							X																		
Prochromadorella							X																		
Procyonostrongylus																								X	
Procyrnea																						X			
Prodesmodora							X																		
Prodomorganus			X																						

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Prodontorhabditis		X																							
Prodorylaimium					X				X																
Prodorylaimus					X				X																
Profilarinema																								X	
Progreeffiella	X																								
Proheterorhabditis																		X							
Proleptonchoides					X											X									
Proleptonchus					X											X									
Proleptus																				X					
Prolinhomoeus			X																						
Promiconchus				X				X																	
Promonhystera		X																							
Promumtazium					X											X									
Proncholaimus								X																	
Proparasitylenchus																		X							
Propharyngodon																						X			
Proplatycoma							X																		
Prorhynchonema	X																								
Prosphaerolaimus							X																		
Prospinitectus																				X					
Prosungulonema																				X					
Protenema																					X				
Prothallonema																		X							
Prothornenema					X																				
Protocylindrocorpus	X																	X							
Protodorylaimus					X																				
Protofilaria																								X	
Protorhabditis																									
Protospirura																								X	
Protostrongylus																			X					X	

Primary categories: **Mic**=Microbial Feeder; **Pred**=Predator; **Para**=Parasite.

Secondary categories: (Microbial Feeders) **suck**=suckers; **proc**=processors; **pierc**=piercers; **crush**=crushers; **scrap**=scrapers; (Predators) **inges**=ingesters; **pierc**=piercers; (Parasites) **plant**=plant feeders; **invert**=invertebrate associates; **vert**=vertebrate associates; **host unknown**=host unknown.

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Prototricoma	X																								
Protozoophaga																								X	
Protrellatus																		X							
Protrelleta																		X							
Protrelloides																		X							
Protrellus																		X							
Protricoma	X																								
Protricomoides	X																								
Protylenchus																		X							
Proyseria																						X			
Psammomermis																		X							X
Psammonema							X																		
Pselionema	X																								
Pseudabbreviata																					X				
Pseudacrobeles						X																			
Pseudalius																								X	
Pseudamidostomum																						X			
Pseudanisakis																				X					
Pseudaphelenchus					X												X								
Pseudaplectana																					X				
Pseudaprocta																						X			
Pseudaraeolaimus	X																								
Pseudascarophis																				X					
Pseudaspiculuris																								X	
Pseudaspidodera																						X			
Pseudechinotheristus		X																							
Pseudelzalia		X																							
Pseudhalenchus												X			X	X									
Pseudlemdana																						X			
Pseudoaulolaimus	X																								

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Pseudoaviculariella																							X		
Pseudocapillaria																				X					
Pseudocella		X																							
Pseudocheironchus								X																	
Pseudochromadora				X																					
Pseudocruzia																								X	
Pseudocyrtosomum																						X			
Pseudodelphis																				X					
Pseudodesmicola																		X							
Pseudodesmodora				X																					
Pseudodilaimus								X																	
Pseudodiomedenema																								X	
Pseudodiplogasteroides				X														X							
Pseudofilaria																								X	
Pseudohaplonema																						X			
Pseudoheligmosomum																								X	
Pseudolella							X																		
Pseudolitomosa																								X	
Pseudomazzia																				X					
Pseudomermis																		X							X
Pseudometachromadora				X																					
Pseudoncholaimus								X																	
Pseudonchus								X																	
Pseudonchulus				X																					
Pseudonymus																		X							
Pseudopelagonema		X																							
Pseudophysaloptera																								X	
Pseudoplatycoma			X																						
Pseudoproleptus																				X					
Pseudorictularia																								X	

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Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Pseudosteineria		X																							
Pseudostertagia																								X	
Pseudostrongyloides																								X	
Pseudostrongyluris																						X			
Pseudoterranova																				X					
Pseudoterschellingia	X																								
Pseudothamugadia																						X			
Pseudotriceratoma	X																								
Pseudoxyascaris																					X				
Psilenchus																X									
Psocidonema				X														X							
Psychodorhabditis				X														X							
Psyllomermis																		X							X
Psyllotylenchus																		X							
Pternepsilonema	X																								
Pteronemella																		X							
Pteronium		X																							
Pterothominx																							X	X	
Pterotylenchus										X															
Pterygodermatites																								X	
Pterygonema	X																								
Pterygorhabditis																									
Ptychaphelenchus																	X	X							
Ptycholaimellus							X																		
Pudica																								X	
Pulchranemella		X																							
Pulchrascaris																				X					
Pulchrocephala																		X							
Pulicimermis																		X							X
Pulmostrongylus																								X	

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Punchaulus					X																				
Punctodera											X														
Punctodora					X		X																		
Punctolepis					X											X									
Pungentus									X						X										
Pygarginema																								X	
Pygecantha																		X							
Quadricoma	X																								
Quadricomoides	X																								
Quadrimermis																		X							X
Quadriplotriaena																		X					X		
Quasiamidostomum																							X		
Quasibrilus				X																					
Quasithelazia																							X		
Qudsianema					X				X																
Qudsiella					X											X									
Quentinstrongylus																								X	
Quilonia																								X	
Quimperia																				X					
Quinisulcius														X											
Rabbium																		X				X			
Radopholoides														X											
Radopholus													X												
Rafiqius						X																			
Ragenema																					X				
Rahmium				X				X																	
Raillietascaris																						X			
Raillietnema																					X				
Ransomnema																		X							
Ransomus																								X	

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Raonema																		X							
Raphidascaris																				X					
Raphidascaroides																				X					
Rasheedia																				X					
Rattustrongylus																								X	
Rauschia																								X	
Rauschivingylus																								X	
Rauschoxyuris																								X	
Rauschtineria																								X	
Reesimermis																		X							X
Reiterina				X																					
Retrotheristus		X																							
Rhabdias																					X	X			
Rhabditella				X															X					X	
Rhabditidoides																		X	X						
Rhabditis				X																					
Rhabditoides			X																						
Rhabditolaimus																		X	X						
Rhabditonema				X																					
Rhabditophanes																		X							
Rhabditostomum																								X	
Rhabdochona																				X					
Rhabdocoma	X																								
Rhabdodemania								X																	
Rhabdolaimus			X																						
Rhabdotoderma							X																		
Rhabpanus				X														X							
Rhadinema	X																								
Rhaptothyreius																			X						X
Rhigonema																		X							

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Rhinema							X																		
Rhinocerotonema																								X	
Rhinoclemmysnema																						X			
Rhips							X																		
Rhitilla				X																					
Rhitis				X																					
Rhizonemella											X														
Rhodolaimus				X																					
Rhodonema	X																								
Rhomborhabditis																									
Rhynchomermis																		X							X
Rhynchonema		X																							
Rhyssocolpus					X																				
Richtersia		X																							
Rictularia																								X	
Rictularina																								X	
Rictularioides																								X	
Ridgellus																X									
Riouxgolvania																		X						X	
Ritenbenkia	X																								
Robbea	X																								
Robertdollfusa																		X					X		
Robleus					X												X								
Robustnema		X																							
Robustodorus					X											X									
Rodentanema																								X	
Rodentocaulus																								X	
Rodentogamus																								X	
Rogerus			X																						
Romanomermis																		X							X

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Rondonema																		X							
Rondonia																				X					
Roqueus					X											X									
Rostrulium					X											X									
Rotylenchoides														X											
Rotylenchulus											X														
Rotylenchus														X											
Roveaphelenchus																		X							
Royandersonia																				X					
Rubzovinema																		X							
Ruehmaphelenchus					X													X							
Rugonema																								X	
Rugopharynx																								X	
Rugostrongylus																								X	
Ruizia																		X							
Rumai																				X					
Rumenfilaria																								X	
Rusguniella																				X			X		
Sabanema																								X	
Sabatieria		X																							
Sachsia																		X							
Sachsium		X																							
Sacrimarinema		X																							
Sadkonavis	X																								
Safianema															X	X									
Sakia																X									
Salesia																		X							
Salimella					X																				
Salvelinema																				X					
Sandnema																								X	

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Sanduanensis																								X	
Saprorhabditis																									
Sarconema																							X		
Sarisodera											X														
Sarsonia		X																							
Sauertylenchus														X											
Sauricola																						X			
Saurositus																						X			
Saveljevia								X																	
Scalpelus					X																				
Scalpenchus					X				X																
Scapidens					X				X																
Scaptrella								X																	
Scarabinema				X			X											X							
Scatonema																		X							
Schikhobalovia																								X	
Schistonchus																	X	X							
Schistorophus																							X		
Schmassmannimermis																		X							X
Schneidernema																								X	
Scholpaniella		X																							
Schrankiana																					X				
Schulmanela																				X					
Schulzia																					X				
Schulzinema																								X	
Schuurmanimermis																		X							X
Schwenckiana																		X							
Sciadiocara																							X		
Scirtimermis																		X							X
Sciuricola																								X	

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Sciurodendrium																								X	
Scleralaimus	X																								
Scleramphidelus	X																								
Scleroactinolaimus					X				X																
Sclerolabia					X																				
Sclerolaimus					X											X									
Sclerorhabditis		X																							
Sclerostylus					X											X									
Sclerotrichum																								X	
Scolecophilus																			X						
Scolytonema				X			X											X							
Scottnema																									
Scutellonema														X											
Scutylenchus														X											
Sectonema					X				X																
Seinura									X																
Selachinema								X																	
Semitobrilus				X																					
Senegalonema											X														
Serofilaria																								X	
Serpentirhabdias	X	X																				X			
Serpinema																						X			
Serradacnitis																						X			
Serratospiculoides																							X		
Serratospiculum																							X		
Setaria																								X	
Setonema																			X						
Setoplectus	X																								
Setosabatieria	X																								
Setostephanolaimus	X																								

Primary categories: **Mic**=Microbial Feeder; **Pred**=Predator; **Para**=Parasite.

Secondary categories: (Microbial Feeders) **suck**=suckers; **proc**=processors; **pierc**=piercers; **crush**=crushers; **scrap**=scrapers; (Predators) **inges**=ingesters; **pierc**=piercers; (Parasites) **plant**=plant feeders; **invert**=invertebrate associates; **vert**=vertebrate associates; **host unknown**=host unknown.

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Seuratascaris																					X				
Seuratia																						X			
Seuratiella							X																		
Seuratum																							X		
Seurechina																							X		
Severianoia																		X							
Sexansocara																						X			
Sexansodera																							X		
Shahnema				X																					
Shattuckius																							X		
Sheraphelenchus																	X	X							
Shunyanema																					X				
Sibayinema				X																					
Sicaguttur					X																				
Siconema																			X						
Siconemoides																			X						
Sicorinema									X																
Siddiqia															X										
Sigmophoranema							X																		
Silenchus																X									
Silvallis					X																				
Similascarophis																				X					
Simondsia																		X					X		
Simpliconema		X																							
Simulimermis																		X							X
Sinanema																									
Singhiella																		X							
Sinoichthyonema																				X					
Siphonolaimus	X						X	X																	
Sitadevinema				X																					

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TABLE 3. (Continued)

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Skarbilovinema					X												X	X							
Skibbinema					X				X																
Skladnikia																								X	
Skrjabillanus																				X					
Skrjabinalius																								X	
Skrjabinelazia																						X			
Skrjabinema																								X	
Skrjabingylus																								X	
Skrjabinitectus																								X	
Skrjabinocaulus																								X	
Skrjabinocerca																		X					X		
Skrjabinocercella																							X		
Skrjabinoclava																							X		
Skrjabinodera																								X	
Skrjabinodon																						X			
Skrjabinofilaria																								X	
Skrjabinomermis																		X							X
Skrjabinoptera																						X			
Skrjabinura																							X		
Skryabineandros																								X	
Smithsoninema		X																							
Soaresnema																		X							
Sobolevingylus																								X	
Soboliphyme																								X	
Solafilaria																						X			
Solenolaimus	X																								
Solididens					X											X									
Southerniella	X																								
Spalacina																								X	
Spartonema											X														

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Spauligodon																					X			
Spectatus																				X					
Sphaeroamphis					X				X																
Sphaerocephalum	X																								
Sphaerolaimus								X																	
Sphaeronema											X														
Sphaerotheristus		X																							
Sphaerularia																		X							
Spiculimermis																		X							X
Spiculocaulus																			X					X	
Spiculopteragia																								X	
Spiliphera							X																		
Spilophorella							X																		
Spilotylenchus																		X							
Spinicauda																					X				
Spininematoides																			X						
Spinitectoides																				X					
Spinitectus																				X					
Spinodesmoscolex	X																								
Spinodiplotriaena																						X			
Spinonema							X																		
Spinostrongylus																								X	
Spinoxyuris																				X					
Spiralatus																						X			
Spiramphinema		X																							
Spirinia							X																		
Spirobakerus																								X	
Spirobolbolaimus			X				X																		
Spirocerca																								X	
Spirodesma							X																		

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Spironoura																				X	X	X			
Spirophilometra																				X					
Spirosprattus																								X	
Spirostrongylus																								X	
Spiroxys																				X	X	X			
Spirura																								X	
Spiruroides																								X	
Splendidofilaria																							X		
Sporonchulus				X				X																	
Sprattellus																								X	
Sprattianema																								X	
Sprentascaris																				X					
Sprentia																		X							
Squamasnema																								X	
Squamofilaria																							X		
Squamostrongylus																								X	
Squanema	X																								
Srivastavanema																								X	
Stammeria	X																								
Stammerinema																								X	
Starobogatovia								X																	
Stauratostoma																		X							
Stefanskostrongylus																								X	
Stegelleta							X																		
Stegelletina							X																		
Stegonema																		X							
Stegophorus																							X		
Stegorhabditis				X																					
Steineria		X																							
Steineridora							X																		

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Steinernema	X																	X							
Steinimermis																		X							X
Stellocaronema																							X		
Stelmioides																								X	
Stenonchulus							X																		
Stenuroides																								X	
Stenurus																								X	
Stephanofilaria																								X	
Stephanolaimus				X																					
Stephanurus																								X	
Steratocephalus						X																			
Stilbonema	X																								
Stilestrongylus																								X	
Stomachorhabditis				X																					
Stopractinca									X																
Strelkovimermis																		X							X
Streptocara																							X		
Streptopharagus																		X						X	
Strianema																								X	
Striatodora		X																							
Striatofilaria																							X		
Strongylacantha																								X	
Strongyloides																								X	
Strongyluris																					X	X			
Strongylus																								X	
Struthiofilaria																							X		
Stygodesmodora							X																		
Subanguina										X															
Subaspiculuris																								X	
Subsphaerolaimus				X				X																	

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Subulascaris																					X				
Subulura																						X	X		
Sucamphida																			X						
Sudhausia				X			X											X							
Suifilaria																							X		
Suifunema																		X							
Sulcascaris																			X			X			
Sulphuretylenchus					X													X							
Suncinema																							X		
Sutarostrongylus																							X		
Suttonema																							X		
Swangeria					X				X																
Syafruddinema																							X		
Sychnotylenchus					X												X								
Syconema																		X							
Symplocostoma								X																	
Symplocostomella								X																	
Syncheilaxonchium					X											X									
Syncuaria																		X					X		
Syngamus																							X		
Syngnathinema																				X					
Synhimantus																							X		
Synodontisia																				X					
Synodontium						X																			
Synoecnema																			X						
Synonchiella								X																	
Synonchium								X																	
Synonchoides	X																								
Synonchus			X																						
Synonema			X				X																		

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Syphabulea																								X	
Syphacia																								X	
Syphaciella																							X		
Syphaciuris																								X	
Sypharista																								X	
Syphatineria																								X	
Syringolaimus								X																	
Syringoplatycoma																									
Syrphonema																		X							
Tachygonetria																						X			
Tachynema																								X	
Tadaridanema																								X	
Takakia		X																							
Takamangai					X				X																
Takamangi					X				X																
Talanema					X				X																
Tanqua																						X			
Tantunema					X											X									
Tanzanius																X									
Tapia							X																		
Tapironema																								X	
Tarantobelus		X																X							
Tarsubulura																								X	
Tarvaia	X																								
Tasmanema																								X	
Tawila																								X	
Tejeraia																		X						X	
Teladorsagia																								X	
Teleomermis																		X							X
Telomerlinius														X											

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Telotylenchoides														X											
Telotylenchus														X											
Tendinema					X																				
Tenoranema																								X	
Tenuidraconema	X																								
Tenunema																X									
Tenunemellus					X											X									
Tenuostrongylus																								X	
Teporingonema																								X	
Teratocephalus						X																			
Teratodiplogaster				X			X											X							
Teratolobus						X																			
Teratorhabditis				X																					
Termirhabditis				X														X							
Ternidens																								X	
Terranova																				X					
Terromermis																		X							X
Terschellingia	X																								
Terschellingioides		X																							
Tetanonema																				X					
Tethystrongylus																								X	
Tetleyus																		X							
Tetrabothriostrongylus																								X	
Tetracheilonema																							X		
Tetradomermis																		X							X
Tetradonema																		X							
Tetragomphius																								X	
Tetrameres																							X		
Tetramermis																		X							X
Tetrarhabditis				X																					

Primary categories: **Mic**=Microbial Feeder; **Pred**=Predator; **Para**=Parasite.

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Tetylenchus					X											X									
Texicospirura																								X	
Thada																X									
Thainema																			X						
Thaistrongylus																								X	
Thalassironus							X	X																	
Thalassoalaimus	X																								
Thalassogenus	X																								
Thalassomermis																		X							X
Thalassomonhystera	X																								
Thalassonema																			X						
Thallostonema																								X	
Thamugadia																						X			
Thaparia																						X			
Thaumamermis																		X							X
Theileriana																								X	
Thelandros																						X			
Thelastoma																		X							
Thelazia																								X	
Thelonema		X																							
Theristus	X	X	X																						
Thoonchus								X																	
Thoracostoma							X																		
Thoracostomopsis								X																	
Thornedia															X										
Thorneella					X				X																
Thornenema					X				X																
Thorneum				X				X																	
Thornia					X				X																
Thorniosa					X				X																

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Thraustomermis																		X							X
Thripinema																		X							
Thubunaea																						X			
Thylaconema																							X		
Thylonema																								X	
Thylostrongylus																								X	
Tiacuatzoxyuris																								X	
Tigronchoides								X																	
Tikusnema																								X	
Timmia							X																		
Timminema					X																				
Timmungella																			X						
Timmus					X											X									
Tipulacomis				X														X							
Titilleus				X																					
Tobrilia				X			X																		
Tobriloides				X																					
Tobrilonchulus				X																					
Tobrilus				X				X																	
Tokobaevimermis																		X							X
Tonaudia																						X			
Tonoscolecinema																			X						
Torquatoides																							X		
Torrestrongylus																								X	
Torsiomermis																		X							X
Torumanawa					X				X																
Torynurus																								X	
Touzeta																				X					
Toxascaris																								X	
Toxocara																								X	

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Trachactinolaimus									X																
Trachyglossoides																		X							
Trachyglossus																		X							
Trachypharynx																								X	
Trachypleurosum									X																
Traklosia																		X							
Travassallodapa																							X		
Travassosascaris																						X			
Travassosinema																		X							
Travassosius																								X	
Travassosnema																				X					
Travassostrongylus																								X	
Travnema																				X					
Trefusia	X																								
Trefusialaimus		X																							
Tremonema					X											X									
Triaulolaimus	X																								
Tricaenonchus				X				X																	
Tricephalobus						X												X						X	
Triceratonema	X																								
Tricheilia																						X	X		
Tricheilonema																						X		X	
Trichenoplus	X																								
Trichinella																								X	
Trichochenia																								X	
Trichodorus															X										
Trichofreitasia																								X	
Trichohelix																								X	
Tricholeiperia																								X	
Tricholinstowia																								X	

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Trichonema																		X							
Trichoskrjabinia																								X	
Trichosomoides																								X	
Trichospirura																								X	
Trichostrongyella																								X	
Trichostrongylus																								X	
Trichotheristus		X																							
Trichotravassosia																								X	
Trichotylenchus														X											
Trichromadora							X																		
Trichromadorita							X																		
Trichuris																								X	
Trichuroides																								X	
Tricirronema						X																			
Tricoma	X																								
Tridentellia							X																		
Tridentocapillaria																						X			
Tridentoinfundibulum																								X	
Tridentulus			X																						
Triepsilonema	X																								
Trifurcata																								X	
Trigonostonema																								X	
Trileptium								X																	
Triligulla						X																			
Trilobostrongylus																								X	
Triodontolaimus								X																	
Triodontophorus																								X	
Tripius					X													X							
Tripyla			X					X																	
Tripylella			X					X																	

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Tripylina				X																					
Tripylium			X																						
Tripyloides		X																							
Trischistoma				X				X																	
Trissonchulus							X	X																	
Trithornus						X																			
Triumphalisnema																		X							
Trochamus							X																		
Troglostrongylus																			X					X	
Trogolaimus								X																	
Trophomera																				X					X
Trophomermis																		X							X
Trophotylenchulus											X														
Trophurus														X											
Trualaimus						X																			
Truttaedacnitis																				X					
Truxonchus								X																	
Trypanoxyuris																								X	
Tsuganema																		X							
Tsukubanema					X											X									
Tubixaba					X				X																
Tubolaimella	X																								
Tubolaimoides	X																								
Tuerkiana	X																								
Tumiota											X														
Tunicamermis																		X							X
Tupaiostrongylus																								X	
Turbatrix		X																							
Turgida																								X	
Tutunema																		X							

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Tylaphelenchus					X												X								
Tylenchocriconema														X											
Tylenchodoroides					X											X									
Tylenchodorus					X																				
Tylencholaimellus					X											X									
Tylencholaimus					X											X									
Tylenchorhynchus															X										
Tylenchulus											X														
Tylenchus					X											X									
Tyleptus					X											X									
Tylocephalus		X																							
Tylodorus															X										
Tylolaimophorus	X				X																				
Tylopharynx					X																				
Typhlonema																					X				
Typhlophoros																					X				
Typhlopsia																					X				
Tziminema																							X		
Udonchus				X			X																		
Uliginotylenchus															X										
Ultratenella					X											X									
Umingmakstrongylus																			X				X		
Uncinaria																							X		
Undescribed																				X					
Ungella																			X						
Ungulilaimella			X				X																		
Ungulilaimus				X			X																		
Uniovaria		X																							
Urbanonema																		X							
Urodelema																					X				

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Urucuia																		X							
Usarpnema	X																								
Utahnema					X																				
Utriculimermis																		X							X
Valvaelaimoides		X																							
Valvaelaimus							X	X																	
Vampyronema																		X							
Vanderlindia					X																				
Varestrongylus																			X					X	
Varotylus														X											
Vasculonema		X																							
Vasorhabdochona																				X					
Vasostoma						X																			
Vaucherus																						X			
Veleshkinema																		X							
Ventelia																		X							
Versternema																		X							
Verutus											X														
Vetus		X																X							
Veversia																						X			
Vexillata																								X	
Viannaia																								X	
Viannella																								X	
Vigisospirura																								X	
Viguerastrongylus																								X	
Viguiera																							X		
Viktorocara																							X		
Virenodiplogaster				X			X	X																	
Viscosia								X																	
Viverranisakis																								X	

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Viverrostrongylus																								X	
Vogeloides																								X	
Voguracuaria																							X		
Vulcanonema																		X							
Wachekitylenchus					X													X							
Waerebekeia																		X							
Wallabinema																								X	
Wanaristrongylus																						X			
Wasimellus					X											X									
Websternema																								X	
Weisoncholaimus								X																	
Welchimermis																		X							X
Wellcomia																								X	
Westindicus									X																
Wetanema																		X							
Wieseria	X																								
Willinema					X																				
Willmottia																							X		
Wilsonema		X																							
Woodwardostrongylus																								X	
Woolleya																								X	
Wuchereria																		X						X	
Wuia																								X	
Xenella	X																								
Xenocordon																							X		
Xenocriconemella														X											
Xenocyatholaimus							X																		
Xenolaimus		X																							
Xenonema							X																		
Xericola																								X	

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Xeroxyuris																								X	
Xiphidorus														X											
Xiphinema														X											
Xiphinemella															X	X									
Xustrostoma																		X							
Xyala		X																							
Xylorhabditis				X																					
Xyo																		X							
Xystrognathus																		X							
Xyzzors							X																		
Yagansiella																			X						
Yatesia																								X	
Yatinema																								X	
Yeatesinia		X																							
Yubeldus					X																				
Yunqueus					X																				
Zaglonema																								X	
Zalonema							X																		
Zalophidera															X	X									
Zalophora																		X							
Zanenchus																X									
Zealandodera											X														
Zebrincola																								X	
Zeldia						X																			
Zenkoxyuris																								X	
Zetalaimus					X											X									
Zoniolaimus																								X	
Zonothrix																		X							
Zygocaulus																					X				
Zygonemella		X																							

Primary categories: **Mic**=Microbial Feeder; **Pred**=Predator; **Para**=Parasite.

Secondary categories: (Microbial Feeders) **suck**=suckers; **proc**=processors; **pierc**=piercers; **crush**=crushers; **scrap**=scrapers; (Predators) **inges**=ingesters; **pierc**=piercers; (Parasites) **plant**=plant feeders; **invert**=invertebrate associates; **vert**=vertebrate associates; **host unknown**=host unknown.

Minor categories: (Microbial Feeders) **susp**=suspension feeders; **part**=particulate feeders; (Parasites) **int**=internal feeders; **ext root**=external root feeders; **ext brows**=external browser; **wood or bark**=wood or bark associate; **mod**=modifier; **mig**=migrator; **aer**=aerial; **b.g.**=below ground; **sub-s**=sub surface feeder; **surf**=surface feeder; **arth**=arthropod associate; **oth**=other invertebrate associate; **fish**=fish associate; **amphib**=amphibian associate; **rep**=reptile associate; **bird**= bird associate; **mamm**=mammal associate

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TABLE 3. (Continued)

Genus	Mic—suck—susp	Mic—suck—part	Mic—proc—susp	Mic—proc—part	Mic—pierc	Mic—crush	Mic—scrap	Pred—ingest	Pred—pierc	Para—plant—int—mod—aer	Para—plant—int—mod—b.g.	Para—plant—int—mig—aer	Para—plant—int—mig—b.g.	Para—plant—ext root—sub-s	Para—plant—ext root—surf	Para—plant—ext brows	Para—plant—wood or bark	Para—invert—arth	Para—invert—oth	Para—vert—fish	Para—vert—amphib	Para—vert—rept	Para—vert—bird	Para—vert—mamm	Para—host unknown
Zygotylenchus													X												
Zygradus														X											
Zyxispinifer																		X							
Total number of genera	**224**	**181**	**28**	**188**	**311**	**58**	**210**	**178**	**115**	**8**	**35**	**6**	**10**	**66**	**46**	**149**	**43**	**417**	**85**	**184**	**77**	**141**	**163**	**701**	**108**	**651**
Total number of species	**2224**	**1554**	**346**	**1429**	**3236**	**462**	**1946**	**2036**	**1637**	**98**	**333**	**285**	**420**	**2036**	**712**	**1464**	**726**	**2768**	**440**	**2276**	**1035**	**1662**	**1697**	**4866**	**651**
Total species per major trophic type	**11197**							**3673**		**6074**								**3208**		**11534**					**651**

Primary categories: **Mic**=Microbial Feeder; **Pred**=Predator; **Para**=Parasite.

Secondary categories: (Microbial Feeders) **suck**=suckers; **proc**=processors; **pierc**=piercers; **crush**=crushers; **scrap**=scrapers; (Predators) **inges**=ingesters; **pierc**=piercers; (Parasites) **plant**=plant feeders; **invert**=invertebrate associates; **vert**=vertebrate associates; **host unknown**=host unknown.

Minor categories: (Microbial Feeders) **susp**=suspension feeders; **part**=particulate feeders; (Parasites) **int**=internal feeders; **ext root**=external root feeders; **ext brows**=external browser; **wood or bark**=wood or bark associate; **mod**=modifier; **mig**=migrator; **aer**=aerial; **b.g.**=below ground; **sub-s**=sub surface feeder; **surf**=surface feeder; **arth**=arthropod associate; **oth**=other invertebrate associate; **fish**=fish associate; **amphib**=amphibian associate; **rep**=reptile associate; **bird**= bird associate; **mamm**=mammal associate