

Nematology News

Memories from Braga: the 32nd Symposium of the European Society of Nematologists (28th August - 1st September 2016)



There are certain places that bring a smile on your face because of pleasant memories. This certainly applies to Braga, Portugal thanks to a very successful ESN symposium. Some of us might link Braga to scars and broken shower glass but that is a different story.

In total 386 delegates from 45 countries accounted for 150 oral presentations and 190 posters in 24 different topics. Plant-parasitic nematodes were most popular (and won the football tournament) but an increasing number of contributions focussed on nematodes as bio-indicators for soil health, suppressiveness and biodiversity. The abstract book clearly shows the diversity of topics and can be downloaded from the ESN website (<https://www.esn-online.org/meetings/esn-meetings/esn-2016>). Around one third of the delegates were students from which 19 were awarded an ESN bursary.

Every day started with two plenary talks covering a wide area of research related to nematodes. Afterwards three parallel sessions were held. Posters were visible throughout the conference and were discussed during the poster session on Tuesday accompanied with Portuguese wine and cheese.

ESN fellows

During the banquet of the 32nd Symposium of the European Society of Nematologists ESN fellowship was awarded to Godelieve Gheysen, Wilfrida Decraemer and James Baldwin also known as Lieve, Frieda and Jim.

Godelieve Gheysen

At Ghent University, Belgium, Lieve is the head of the laboratory Applied Molecular Genetics of the faculty of Bioscience Engineering and co-chair of the International Master of Science in Agro- and Environmental Nematology. Her research focusses on the analysis of the interactions between rice and parasitic nematodes and she is (co)author of over 150 A1 papers and 11 book chapters. Lieve is currently also director of the Institute Plant Biotechnology for developing countries (IPBO) and is responsible for projects concerning genetic improvement of crops for developing countries (protection against pests and pathogens in banana, potato and sweet potato) and projects concerning the societal issues and public attitude towards plant biotechnology. Lieve has also served as a member of the ESN governing board.

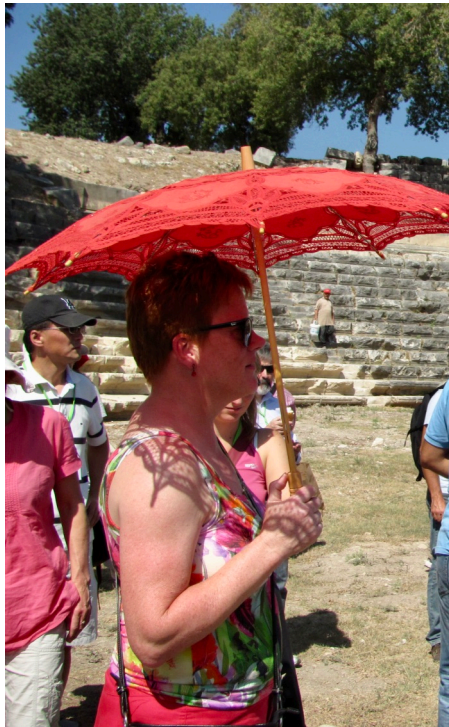


Wilfrida Decraemer

Frieda is an internationally renowned expert on nematode taxonomy and morphology. She worked as Senior Scientist in the field of nematology at the Royal Belgian Institute of Natural Sciences (Brussels, Belgium) and recently retired as professor at Ghent University, Belgium. Her research focuses on the systematics (based on microscopy and molecular data), morphology (light microscopy and ultrastructure), phylogeny, zoogeography of plant-parasitic nematodes, more specifically of the virus vector families Trichodoridae and Longidoridae. She also studies the taxonomy, morphology, and phylogeny of free-living nematodes, more specifically of marine nematode taxa such as Desmoscolecida, Epsilonematidae and Draconematidae. She is author of a book on Trichodoridae and (co)author of 2 books, 11 book chapters and more than 150 A1 papers. Frieda is the former president of the International Federation of Nematology Societies (IFNS) and former director of the International Master of Science in Agro- and Environmental Nematology at Ghent University.

James Baldwin

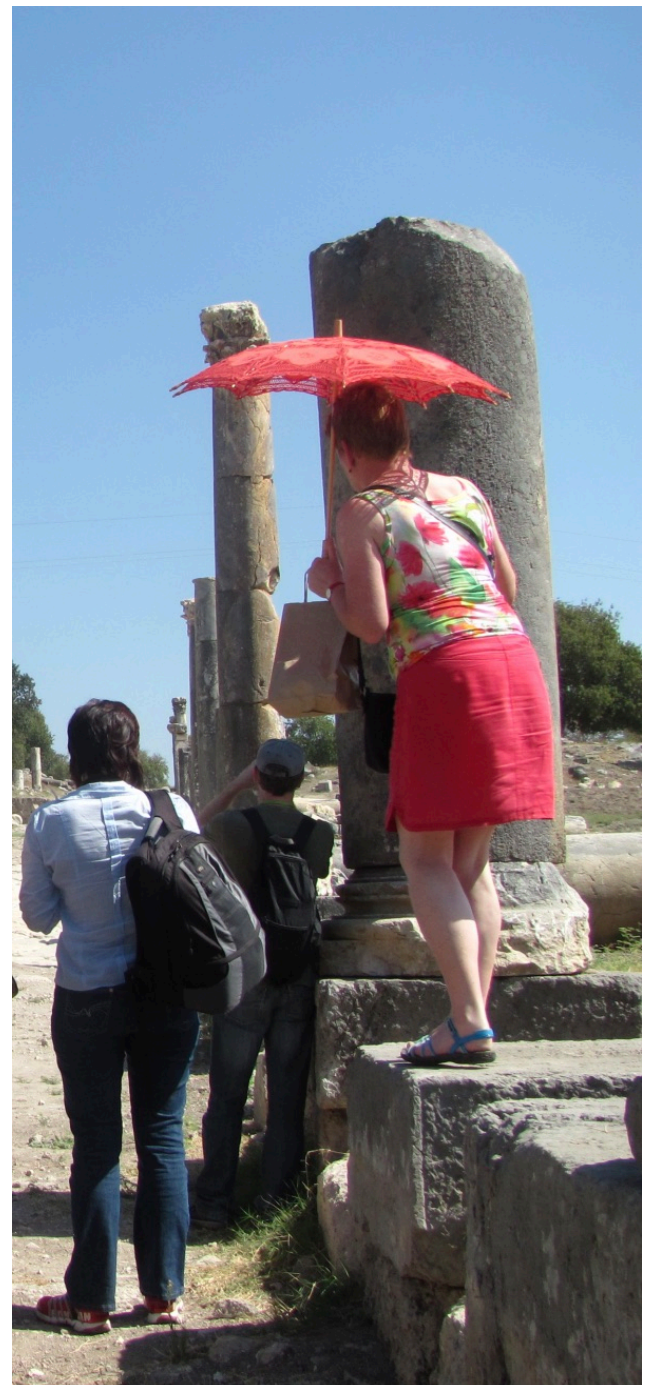
Jim is emeritus professor at the Department of Nematology, University of California, Riverside, USA and director of the University of California Riverside Nematode Collection (UCRNC). His research focusses on nematode phylogeny of plant-parasitic and marine nematodes contributing to the nematode tree of life. His work enables a better understanding of plant parasitism. Jim was involved in many surveys and descriptions of new taxa and is (co)author of over 110 A1 papers, 19 book chapters and 2 books. He is the former president and fellow of the Society of Nematologists (SON) and served as a member of the ESN governing board.



Loes den Nijs

During the general meeting of the ESN on Thursday, 1st September, Braga, Portugal, Loes den Nijs stepped down as secretary/treasurer of ESN. She was a member of the governing board since 2004 and became secretary/treasurer in 2010. ESN president Ralf Ehlers is full of admiration: *'Loes was always very well organised, kept close contacts with the members and the board and managed to keep the board on track. Her way of management was very effective. When she came to our board meetings she was always well prepared,*

which enabled us to finish board meetings on time to go for dinner. The social part has always been an important part of ESN activities and scientific exchange and we all enjoyed a beer with Loes. Her way of solving problems was focused and I never experienced that we could not find a pragmatic solution for problems. Her efficient approach is only possible when much time and thinking is done beforehand. Loes volunteered to do the work and we are very grateful for the many hours she committed to the management of ESN.' I think we can all agree with his words. To illustrate how much work was done by Loes ESN needed to replace her by two men. Hans Helder took over her responsibilities as treasurer and Eric Grenier is our new secretary. And to quote Loes: *'I have done it with great pleasure but it should be clear that now other people are in charge'*.



Loes on the look out to make sure ESN is moving in the right direction

Nematology highlights

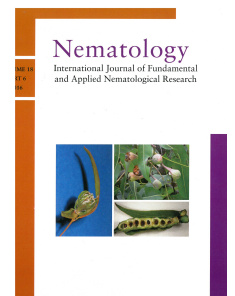
Nematology volume 18 (2016) was completed with ten issues totalling 1245 pages of research articles. The volume comprised 2 Forum articles, 80 full research papers and 5 short communications. Here, Roland Perry highlights a paper from each of the last five issues.

Nematology papers, including the earlier papers of *Nematologica*, are available on Brill's online platform at: <http://booksandjournals.brillonline.com/content/15685411>; all articles are available online with a DOI immediately corrected proofs are returned.

Highlights of Vol. 18 (2016) Parts 6-10

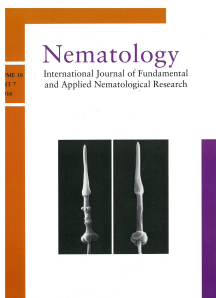
Part 6

Fergusobia is the only known nematode to have a dicyclic life cycle with a generation in a plant followed by one in an insect. The nematode and fly have a mutualistic association, with the nematode inducing a plant gall on which the fly feeds and develops, and the fly providing transport for the nematode. In a thought-provoking Forum article, entitled *Galling problems – the Fergusobia nematode/Fergusonina fly mutualism on myrtaceous hosts* (pp. 629-649; DOI: 10.1163/15685411-00003002), Kerrie Davies and her colleagues discuss the life cycle, specificity, diversity and distribution of the nematode, and the nematode phylogeny. This article raises questions about *Fergusobia*, including: what model best accounts for evolution of the known diversity of the nematode/fly mutualism?; how are the nematode/fly life cycles coordinated?; how do the nematodes avoid resistance mechanisms of both flies and plants?; what cecidogenic processes does the nematode use?; and what is the form of parthenogenesis occurring in *Fergusobia* and how does it relate to the inheritance of variability? Given the models of genomes and transcriptomes now available for other plant-parasitic nematodes and the availability of technologies to examine *Fergusobia*, it should be possible to answer some of these questions.



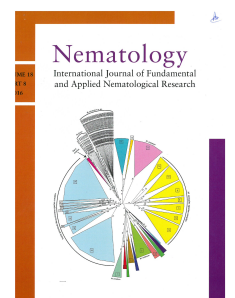
Part 7

Parasitism by sedentary endoparasitic nematodes seems to involve the simultaneous alteration of the expression of effector genes in order to hijack the plant metabolic and developmental pathway. In *RNAi-induced silencing of an effector confers transcriptional oscillation in another group of effectors in the root-knot nematode, Meloidogyne incognita* (pp. 857-870; DOI: 10.1163/15685411-00003003) Shivakumara *et al.* used an *in vitro* RNAi strategy to knock down *M. incognita*-specific pioneer effector genes, such as *msp-18*, *msp-20*, *msp-24*, *msp-33* and *msp-16* (known to interact with plant transcription factor), to investigate their possible effect on the expression of key cell wall-degrading enzymes (CWDE) and *vice versa*. Supported by the phenotypic data, their study revealed that induced suppression of these genes causes transcriptional alteration of CWDE genes in *M. incognita*. This remarkable finding may provide some useful links for future research on nematode effector interaction.



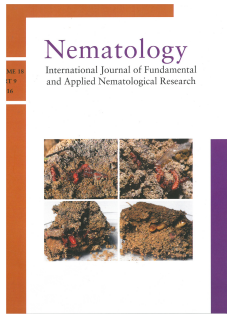
Part 8

In *Description of Mesocriconema ericaceum n. sp. (Nematoda: Criconematidae) and notes on other nematode species discovered in an ericaceous heath bald community in Great Smoky Mountains National Park, USA* (pp. 879-903; DOI: 10.1163/15685411-00003001) Tom Powers and colleagues describe a new species of *Mesocriconema* and a unique assemblage of plant-parasitic nematodes they discovered in a heath bald atop Brushy Mountain in Great Smoky Mountains National Park. DNA barcoding with the mitochondrial COI gene provided evidence of the new species as a distinct lineage. Three other nematodes in the family Criconematidae were characterised from the heath bald. *Ogma seymouri*, when analysed by statistical parsimony, established connections with isolates from north-eastern Atlantic coastal and north-western Pacific coastal wet forests. *Criconema loofi* has a southern Gulf Coast distribution associated with boggy soils. *Criconema* cf. *acriculum* is known from northern coastal forests of California. Understanding linkages between these species and their distribution may lead to the broader development of a terrestrial soil nematode biogeography.



Part 9

Nematode physiology is an under researched area, so the paper by van Aardt *et al.* (*The effects of stirring, population levels and a potential anti-nematodal product on the respiration of second-stage juveniles of Meloidogyne incognita measured with different technology*. Pp. 1053-1061; DOI: 10.1163/15685411-00003014) is

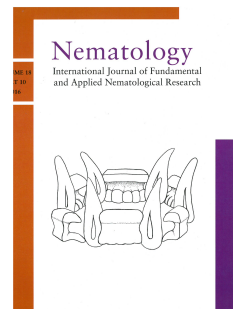


particularly welcome. The authors measured the oxygen consumption rate of *M. incognita* second-stage juveniles (J2) with polarographic oxygen sensor (POS) and fibre-optic oxygen sensor (FOS) technology. The effect of stirring speed on the oxygen consumption rate of J2 suspended in tap water was determined using POS and the oxygen consumption rate of different numbers of J2 was measured using FOS. Also, the oxygen consumption rate of J2 in tap water using POS and FOS was recorded, as was the effect of SoilBioMuti, a plant growth enhancer containing soil microbiota, on J2 oxygen consumption rate using FOS. Stirring speed had no pronounced effect on the oxygen consumption rate of J2. FOS recorded the oxygen consumption rate of as few as five J2. The oxygen consumption rate of J2 in sterile tap water was significantly lower for POS than FOS. Using FOS, non-filtered (NF) SoilBioMuti without J2 had the highest oxygen consumption rate, being 42% higher than that of NF SoilBioMuti with J2.

The two filtered SoilBioMuti (with and without J2) treatments had the lowest oxygen consumption rate values. The work provided new insights into the oxygen consumption rate of *M. incognita* J2 under different treatments.

Part 10

The genus *Pratylenchoides* has recently been transferred from the family Pratylenchidae to Merliniidae. To investigate further the relationship between these 'Pratylenchus-like' species (residing in the subfamily Pratylenchoidinae) and the subfamily Merliniinae and reveal its intrageneric structuring, Azizi *et al.* (*Morphological and molecular data support the monophyletic nature of the genus Pratylenchoides Winslow, 1958 (Nematoda: Merliniidae*. Pp. 1165-1183; DOI: 10.1163/15685411-00003023) collected more than 500 soil samples from various habitats in Iran. Paratypes or populations of 22 species of *Pratylenchoides* were studied and intra- and interspecies variation of important characters were investigated. Combining morphological and molecular data prompted the authors to propose two clusters of related *Pratylenchoides* species. One cluster includes *P. crenicauda*, *P. variabilis* and *P. erzurumensis*, whereas the second cluster consists of *P. alkani*, *P. nevadensis* and *P. ritteri*. The data point to a sister positioning of *P. magnicauda* vis-à-vis all *Pratylenchoides* species included in this research. Analyses of SSU rDNA (for family and subfamily relationships) and partial LSU rDNA sequences (for intrageneric relationships) data revealed: i) the distal and nested positioning of all Pratylenchoidinae within the Merliniidae; ii) the single transition from ectoparasitism to migratory endoparasitism within the family Merliniidae corresponds with the current subfamily partitioning; and iii) support for the monophyletic nature of the genus *Pratylenchoides*.



Roland N. Perry

Editor-in-Chief, *Nematology*

ESN membership renewal

“It is time to renew your membership of the European Society of Nematologists. Currently, the ESN website does not have the capacity to generate automatic email reminders about your dues. Please note that new memberships and memberships renewal can now be made through the web site. In order to keep ESN membership as steady and important as now, ESN needs your action. Here is what you can do: (i) Pay your dues on time – don't wait until just before the next ESN meeting ; (ii) Dues are paid on the calendar year ; (iii) Encourage/harass your students and colleagues to join ESN (with just € 20 our membership fee is quite low). For further information contact your country representative or Eric Grenier.”

Upcoming meetings



69th International Symposium on Crop Protection - 23 May 2017 - Ghent, Belgium

The Symposium will focus on new developments in all aspects of crop protection. The programme will include a plenary session with three invited papers and parallel sessions with submitted papers related to the following subjects: Pesticide Residues, Toxicology and Ecotoxicology, Formulation and Application Technology, Agricultural Entomology and Acarology, Nematology, Phytopathology and Herbology

iscp@ugent.be

<http://www.ugent.be/bw/crop-protection/iscp>



ASSOCIATION OF APPLIED BIOLOGISTS

President: Professor Christine Watson

A detailed, close-up photograph of a nematode, showing its internal structure and coiled body. The nematode is illuminated with a green and yellow light, giving it a glowing appearance against a dark background.

A two day conference
at the Institute of Technology Carlow,
Ireland
on 28 – 29 June 2017

**ANNOUNCEMENT &
CALL FOR ABSTRACTS**

**3rd International Symposium on
Nematodes as
Environmental Bioindicators**

Comesomatid (*Sabatieria* sp.) from the East Coast of Malaysia - Image reproduced by kind permission of Dr Marcus Trett of Physalia Limited - Applied Sciences, Consultant & Forensic Ecologists

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56th Annual Meeting of the Society of Nematologists, August 13-16, 2017. Colonial Williamsburg, Virginia, USA. <https://nematologists.org/>

33rd Symposium of the European Society of Nematologist, September 9-13, 2018. Ghent, Belgium. <https://www.esn-online.org/conference>

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Information needed for the newsletter

The ESN Governing Board would like this newsletter to be a Forum that is more widely used by the membership to share news and information. So, if you have any information and/or images that might be of interest to ESN members please send a note to the editor (Wim Wesemael - wim.wesemael@ilvo.vlaanderen.be). All that is needed is a small amount of text in a word file or an email message, along with an accompanying image.