



Nematology Newsletter

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From the President

Happy almost-spring! I don't know about all of you, but I am itching for sunshine and warm temperatures and digging into my own garden. Work from home has provided the opportunity to be more in tune with what's happening in yard and inspired me to plan some new projects and try growing things I've never tried before, like ground cherries and luffa. We'll see how it goes!



As for SON, our intrepid president-elect, program chair, and local arrangements chair for the 60th Annual Meeting, Kathy Lawrence is forging ahead with planning the scientific program and activities for our meeting in Gulf Shores, Alabama. With covid-19 vaccine distribution expanding and infection numbers dropping, we have reason to look towards September with hope and optimism that we will be able to gather safely and share our science together again. It has been way too long! Registration and abstract submission are now open.



The EB is monitoring conditions and will have contingency plans in place in the event we have to pivot to a hybrid model or online meeting. Committees and student groups who would like to be included in planning the program should reach out to Kathy or their Executive Board Liaison or me, especially if your idea requires funds for a speaker or board approval. Please reach out with your ideas, comments, or concerns. Communica-

tion is key as we navigate the still-muddy pandemic waters.

Since our last newsletter, we welcomed Ralf Sommer to the EB as our new Editor-in-Chief for the Journal of Nematology. Ralf has hit the ground running, quickly resolving some issues with our publisher and planning the implementation of APC's (article publication fees). We're grateful for David Shapiro-Ilan's diligent service and wish him well as he takes on a new role as EIC for the Journal of Invertebrate Pathology. We've also welcomed Pablo Castillo to the EB as a much-needed associate editor to help manage the deluge of taxonomic submissions.

If you haven't been checking out the SON website, you really should make it a habit to visit the often for updates on the meeting and other resources. Churamani and Jacki have been busy adding new features, many of which are available as member-only benefits. If you are not a member or have let your membership lapse, please renew! Contact the business office if you have any questions at societyofnematologists@gmail.com. The Cobb Foundation pages have also been getting a refresh, so there is where you will find information on the latest fundraising efforts and travel award information for students, and the fabulous Cobb Video Contest. Don't waste your video talents dancing on Tik-tok— why not show the world how cool nematodes are! The Cobb Foundation will be hosting a Silent Auction to raise funds for the endowment, so if you have an extra copy of a valued resource no longer in print, some cool nematode art, or have a service to offer, please contact Byron Adams to arrange your donation.

This is also the time of year when we issue a call for nominations for future officers of the Society and the Cobb Foundation. This year, we are seeking nominations for SON Vice President and Secretary and for Cobb Secretary and Treasurer. These are all important roles that help shape the future of the society and keep it going. If you have any questions about what various officers' responsibilities are or the time commitments, etc., don't hesitate to ask! Society service has been a very rewarding experience! I highly recommend it!

Stay safe, all.

Andrea Skantar, SON President

John M. Webster Outstanding Student Award

Dear SON Members,

The Nathan A. Cobb Foundation is pleased to request nominations for The John M. Webster Outstanding Student Award for 2021. This award is to recognize a graduate student who has demonstrated outstanding accomplishments in his/her thesis research in Nematology as well as other skills necessary to be a well-rounded scholar.

Students in their final year of a Master's or Ph.D. degree shall be eligible for this award and shall be nominated by a mentor or peer. The nomination will include a letter from the nominator, and a one-page description of his/her research written by the student. The nomination letter should describe the student's educational background, grade point average, contributions and merit; a brief CV (e.g., 2 pages) should also be included.

The recipient of the award will receive a plaque and will make a 30-minute oral presentation of their research at the 60th annual meeting of the Society of Nematologists in September 2021. The presentation will be designated in the Program and Abstracts book as the John Webster Outstanding Student Presentation. The recipient may also present a different aspect of their research in the Student Paper or Poster Competition.

The deadline for receiving nominations is midnight (Eastern Standard Time) on **June 30, 2021**.

Please send nominations via e-mail to benjamin.mimee@canada.ca

Thank you!

SON Business Office

[John M. webster award poster.png](#)



Society of Nematologists Executive Board Meeting

Wednesday, January 28, 2021

Minutes

Present: A. Skantar, K. Lawrence, A. Elling, S. Stetina, N. Schroeder, B. Sipes, D. Shapiro, R. Sommer, G. Phillips, C. Khanal, T. Faske, A. Gorny, J. Beacham

Absent: T. Mengistu

Guest: P. Donald

1. President Skantar called the meeting to order 8:02 am HST.
2. The agenda was approved unanimously.
3. The minutes from the EB meeting of November 2020 were approved unanimously.
4. Old Business
 - a. 2020 Virtual Annual Meeting: The meeting went well with few noticeable glitches. Attendance was about what was expected given the time frame and costs.
 - b. 2021 Annual Meeting: Honors and Awards Committee has made announcements. Registration is waiting to open. Program and fees discussed. Travel restrictions vary so widely we need to consider virtual options. KL will remain flexible allowing a pivot if needed. We should communicate the uncertainties with members to keep them informed.
 - c. Committees: Remind committees to request funds for planned activities.
 - d. SON website new features, recent updates: JB and CK busy adding new features. Highlighting affiliations under member benefits. Include member benefits in the NNL.
 - e. JON Editor-in-Chief and Exeley update: Article processing fees are requiring more tracking on our part. DS is in conversation with Exeley because the charges do not seem to match the services provided. Fees scheduled to start in April 2021. Society is collecting the fees. Pay close attention to funds and publications. May need to revisit the

issue of the charges/fees. Table of Contents still has not been implemented by Exeley. Indexing is slow in SCOPUS and PubMed. Multiple papers in taxonomy. **DS moves to confirm Pablo Castile as an associate editor in Taxonomy for the *Journal of Nematology*. KL seconded. Motiopassed unanimously.**

5. New business
 - a. Cobb Foundation: Discussion on payments tabled. Announced video contest. Fundraising efforts tied to the meeting and giving Tuesday resulted in \$4400 in donations. A silent auction might be tried for the 2021 meeting including physical and service items.
 - b. AIBS and NSCA benefits: This will be placed on the website.
 - c. Robin Giblin-Davis Emeritus Request: **AE moves to grant emeritus status to Dr. Robin Giblin-Davis. KL seconded. The motion passed unanimously.**
 - d. Call for new officer nominations-needs to go into the next NNL and on social media soon.
 - e. Formal role for President-Elect in ICN program planning: Sometimes the President-Elect has been very involved, other times much less so.
 - f. Other online meetings and seminars: slack workspace on nematodes has been very active during pandemic. Adama has supported seminars. Planning an event for March with speakers from soil science. We need to be aware of what is going on. The Society was asked to partner with the group. The group is also planning a student competition.
6. There being no further business, President Skantar adjourned the meeting at 10:04 am HST.

Respectfully submitted,

Brent Sipes

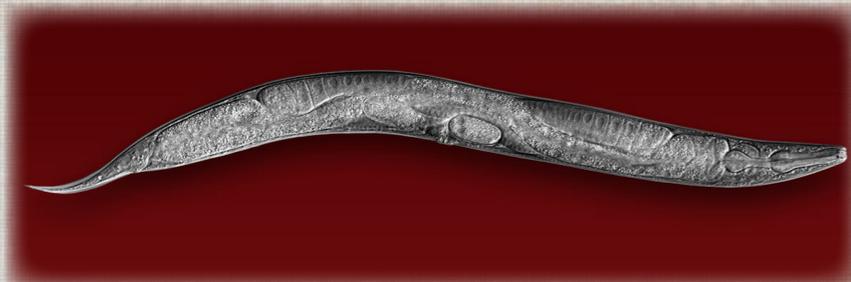
Secretary

Welcoming JON Editor-in-Chief- Dr. Ralf J. Sommer

On behalf of the Society of Nematologists, we welcome our new Journal of Nematology Editor-in-Chief, Dr. Ralf J. Sommer.

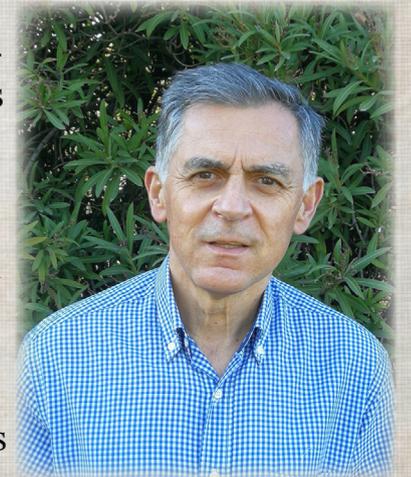
Dr. Ralf J. Sommer works in the field of evolutionary developmental biology and uses nematodes as model organisms. He has established the diplogastrid nematode *Pristionchus pacificus* as a model system for integrative studies in evolutionary biology and his lab has published more than 200 publications on this nematode. The work covers all areas from genetics and developmental biology to genomics, bioinformatics and the ecology and taxonomy of *Pristionchus*. In a biodiversity effort, his lab has described a collection of around 50 different *Pristionchus* species, all of which are available as living cultures. In the last decade, his research program focuses on the origin and evolution of novelty and role and significance of developmental (phenotypic) plasticity for evolution. Nematodes of the genus *Pristionchus* can form two alternative mouth-forms, one of which allows predation on other nematodes. Sommer's group investigates the interplay between genetic, epigenetic and environmental factors involved in the mouth-form decision of individual worms. This work just recently identified a novel self-recognition system, which involves a rapidly evolving small peptide. This was the first self-recognition system to be identified in nematodes.

Dr. Sommer is the Director of the Department for Integrative Evolutionary Biology at the Max Planck Institute for Developmental Biology in Tübingen, Germany since 1999. He is adjunct professor at the University of Tübingen since 2002. Previously he worked as EMBO Research Fellow at CALTECH with Paul W. Sternberg from 1993-1995 and earned his Ph.D. at the Ludwig Maximilian University in Munich, in 1992. Dr. Sommer is a member of EMBO.



Welcoming JON Associate Editor Pablo Castillo

Dr. Pablo Castillo works in the field of plant nematology focused on integrative diagnostic of plant-parasitic nematodes affecting Mediterranean crops and their interactions with the plant and other soil microorganisms. He has described more than 120 new species of plant-parasitic nematodes integrating morphometric and molecular analyses. His lab has published more than 210 publications in peer review international journals on diagnosis, control, plant-nematode and nematode-soil microorganisms interactions; and three books on the spiral nematode genus *Rotylenchus* (Brill, 2005), the root-lesion nematode genus *Pratylenchus* (Brill, 2007) and the root-knot nematode



genus *Meloidogyne* (Brill, 2021). Castillo's research group covers several areas and research lines, including: i) integrative diagnosis and molecular characterization of plant-parasitic nematode species (description of new species and the molecular phylogeny of different groups, comprising *Meloidogyne*, *Pratylenchus*, *Xiphinema*, *Longidorus*, *Paralongidorus*, *Rotylenchus*, *Ditylenchus*, *Rotylenchulus*, *Helicotylenchus*, *Trichodorus*, *Paratrachodorus*, *Paratylenchus*); ii) study of plant-nematode interactions with the characterization of resistance and its stability; iii) ecological relationships in chickpea, grapevine and olive trees to understand the biodiversity of plant-parasitic nematodes in these crops. Castillo's group also investigates the bacterial endosymbionts associated specifically with species in the *Xiphinema americanum* group comprising a group of endosymbionts closely related to the genus '*Candidatus Xiphinematobacter*' and a second bacterial endosymbiont group related to the family *Burkholderiaceae* that was reported for the first time in the Phylum Nematoda. Our findings suggest that there is a highly specific symbiotic relationship between nematode host and bacterial endosymbionts.

Dr. Castillo is a Scientific Researcher of the Department of Crop Protection at Institute for Sustainable Agriculture (IAS-CSIC) in Cordoba, Spain, since 1992. He is head of Laboratory of Phytonematology: interactions at IAS-CSIC. Previously he worked as a Research Fellow at Institute of Parasitology and Biomedicine "López-Neyra" (IPBLN), Granada, Spain, and earned his Ph.D. at the University of Granada in 1988. Posteriorly he worked as postdoctoral researcher at Institute of Agricultural Research and Training (IFAPA), Granada, Spain, until 1991. Dr. Castillo is also associate editor of several Plant Pathology and Nematology journals including Plant Pathology, European Journal of Plant Pathology, Plants, Taxonomy, and Nematology.

Remembering Dr. Fred J. Gommers

We regret to inform you of the passing of our former faculty member Dr. Fred J. Gommers on December 8th, 2020. Dr. Gommers joined the Laboratory of Nematology at Wageningen University in 1969. Over the years his work proved to be truly seminal for understanding molecular mechanisms in nematode-plant interactions. Educated as a biochemist, he was one of the pioneers to focus on molecules and biochemical processes in plant nematology. His work in the 1970s on nematicidal thiophenic compounds from Compositae (“photochemistry in the dark”) and his approach to using enzymatic cycling in combination with cry-sectioning to measure metabolites within individual feeding cells of root-knot and cyst nematodes are illustrations of his creative mind. In the early 1980s, he was one of the first in Wageningen to obtain funding from the industry for fundamental research. Understanding the genetics of plant-nematode interactions and identifying the ‘molecular factors’ (currently known as effectors) underlying feeding cell induction was a major drive in his scientific profession. His dedication and endeavour to build a vital Laboratory of Nematology at Wageningen University has been fruitful and is an important legacy of his career. Although Fred retired in 2003 his colourful personality and non-conformist approach to science still evokes a lot of admiration. Importantly, as supervisor and mentor, Fred formed the basis of successful careers of many scientists in- and outside nematology. Saddened but grateful, we look back at Fred’s tenure as an important turning point in the history of our laboratory.

Our thoughts go out to his children and grandson.

On behalf of all former colleagues,

Dr. Geert Smant & Dr. Jaap Bakker



In Honor of Dr. Minoru Ichinohe

Dear SON Colleagues,

I regret to inform you that Dr. Minoru Ichinohe, a pioneer nematologist in Japan, passed away on November 14, 2020, at the age of 93. He was internationally renowned for his work on the taxonomic description of the soybean cyst nematode, *Heterodera glycines* Ichinohe.



Dr. Ichinohe (L) & Dr. Tarjan (R)

He joined the Hokkaido National Agricultural Experiment Station in 1950, engaged in research on damage to soybean caused by the cyst nematode, which he noticed was different from *H. schachtii*. He finally described *H. glycines* in 1952. He moved to the National Institute of Agricultural Sciences (NIAS) in 1957 continuing nematological research and studied overseas for one year from 1958 to 1959 at the USDA ARS Nematology Laboratory. He served as head of the nematology laboratory at NIAS from 1960 to 1976 and worked at INATAM in Brazil to tackle the root rot disease of black pepper for three years until 1979. After retiring from NIAS in 1987, he joined an agro-chemical company, involved in research work on a newly developed nematocide, fosthiazate.

Dr. Ichinohe contributed to a great extent to the advance of nematology in Japan, who was one of the establishers of the Japanese Nematological Society. Honoring his great work, he was elected a fellow of SON in 1989.

We are grateful to the “father of nematology in Japan” and wish him rest in peace.

Sincerely,

Dr. Takashi NARABU

President

The Japanese Nematological Society



In Memoriam of Dr. Ulrich Zunke

Ulrich Zunke was born on October 12, 1948. He graduated in 1965 from high school at Hermann-Lietz Schule Schloss Bieberstein and went on to college where he studied biology and zoology at the Justus Liebig University in Giessen. Uli completed his Ph.D. at the Christian-Albrechts University at Kiel, filming the life cycle of *Heterodera schachtii* which resulted in a film by Urs Wyss and Ulrich Zunke entitled, “*Heterodera schachtii* (Nematoda) - behavior inside roots (rape).”

Additionally, he was instrumental on the creation of a similar film on the life cycle of the lesion nematode, *Pratylenchus penetrans*, by Zunke, U., and IWF (1988), “Behaviour of the root lesion nematode *Pratylenchus penetrans*,” Film C-1676, IWF Gottingen, West Germany.

Dr. Zunke worked at the University of Hamburg from January 1, 1988 - April 30, 2014, where he directed the Plant Disease Clinic and taught many undergraduate courses in plant pathology and entomology. During his tenure there, he filmed the life cycle of an important pest of Horse-Chestnut entitled, “Biology and Control of the Chestnut Leaf Minor Moth, *Cameraria ohridella*,” made with help from IWF film # C13171. Uli was a meticulous microscopist on the light, transmission and scanning electron microscopes. He collaborated with Burt Endo and William Wergin on the ultrastructure of the male gonad and spermatogenesis of lesion nematode. Uli also contributed several chapters in books on cyst nematodes, and he collaborated with J. D. Eisenback on several collections of digital images on CD ROM, including three volumes in the NemaPix series, one MycoPix, one EntoPix, and a collection of photos made by his aunt from Costa Rica on the Waikai Indians, entitled, WaikaiPix.



Dr. Zunke was an active member of the European Society of Nematologists, the Society of Nematologists, and also the LIONS Club International at Hamburg-St.Pauli. Ulrich enjoyed collecting HO scale model trains from the USA, particularly the ATSF and BNSF lines and others. He was also an avid train photographer and often vacationed in the USA where he took thousands of photographs of trains on both the east and west coast. Uli is survived by his wife Uta, his two sons Richard (Sarah) and Joachim (Milo), and grandchildren Jonathan, Carlotta, Otis, and Romy. Prof. Dr. Ulrich Zunke will be missed by all who knew of him and his contributions to nematology.



60th Annual SON Conference

When: 12 Sep 2021, CDT

Where: The Lodge at Gulf State Park, Gulf Shores, Alabama

EVENT DETAILS:

SON is planning an in-person meeting at Gulf Shores State Park in Gulf Shores, Alabama Sept. 12-15, 2021 ---- but we do have a backup plan for a virtual meeting if it becomes necessary.

One way or another we will have an SON meeting Sept 12-15, 2021.

Registration and abstract submission will open in March 2021. Hope to see you at the beach in September!

The Gulf State Park and Auburn University invite you to attend the 60th annual meeting of the Society of Nematologists from September 12 - 15, 2021. The Lodge at Gulf State Park, A Hilton Hotel, is a unique destination on the Alabama Gulf Coast where nature is at your doorstep. It is located inside the naturally beautiful 6,150-acre Gulf State Park. This unique destination stands out from other Gulf Coast destinations because of its size and the diversity of its preserved ecosystems. The park is part of the National Geographic Unique Lodges of the World (<https://www.nationalgeographiclodges.com/lodges/map-view/>) and the Jean-Michel Cousteau Learning campus (<https://watershed.pro/portfolio/learning-campus-gulf-state-park/>). Meeting rooms, restaurants, and hotel rooms are linked with covered walkways. Open air space is optimized.



Hotel Reservations

The Lodge at the Gulf State Park will serve as the meeting site and primary hotel accommodations for the 60th annual SON meeting (<https://www.gulfshores.com/lodging/resorts/the-lodge-at-gulf-state-park/>). Rooms are available through the web site Sunday Sept. 12, 2021 through Thursday Sept. 16,

2021. Please use the Group code: SON.

Park View rate is \$169.00/night

Gulf View rate at \$189.00/night

Guests wishing to reserve their rooms by phone or extend their stay should reach out to the Lodge Reservations at 800-618-4350. Remember Group code SON. Rooms can also be reserved online at <http://group.hilton.com/societyofnematologists> however; extended dates are not available via the booking link.

Travel to/from the Meeting Site

The Pensacola International Airport located in Pensacola, Florida is 37 miles from the park. (<https://www.pensacola-airport.com/>) American, Delta, Southwest and Frontier are some of the airlines that fly in to this airport.

Rental cars and Uber offer transport to the park.

Parking in the park is \$5.00 a day and bicycles are available at no additional cost.

Nature Tours

Our meeting site is located inside the naturally beautiful 6,150-acre Gulf State Park. This unique destination stands out from other Gulf Coast destinations because of its size and the diversity of its preserved ecosystems. The park is part of the National Geographic Unique Lodges of the World and so we have made time in the meeting for an assortment of guided Nature Tours for you to choose from, if you are interested and for an additional fee. A summary of the tours available can be found [here](#).



Agenda

Your meeting registration includes access to all scientific sessions, the opening reception, the wine and cheese poster session, closing reception and awards banquet dinner. You will also be provided with morning and afternoon beverage service, snacks and lunches.

A link to the abstract submission form will be emailed to you once your registration is successfully completed. There is a \$50 abstract fee for each abstract submitted in order to cover publication costs in the Journal of Nematology.

The Meeting schedule at a glance:

- Sunday evening Welcome Reception
- Monday morning Plenary Sessions I & II
- Monday afternoon Graduate Student Paper Competition
- Monday evening Star Gazing at the Pier
- Tuesday Paper sessions and Symposia
- Tuesday evening Wine and Cheese Poster Session
- Wednesday morning Nature Tours
- Wednesday afternoon Capacity Building grants & Committee meetings
- Wednesday evening Closing Banquet

Announcement

Be on the lookout for the “call for Nominations” for the Nathan A. Cobb Secretary and Treasurer in mid-April. These offices are 3-yr terms starting at the conclusion of the annual SON business meeting.

With Kind Regards,

[Society of Nematologists](#)

Request for Assistance

Hello fellow nematologists:

Mr. Tomas Azzano is employed with the Enviornmental Factor Inc. located in Ajax, Ontario, Canada. His company has a wide range of nematode products that they currently sell and they are constantly exploring new opportunities with new nematode species.

Mr. Azzano is reaching out to see if anyone might be able to help them with their search for some species of nematodes that they are interested in for the purposes of performing research.

Currently, he is seeking any nematodes which fall under the genera of:

Monochus

Neoactinolaimus

Prismatolaimus

Mesodiplogasteroides

Eudorylaimus

He has been having a difficult time finding these nematodes as they are not classified as being “beneficial.” If you are able to assist or lend a hand, please reach out to them, they would really appreciate any assistance.

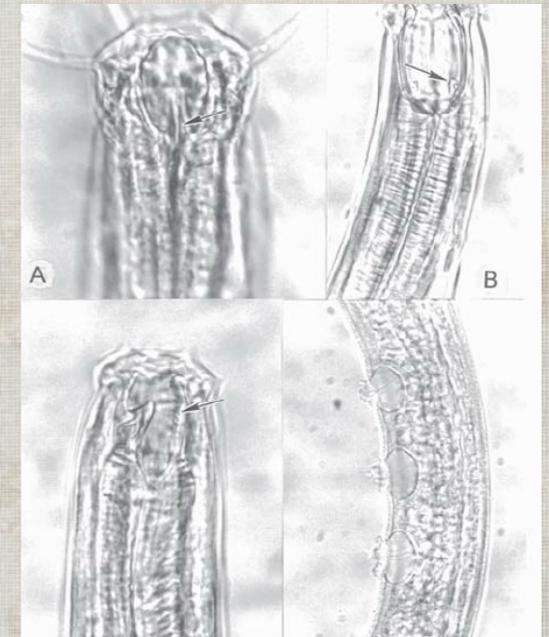
Please contact Mr. Azzano if you are able to assist:

Tomas Azzano

Executive Assistant – Research and Development

📍 85 Chambers Drive Unit 8 • Ajax ON Canada, L1Z 1E2

☎ 905-686-9909



Full-time position at the Kearney Agricultural Research and Extension Center, Parlier, CA

A full-time position for a Staff Research Associate 3 (SRA3) is available in the program of Dr. Andreas Westphal. Dr. Westphal is extension nematologist associated with the University of California Riverside, stationed at the Kearney Ag Center. The focus of his program is on nematode management on walnut, almond, pistachio, and grapes. This opening is for a full-time employee who has experience in agricultural research, preferably in nematology or perennial crops. The purpose of the position is to assist and conduct agricultural research projects in perennial nematology. Knowledge of experimental



design, and the command of the requirements when generating publishable research data are prerequisite. Knowledge of agricultural equipment will be beneficial for the successful candidate. Implements used in the program include irrigation systems, chemigation tools, and various agricultural research tools. The incumbent is expected to have or to be willing to obtain a California Pesticide Applicators license (Department of Pesticide Regulation). California driver's license is required. After initial training, tasks will be assigned for conduct under minimal supervision. Recurring tasks include collecting soil and plant samples, extract nematodes from soil samples, and oversee greenhouse operations and plant care. Note keeping and initial data entry and curation are part of the tasks in this position. The incumbent in this position

will be involved in most aspects of the program with an emphasis on the development of nematode resistant and tolerant rootstocks.

Education or experience equivalent to a Bachelor of Sciences in some biological field of study is required plus five years of position-relevant experience. Alternatively, a MS degree plus two years of experience in agricultural research with specific knowledge of general agricultural practices is acceptable. Excellent organizational skills are necessary. Team players are preferred. A California driver's license is required as a prerequisite for this position. Availability to various research scenarios and willingness to travel within the state are required. The position carries phases of unregular work schedules and requires work during inclement weather conditions. The incumbent needs to be able and willing to work under adverse temperature conditions. Minimal capacity to repeatedly lift and carry >50 pounds of weight is required.

A full position description and application instruction are available at: https://irecruitportal.ucr.edu/irecruit/!Controller?action=jobs_webui.show_page&page=jobs_detail&requisition_id=22688429&profile_id=&module=-jobs

For further questions please feel free to contact:

Andreas Westphal, Ph.D.

University of California Riverside, Department of Nematology

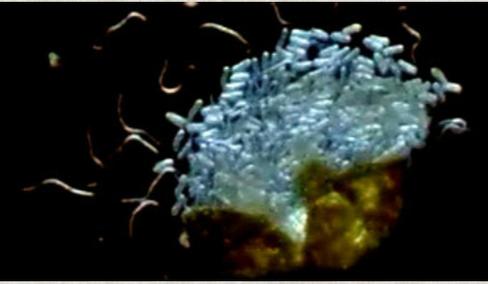
Kearney Agricultural Research and Extension Center

9240 S. Riverbend Ave, Parlier, CA 93648

Ph: (559) 646 6555, Fax: (559) 646 6593

Email: andreas.westphal@ucr.edu





Postdoctoral researcher at Purdue University

Department of Botany & Plant Pathology

Purdue University

The Lei Zhang lab at Purdue University (<https://ag.purdue.edu/btny/Pages/Profile.aspx?strAlias=leizhang&intDirDeptID=10>) is seeking a highly motivated post-doctoral researcher. Candidates with strong background in plant molecular biology or molecular plant-microbe/pest interactions are encouraged to apply. Prior research experience in plant-parasitic nematodes is not required for application.

Plant-parasitic nematodes are microscopic soil-borne roundworms. They infect and damage plant roots causing annual crop losses valued at \$80-\$118 billion worldwide. The Zhang lab is aimed to enhance understanding of plant resistance to nematodes and plant-nematode-microbe interactions at molecular, organismal and population levels. Research results have been published on prestigious journals, including *Nature Plants*, *PLOS Pathogens*, *Molecular Plant Pathology*, *Plant Disease*.

Job Summary: The appointee will have opportunities and flexibility to be trained and work on basic and translational research: (1) study responses of plants to nematode infection using RNA-seq and gene co-expression network; (2) study nematode-secreted effectors involved in transcriptional reprogramming in plant cells during infection; (3) develop beneficial microbes as drug delivery agents for nematode control; (4) The appointee is expected to collect, analyze data, and prepare peer-reviewed journal articles. The appointee also has opportunities to assist in preparing grant proposals or develop his/her own proposals related to plant-parasitic nematodes.

Required qualifications:

- A PhD in plant pathology, plant science, molecular biology or a related discipline.
- Experience and demonstrated skills in plant molecular biology or plant-pest/microbe interactions.
- Excellent communication and writing skills.
- Proven ability to work independently and to work in teams.

Preferred qualifications:

- Experience with analysis of NGS data and execution of bioinformatic pipelines.

Position term: initially for 12 months and can be renewed based on performance.

Salary and benefits: Salary will be commensurate with qualifications, starting at \$47,500/year. Benefits are provided via Purdue University.

How to apply: Screening of applications will begin on March 5, 2021 and will continue until the position has been filled.

Candidates should apply directly to Dr. Lei Zhang via email to (leizhang@purdue.edu) by submitting a single PDF file containing: (1) cover letter; (2) current CV; (3) contact information of three references. The subject of the email should be “**Postdoctoral researcher**”.

Anticipated start date: May 3, 2021 and is negotiable.

The College of Agriculture at Purdue University is one of the world’s leading colleges of agricultural, food, life, and natural resource sciences and ranked sixth in the US in the 2019 QS World University Rankings. Purdue University is an EOE/AA employer. All individuals, including minorities, women, individuals with disabilities, and veterans are encouraged to apply.

Society of Nematologists Annual Meeting

Student Travel Awards

Corteva Graduate Student Travel Awards

Corteva has provided the Society of Nematologists with funds to support 8 graduate student travel awards of \$500 each to students presenting research (oral or poster presentations) during the Annual Meeting.

Eligibility requirements for this Travel Award include:

- Current membership in the Society
- Full time student status or completion of graduate degree requirements no more than 12 months before the meeting.
- Submission of abstract to the SON Meeting
- Submission of the completed application along with a cover letter and copy of your abstract. Cover letter (no more than 1 page) describing your research and why you want to attend the SON meeting.
- Preference will be given to students in the final year of their graduate program (M.S. or Ph.D). A person may receive this award only once.

Bayer Graduate Student Travel Awards

Bayer has provided the Society of Nematologists with funds to support 10 student travel awards of \$500 each to students presenting papers (oral or poster presentations) during the Annual Meeting.

Eligibility requirements for this Travel Award include:

- Full time student status or completion of graduate degree requirements no more than 12 months before the meeting.
- Submission of abstract to the SON Meeting.
- Cover letter (no more than 1 page) describing your research and why you want to attend the SON meeting.
- Submission of the completed application form (see next page), cover letter, and a copy of your abstract.
- Membership in the Society of Nematologists (SON) is not required, and an

award may be given to an individual more than once.

Nathan A. Cobb Student Travel Awards

The Nathan A. Cobb Foundation provides 2 graduate student travel awards of \$700 each to attend the Society of Nematologists Annual Meeting.

1. One award from the Entomophilic Nematology Fund for a student to present research in the disciplinary specialty of entomophilic/entomopathogenic nematology.
2. One award from the Mai-Ferris-Bird Endowment for a student to present research on any aspect of plant-parasitic nematode biology, ecology, or management.

For more information about these endowments see <https://nematologists.org/about-us/n-a-cobb-foundation/>.

Eligibility requirements for this Travel Award include:

- Full time student status or completion of graduate degree requirements no more than 12 months before the meeting.
- Submission of abstract to the SON Meeting.
- Cover letter (no more than 1 page) describing your research and why you want to attend the SON meeting.
- Submission of the completed application form (see next page), cover letter, and a copy of your abstract.
- Membership in the Society of Nematologists (SON) is not required, and an award may be given to an individual more than on

Students may apply for more than one travel award at a time.

The guidelines for abstracts are available on the Society of Nematologists meeting web site (<http://www.nematologists.org/>). Criteria for selection include quality of science (determined from the submitted abstract) and financial and/or scholarly need.

Submit cover letter, abstract, and awards application as a single PDF document via e-mail to Larry Duncan lwduncan@ufl.edu

All submissions must be received by May 22, 2019. Awards announced June 15, 2021. LATE APPLICATIONS WILL NOT BE CONSIDERED

THE NATHAN A. COBB NEMATODOLOGY FOUNDATION

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“Promoting Nematology Worldwide”

Nathan A. Cobb
1858-1932



The Cobb Foundation Video Contest is back!

The Cobb foundation invites students and post-docs to share an aspect of nematology that fascinates them in a video. All videos will be presented on the Cobb Foundation website and winning videos will earn cash prizes!! You have until June 30, 2021 to submit your videos.

Details at: <https://nematologists.org/Cobb-Video-Contest>

For questions and additional information, please contact The Cobb Foundation cobbvideocontest@gmail.com

Past contest videos:

https://www.youtube.com/playlist?list=PLQunXbtYdyTGXsECJ_fm1AwN-D3XBGTwrr



Creating the Nematology of Tomorrow

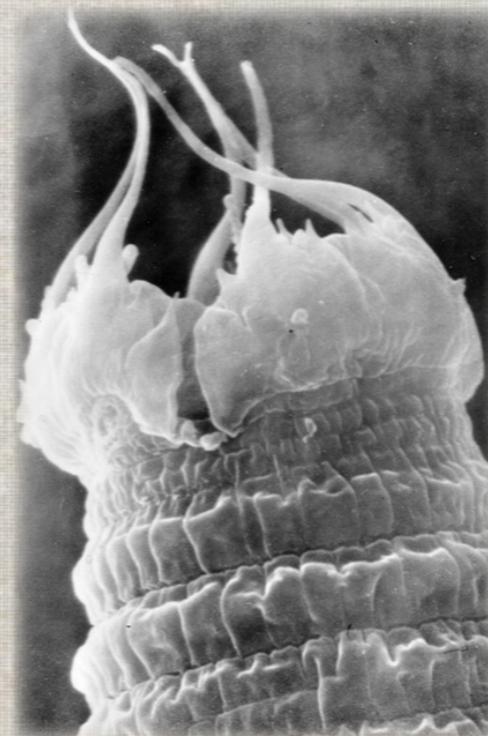
When you contribute to the Nathan A. Cobb Foundation you are helping to build capacity in Nematology – capacity to step up to some of the grandest scientific challenges humans face.

Our students and early career researchers are changing the future of Agriculture, Biomedicine, Education and the Environment, and making fundamental discoveries about the world we live in. With the support of the Cobb Foundation, students can attend scientific meetings and workshops where they can present their latest research findings, but also network with other potential collaborators and future employers in science and industry. Talk about bang for the buck!

In the hustle and bustle of the holiday season, it can be easy to lose sight of what really matters. As you pause for a moment of gratitude, consider how financial support to a student can radically change their trajectory. It certainly changed mine. How about you?

To make your tax-deductible donation go to <https://nematologists.org/sys/website/?pageId=7744>.

Thank you, Byron Adams, Chair, Cobb Foundation



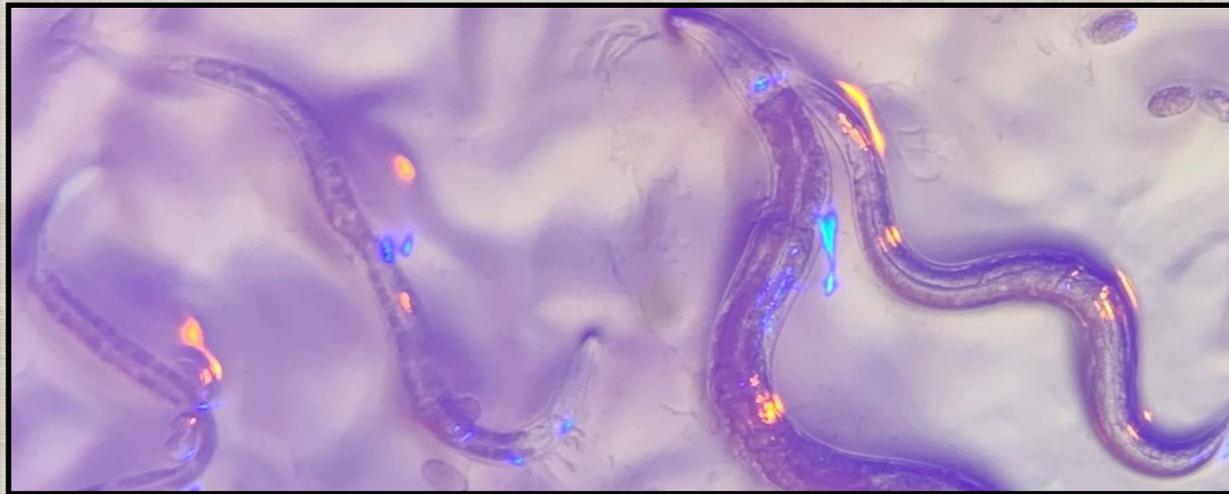
Scottinema lindsayae is a nematode species that lives in Antarctica, in the McMurdo Dry Valleys. *Scottinema* feeds on soil microorganisms such as bacteria, which are the main players of carbon and nutrient cycling. By being their “predator”, *Scottinema* regulates their abundance and biomass turnover, and in doing so it influences the cycling of carbon and nutrients. Photo courtesy of: M. Mundo

Eyeless *C. elegans* Perceives Colors: Study

The roundworm uses cues from visible light to help avoid eating toxic bacteria with a distinguishing hue.

Article written by Shawna Williams

Article can be accessed at <https://www.the-scientist.com/news-opinion/eyeless-worm-c-elegans-perceives-colors-study-68510>



<https://cdn.the-scientist.com/assets/articleNo/68510/hImg/41454/c-elegans-banner-x.jpg>

The tiny roundworm *Caenorhabditis elegans* is one of Earth's most-studied creatures. Transparent and easily grown in the lab, it's a favorite of geneticists and other researchers who experiment on it to derive broad lessons about animals' inner workings. It can be frozen and then thawed back to life, and manipulated to model a panoply of human diseases. Its genome was first [sequenced](#) in 1998—five years before the same was completed for humans.

Yet *C. elegans* still harbors secrets, and a big one is unveiled today (March 4) in *Science*: this eyeless worm can, in a way, see, using color to help it discriminate between toxic and harmless bacteria when searching out food.

Researchers have previously [shown](#) that *C. elegans* can sense some types of light, notes study coauthor Dipon Ghosh, a biology postdoc at MIT who started the project when he was a graduate student at Yale University. The

new results show that the worms are “actually comparing ratios of wavelengths, and using that information to make decisions,” he says. “And that, I think, was completely surprising and unexpected.”

In the wild, *C. elegans* favors environments such as rich soil and decomposing food heaps, where it feeds on bacteria. The worm is known to avoid munching on the poisonous species *Pseudomonas aeruginosa*, and the study came about, says Ghosh, because he was curious about how *C. elegans* does this. In reading studies relevant to the question, he learned that one of the toxins *P. aeruginosa* secretes is blue. In addition, the worm isn't always foraging in dark, subterranean niches, Ghosh notes. “Compost heaps, of course, are above ground, suggesting that worm environments might be more illuminated than we once thought.” Given all this, he says, “I wondered whether the worm avoidance of this colorful, pathogenic bacteria could be informed, at least in part, by the pigmentation or the color of the bacteria.”

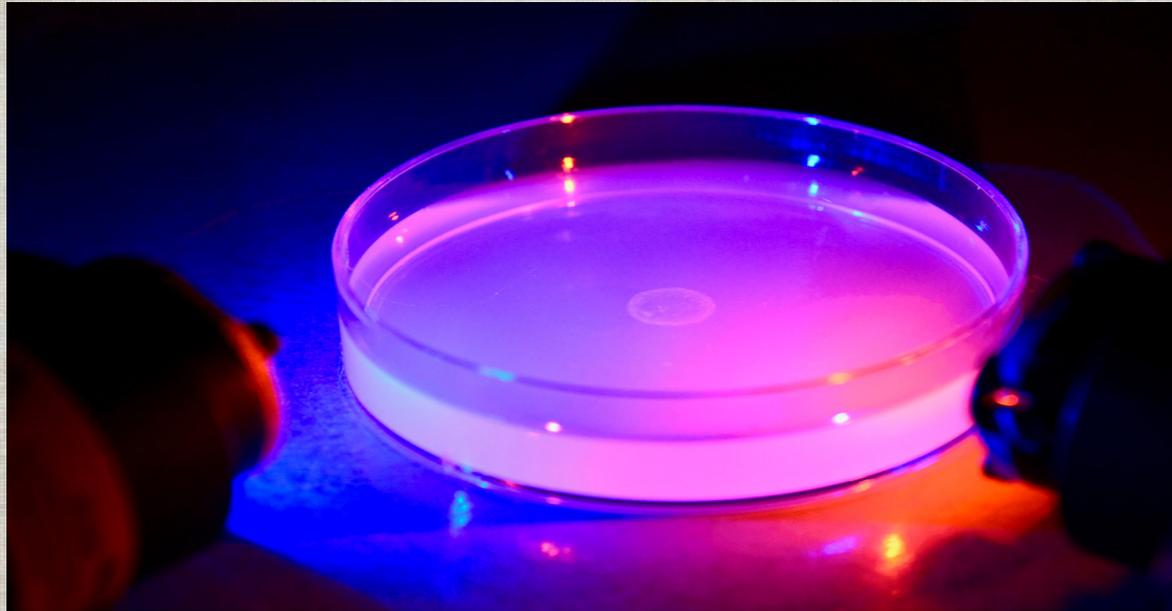
Finding the answer wasn't straightforward. In one experiment, Ghosh tried to tease out the effect of color on the worms by replacing the blue toxin in one batch of *P. aeruginosa* with a harmless blue dye. In another batch, he replaced it with a colorless toxin. While *C. elegans* avoided ordinary, unaltered *P. aeruginosa*, it didn't shy away from either the nontoxic blue or the toxic, colorless version, leaving Ghosh confused. Ultimately, he found he could get the worms to avoid the toxic, colorless bacteria by shining blue-filtered light on their dishes—suggesting that color did indeed influence *C. elegans*'s foraging behavior.

In further experiments, Ghosh discovered that he could affect the worms' foraging behavior by varying the ratio of blue to amber light shining on their dishes. But when he ran the same test on dozens of wild strains of *C. elegans*, not all responded in the same way to the same ratios.

Through genetic analyses, Ghosh and his colleagues identified two genes, *jkk-1* and *lec-3*, that appear to be involved in the responses to color. Neither code for opsins, the class of light-sensitive proteins needed for vision in the eye; rather, the study's authors suggest, they may be involved in light-influenced stress-response pathways.

The study “helps us to understand the interaction between microbes and their foraging hosts,” writes Jie Liu, a neuroscientist at Monash University in Australia who was not involved in the study, in an email to *The Scientist*. “Given that several sensory perceptions were found in this simple model organism, this tiny worm may be much smarter than we think.”

Anne Hart, a neuroscientist at Brown University who also was not involved in the work, echoes that reaction. “I think the biggest implication is probably: don’t underestimate the invertebrates,” she says. Hart calls the study’s results “surprising and fascinating,” but says they make sense given that bacteria are thought to produce pigments to aid them in [infecting hosts](#). “There’s every reason for other organisms like *C. elegans* who have to deal with them to cue in on color and pigment as something to be avoided in some scenarios.”



An agar plate with bacteria, photo Eugene L.Q. Lee

Sensory neuroscientist Piali Sengupta of Brandeis University says the finding that *C. elegans* relies on multiple cues to detect toxic bacteria aligns with discoveries of other such signals it uses, including [nitric oxide](#) emitted by *P. aeruginosa*. She speculates that the worms may rely on different cues in different circumstances, such as when light is or isn’t available. “Maybe under a certain context they use combination A, and then [in] a different context they use combination B,” says Sengupta, who was not involved in Ghosh’s work. “I think that would be pretty cool to figure out going forward.”

Connie Cepko, a biologist and Howard Hughes Medical Institute investigator at Harvard Medical School who studies cells in the retina, says the work “showed, I think, a level of interpretation of environmental signals that are dependent on light that lead one to appreciate just how important light is as an environmental cue.” Cepko, who also did not participate in the research, points out that “light is extremely ubiquitous on Earth, and it has an incredible amount of information. . . . I think the fact that we see that there are all

these different kinds of proteins that have evolved to capture light speaks to the importance of light as an environmental signal.”

D.D. Ghosh et al., “*C. elegans* discriminates colors to guide foraging,” *Science*, 371:1059–63, 2021.

Paul Pfurtscheller Zoological Wall Chart #38, 1926



A large-scale wall chart showing dissection of the anatomy of the nematode, *Ascaris lumbricoides*, by Prof. Dr. Paul Pfurtscheller (1855 - 1927). Chart number 38 Zoologische Wandtafeln that were commonly used in zoological lectures and labs. Although Dr. Pfurtscheller taught high school, he was widely recognized for his contributions to zoology by the scientific community. First published in Vienna, Austria in 1902 by A. Pichler’s Witwe & Sohn, the Pfurtscheller wall charts were noted for their beautiful colors that were printed by lithography where individual colors were applied manually in many different print cycles per piece. Colors are applied separately, they were long lasting and have great depth. Later editions were also published by Dutch company ‘Martinus Nijhoff’ until 1953 by less labor intensive, but less depth and permanence of color by off-set printing.



"Crossing borders: a world of nematode diversity and impact to discover"



Announcing New Dates for the ICN 2022

Dear participants,

The Seventh International Congress of Nematology meeting dates have **once again** been rescheduled due to the coronavirus situation. **The ICN 2020 will be held 1-6 May 2022 at the Palais des Congrès in Antibes Juan-Les-Pins (France).**

This decision was proposed by the meeting organizers in consultation with the European Society of Nematologists. Representatives of the 18 nematology societies comprising the Congress met and agreed unanimously that the change is necessary because of continuing uncertainty about when travel and meeting restrictions will end, and when most people will decide it is again safe to travel. All societies rejected the option of cancelling the 7th ICN, because it is the only nematology meeting fully organized, funded and ready to occur when the pandemic ends, and because cancellation would incur enormous financial penalties. Most other 2021 on-site, international conferences are rescheduling to 2022 for similar reasons.

The **scientific program** will be maintained as nearly as possible in its current form, but with revised dates. Authors will have the opportunity to revise their original abstracts and session organizers will have the ability to review and revise their agendas. We kindly ask authors not to contact us at this time as conference arrangements are being adjusted. More information will be sent in due course.

Bursaries that were awarded previously will be honored for those attending the Congress. A second bursary competition for graduate students is being considered, pending the availability of funds.

Official letters from the ICN Organizing Committee, requesting refunds/rescheduling of airline tickets for Congress delegates, will be sent to airlines and can be obtained from lwduncan@ufl.edu.

Again, we advise you to make the appropriate changes regarding travel and, if you made your own booking (not with Alpha Visa Congrès), hotel reservations. Participant's registration fees will be transferred automatically and hotel reservations arranged by Alpha Visa Congrès will be rescheduled to the new dates

which you will be able to modify according to new travel plans.

Registration for the Seventh International Congress of Nematology is currently 744 nematologists from 59 countries, including 100 student and early career scientist bursary recipients. The scientific program comprises 32 concurrent sessions with 288 oral presentations, 12 workshops, 12 keynote speakers, and poster sessions with more than 500 presentations. The mid-meeting excursions will provide outstanding

opportunities to explore the splendid nature and the amazing culture of the French Riviera.

Very few nematology meetings will have occurred in the entirety of 2020-21. Hopefully, opportunities to interact virtually will be provided by some societies and possibly the IFNS in the coming months. But the 7th ICN will be an important opportunity to finally meet together again, face to face, to renew our work among friends, colleagues and students. We look forward to welcoming you in Antibes in 2022, where we shall celebrate an end to the crisis at a truly memorable scientific meeting.

Dr. Pierre Abad, 7th ICN Chair

Ernesto San-Blas, Scientific Program Chair

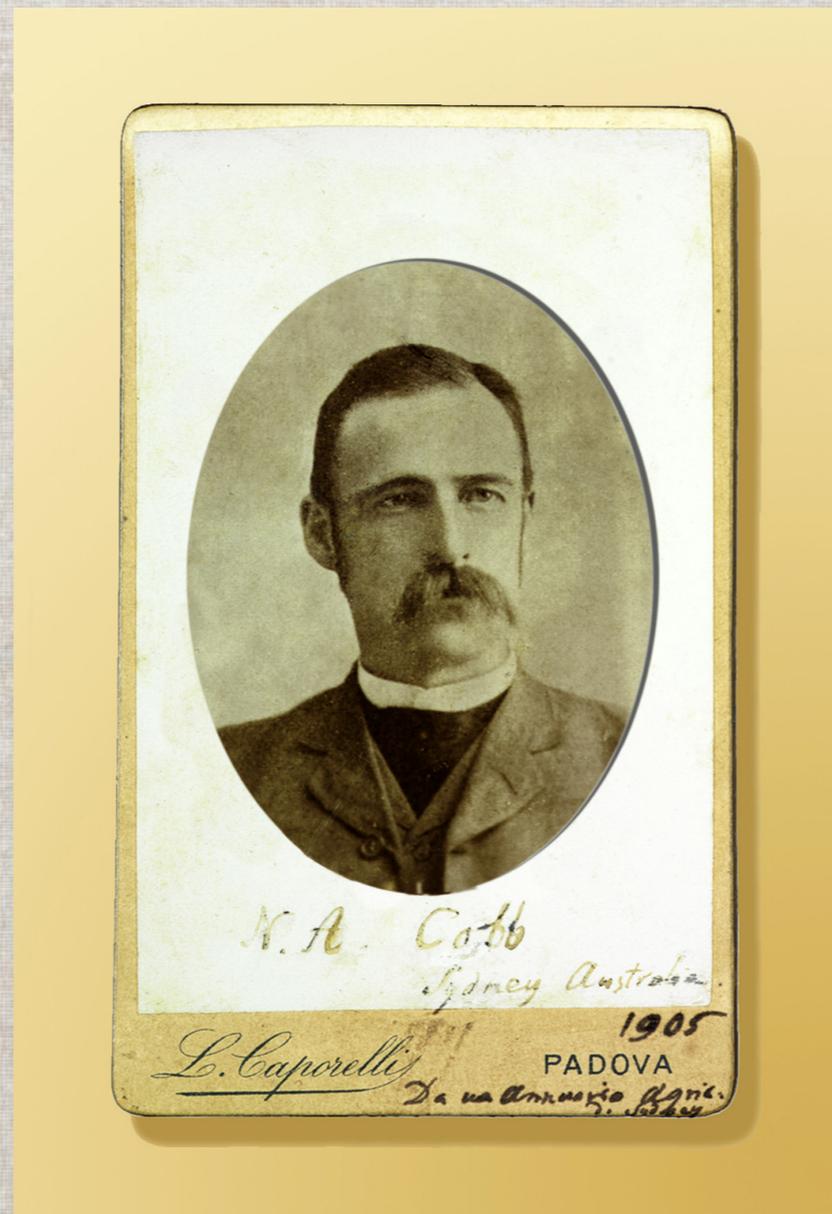
Larry Duncan, IFNS President



Call for Nematode Trading Cards

Please consider making your submission(s) to the Nematode Trading Card Collection organized by Dr. Jon Eisenback. Six different templates are available for the following categories: 1. People (red background), 2. Nematodes (green background), 3. Habitats (yellow background), 4. Morphology (orange background) 5. Symptoms (purple background) and 6. Control (blue background). If you have any questions, please feel free to contact Dr. Jon Eisenback (jon@vt.edu).

Dagger nematode	Grape
	
<p>Surface necrosis, sloughing cortex</p> <p>A distinct symptom caused by dagger nematode, <i>Xiphinema</i> spp., is a sloughing of the cortex in heavily damaged roots. Reduced root systems are marked with root necrosis, suppressed secondary and feeder roots, devitalized and swollen root tips, occasional tufts of stubby rootlets, and darkened root systems with brown lesions on short feeder roots.</p>	
④	5



1948-2021	Hamburg, Germany
	
<p>Ulrich Zunke</p> <p>His films about the life cycle of lesion nematode entitled, "Behaviour of the Root Lesion Nematode, <i>Pratylenchus penetrans</i>," and "Heterodera schachtii (Nematoda) Behaviour Inside Roots (Rape)," co-produced with Urs Wyss, are classics, as are many of his outstanding photographs of nematodes, symptoms of fungal diseases of plants, and insect pests. Uli was also an exceptional microscopist and morphologist, as well as an avid train enthusiast.</p>	
⑥	6

Cuticle

Surface structure



Cervical or cephalic alae

These morphological structures are wing-like expansions of the lateral ridges of the cuticle in the neck or head region of the nematode body. Cervical refers to the neck region, whereas cephalic refers to the head region, both of which are more properly called the anterior end of the nematode. Their function remains unclear, but they may strengthen the cuticle or play a roll in movement or fat storage.

T. W. Jones

④

41



Root-knot nematode

Sweetpotato



Cracking

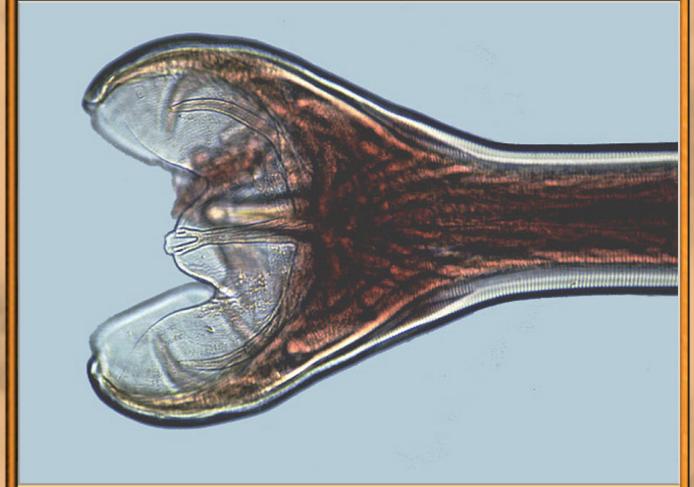
A distinct symptom caused by root-knot nematode, *Meloidogyne* spp., on sweetpotato is cracking of the root along the length of the root. Very low levels of second-stage juveniles in the soil can cause these cracks.

④

17

Body wall

Cuticle

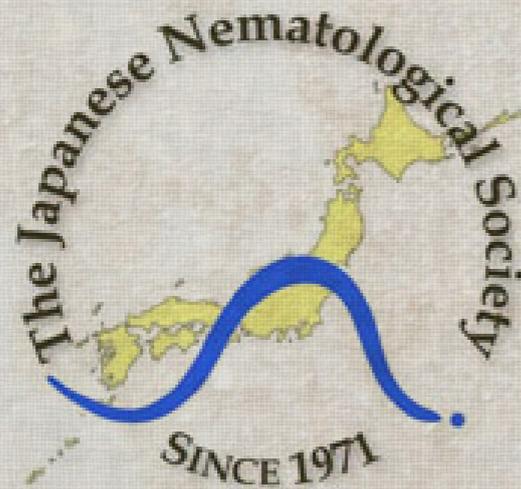


Copulatory bursa

Greatly expanded caudal alae of certain males are used to surround the vulvar region and clasp the female during copulation. Bursa may be oval to circular and are divided into two lateral lobes that can be symmetrical or asymmetrical. The flaps of cuticle are often supported by lateral rays and/or papillae. This structure commonly occurs in the order Strongylida (hookworms).

④

40



European Society of Nematologists

Dr. Jon Eisenback Ginger Project

Statement of Work:

Systems-oriented approaches to combat seed and soilborne diseases of specialty crops: The case of ginger in high tunnel production

Ginger production is limited by plant-parasitic nematodes. The Eisenback lab will evaluate the role that they play and their interaction with soilborne fungi. We will use the latest morphological and molecular techniques in the identification of nematodes that are pathogenic to ginger. Their effects will be evaluated on both the quantity of nematodes that are necessary to interfere with production and their effects on the quality of the final product. The lab will investigate the interaction of the root-knot nematodes with soilborne fungi, such as the *Fusarium*, *Pythium* and other pathogenic species. We will also evaluate the effect of species that are not normally pathogenic, but become so in the presence of the root-knot nematodes.

In addition, the lab will provide the expertise in nematology to ensure that all aspects of the project related to plant-parasitic nematodes are optimum from the evaluation of hot water treatment, use of Clandosan, utilization of PGRs, and other aspects of the study.

Budget Justification:

The funds from this grant will be used to support one graduate student that will assist with the nematological portion of this project.



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We wish to express our gratitude to the following companies who support our society and contribute to its continued growth:



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"Promoting Nematology Worldwide"

Nathan A. Cobb
1858-1932



Dear Nematology Newsletter Readers and SON members:

Two items are listed for your consideration. Since we know that students are the future of our discipline, please consider supporting the Nathan A. Cobb Nematology Foundation: <http://www.crec.ifas.ufl.edu/societies/nacobb/projects.shtml>. This foundation's primary purpose is to raise money to provide travel for students to scientific meetings.

To continue to be a member in good standing, please pay your dues. Also, please make a generous contribution to the Nathan A. Cobb Nematology Foundation with your tax-deductible support to the Foundation when you renew your SON membership at <http://nematologists.org/products/>.

If you have any contributions for the quarterly newsletter, please email me directly.

Gary Phillips, Editor
Nematology Newsletter

Please submit your contributions to the *Nematology Newsletter* at the following email address:
gphilli9@utk.edu

