

# XI Parasitology Summer Course (ParSCo)



## Residency Course on PARASITES, ARTHROPOD VECTORS AND TRANSMITTED PATHOGENS IN THE MEDITERRANEAN AREA

28 June to 4 July 2025

A course endorsed by



### SPONSORS



and with the participation of



Bari, 18<sup>th</sup> December 2024

*Dear colleagues,*

We are pleased to announce the 11th edition of the Parasitology Summer Course (XI ParSCo) organized by the Parasitology Unit of the Department of Veterinary Medicine, University of Bari (Italy), with the support of the European Veterinary Parasitology College (EVPC) and of *Parasites & Vectors*. Over the last years, more than 140 attendees from all continents have attended the ParSCo.

(see:

<https://www.youtube.com/watch?v=qpZ6FV9KQVI&feature=youtu.be>)

As you know, ParSCo is an intense, one-week long course for parasitologists and post-graduate students working in the field of veterinary parasitology. This course is mostly focused on practical activities, which represent up to 60% of the whole program. The program includes activities on the diagnosis of parasites such as *Leishmania infantum*, and tick-borne pathogens, as well as collection and identification of phlebotomine sand flies (e.g., *Phlebotomus* spp. and *Sergentomyia minuta*), ticks (e.g., *Ixodes ricinus* and *Rhipicephalus secundus*), and eyeworms (*Thelazia callipaeda*). Participants will also attend clinical examinations of dogs, cattle, sheep, goats, and reptiles and sample collection from dogs for the diagnosis of arthropod-borne diseases as well as tick collection from the environment.

The course traditionally takes place in Basilicata, southern Italy, in the heart of the Mediterranean region.

<https://www.youtube.com/channel/UCQaKY0wwTxOsz9QiPAqJ0tA>

This region is fairly suitable for an optimal development of arthropods and thus for the life cycles of many parasites including those causing arthropod-borne diseases. A considerable diversity of parasites, inhabiting different microenvironments, can be found in Basilicata. This region has received significant attention from researchers, not only for its outstanding species richness, but also because it represents a potential model for other countries in the Mediterranean area.

We thank Elanco Animal Health and Boehringer Ingelheim for their financial support.

We look forward to meeting you for an enjoyable XI ParSCo meeting and sharing with you our experience in the field of parasitology!

*Domenico Otranto  
Filipe Dantas-Torres  
Jairo Mendoza-Roldan  
University of Bari, Italy*

## **GENERAL INFORMATION**

For any information, please refer to the secretariat ([parscobari@gmail.com](mailto:parscobari@gmail.com)). Videos:

[Promo](#)

[Testimonials](#)

### **SCIENTIFIC ORGANIZERS**

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## **LIST OF LECTURERS AND TECHNICAL ASSISTANTS**

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## **VENUE**

La Casa di Caccia, Potenza, Italy.  
Parco Regionale di Gallipoli Cognato, Matera, Italy.

## **APPLICATION**

Course applicants should fill the provided registration form (see below), accompanied by a motivation letter (no more than 500 words) and a recent photo to be sent to [parscobari@gmail.com](mailto:parscobari@gmail.com) within the 15<sup>th</sup> February 2025. Please indicate whether you already applied for previous edition of the ParSCo.

Within 1<sup>st</sup> March 2025, selected candidates will be notified and then may proceed with the payment of the registration fee according to the instructions below.

## **PARTICIPATION FEE**

The total cost for participation is €1100 (includes accommodation, coffee break, light lunch, and dinner in Casa di Caccia).

As soon you will be notified as a selected participant of the XI ParSCo, to ensure your participation, €200 (nonrefundable) should be paid in advance to Meeting Planner by credit card or bank transfer ([Click here to register/ pay](#)). For any further information about the payment please send an email to: [saveria@meeting-planner.it](mailto:saveria@meeting-planner.it) The remaining cost (€900) should be paid at Casa di Caccia, at the beginning of the course.

## **ITALIAN SOCIETY OF PARASITOLOGY YOUNG SCIENTIST GRANT**

The Italian Society of Parasitology (Società Italiana di Parassitologia - SoIPa) will cover the participation fee for a young SoIPa member. A commission nominated by the SoIPa executive board will select the grant winner. For more information, please visit <https://www.soipa.it/bandi/>.

## **ParSCo STUDENT GRANT**

The organizers of XI ParSCo will offer a scholarship amount of €1100 for a participant applying from a low-income Country ([https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/ldc\\_list.pdf](https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/ldc_list.pdf)) to cover the course fee (€1100). The commission will be formed by the scientific responsible of the course and the secretary who will select the grant winner, according to the following criteria:

- The candidate must be younger than 40 years at the time of application;
- The candidate must have taken part to relevant scientific activities in the field of parasitology;
- The candidate must not be affiliated to the top high GDP countries;
- Candidate must include a motivation letter, curriculum vitae and nationality proof.
- In absence of highly qualified candidates, the grant will not be delivered.

## **OFFICIAL LANGUAGE**

English.

## **ATLAS by plane**

The Bari International Airport (Aeroporto di Bari "Karol Wojtyła") runs daily flights to and from the main European cities and many domestic flights from main Italian cities.

## **By train**

Bari can also be reached from any Italian city by train (Ferrovie dello Stato: 8h from Milan, 5h from Rome, and 4h from Naples).

## **ACCOMODATION 1<sup>st</sup> night**

We will suggest where to reserve the 1<sup>st</sup> night along with the acceptance letter. In any case, participants may choose other accommodations.

## **Venue of the course - La Casa di Caccia**

Contrada Visciglietta

Pietrapertosa, Potenza - 85010

Basilicata, Italy

Phone: +39 0971 983101 <https://lacasadicaccia.it>

A 25x10 m swimming pool surrounded by the greenery of the park is available.

Attendees will be allocated to double to five bedrooms according to the availability and personal arrangements.

## **WEATHER**

The area features the general characteristics of the typical Mediterranean climate. In June, temperatures range from 20°C to 32°C, with rainfall of 0.3 mm. A sweater and/or jacket may be useful for the evening but, over the daytime, a swimming suit may be more suitable (do not forget that there is a swimming pool, but for the free time only).

## **OBJECTIVES AND CONTENTS**

The main objective of the course is to provide, by means of oral lectures (OL) and practical activities (PA), an overview about the following topics:

### **TICKS AND TICK-BORNE DISEASES**

- Tick taxonomy, biology and ecology
- Tick-borne diseases
- Tick collection from hosts and from the environment
- Tick identification
- Tick dissection
- Tick slide mounting

### **SAND FLIES AND CANINE LEISHMANIOSIS**

- Sand fly species in the Mediterranean area: biology and ecology
- Sand fly collection
- Sand fly slide mounting
- Sand fly identification
- Sampling collection for the diagnosis of leishmaniosis

### ***PHORTICA VARIEGATA* AND *THELAZIA CALLIPAEDA***

- Thelaziosis in Europe
- *Phortica variegata* collection and identification
- *Thelazia callipaeda* collection and identification

### **CLINICAL PARASITOLOGY**

- Clinical presentation and diagnosis of vector-borne diseases
- Canine filarioid detection and identification

### **HELMINTHS**

- General pipeline for helminth identification
- Sample collection from wild animals (e.g., reptiles, rodents)

### **OTHERS**

- Updates on chemicals available for prevention and treatment of ectoparasites -  
Field studies in parasitology

## **GENERAL GOAL**

The main goal of the course is to provide attendees with updated information on the biology and ecology of ticks, sand flies and other vectors of pathogens in the Mediterranean area. At the end of the course, they should be able to collect and identify important arthropod vectors (i.e., ticks, sand flies, and *Phortica variegata*) as well as to diagnose vector-borne infections in dogs and/or cats. Elements of clinical parasitology, presentation and diagnostic procedures of tick-borne diseases and canine leishmaniosis will also be provided.

## **PRE-REQUIRED KNOWLEDGE**

- Basic knowledge of veterinary and/or medical parasitology
- Selected papers will be sent to the attendees one month before the course initiation

## **PEDAGOGICAL APPROACH**

- Oral lectures (40%)
- Practical activities (60%)

## **LEARNING OUTCOMES**

The attendees will be updated on the biology and ecology of the main arthropod vectors and pathogens in Mediterranean area. They will be able to: - Collect and identify ticks, sand flies and fruit flies (*P. variegata*)

- Dissect ticks, sand flies and fruit flies (*P. variegata*)
- Collect samples from dogs for the detection of dermal and blood circulating microfilariae
- Collect and identify *T. callipaeda*
- Collect samples from dogs infected by *L. infantum* and exam in the lab
- Exam slides for the cytological diagnosis of canine vector-borne pathogen infection
- Identify onchocercid nematodes infecting domestic animals

## **SCIENTIFIC CONTEXT IN THE SPECIFIC AREA OF THE COURSE**

Ticks are arthropods of medical and veterinary significance. Together with mosquitoes, they act as the main vectors of pathogens to animals and humans worldwide. Ticks transmit many emerging pathogens that have been discovered over the past decades, including several *Rickettsia* species. The Mediterranean region is particularly suitable for ticks in terms of host availability and climate features. For this reason, ticks can be found throughout the year in urban, suburban, rural, and forested areas. Indeed, some species (e.g., *Ixodes ricinus*) are found even during winter. We have conducted several studies on ticks and tick-borne pathogens in Basilicata. In one of these studies, we collected over 10,000 ticks from the environment and hosts, including humans. *Cercopithifilaria bainaie*, a poorly studied filarioid presenting dermal microfilariae, has been diagnosed in dogs and ticks. We have also conducted studies on ticks infesting wildlife, including birds. Altogether, these studies have been published in the international literature and provided interesting insights on the ecology of ticks and their transmitted pathogens in southern Europe.

Phlebotomine sand flies are vectors of several zoonotic pathogens including viruses, bacteria and protozoa. In the Mediterranean area, they are the main vectors of *Leishmania infantum*, the causative agent of leishmaniosis in dogs, cats, and humans. The study of the ecology of these insects can provide useful information about the spread of this infection as well as other viral agents in a given area. We have studied the species of sand flies occurring in Basilicata, their ecology, and their role as vectors of *L. infantum*. The richness of sand fly species has been specifically investigated in different localities near the forest of Gallipoli Cognato, a protected area located in the Basilicata region, southern Italy. Nearly 9,000 sand flies belonging to six species (*Phlebotomus papatasi*, *Phlebotomus*

*perniciosus*, *Phlebotomus perfiliewi*, *Phlebotomus neglectus*, *Phlebotomus mascittii*, and *Sergentomyia minuta*) were collected, accounting for about 75% of the species diversity of sand fly population in Italy. These findings confirmed that sand flies are well adapted to the environment of the study area, where they find suitable conditions in terms of microclimate and host availability, for their perpetuation. Of particular interest, *P. perfiliewi* and *P. perniciosus* were the most abundant species, highlighting the risk for *L. infantum* transmission in the region.

Thelaziosis by *Thelazia callipaeda* (eyeworm) is common in wild and domestic carnivores in this area. Over the past 20 years, several studies on the biology of this nematode – both in the definitive host and in its vector (*Phortica variegata*) – have been carried out in the natural park of Gallipoli Cognato. These studies allowed us to predict suitable environments for the occurrence and development of *P. variegata* across Italy and Europe using a desktop implementation of the Genetic Algorithm for Rule-Set Prediction (GARP). The attendees of ParSCo will have the unique opportunity to visit the areas where the abovementioned studies have been carried out and to use the same methodologies presented in the published papers.

## **PREPARATORY WORK AND FINAL EXAMINATION**

- Article reading (selected papers).
- Attendees should prepare in advance a short power point presentation (up to 10 min) about their main research project and interests.
- Final examination (10 multiple choice questions).
- Course evaluation questionnaire.
- An oral presentation of the ParSCo activities will be delivered at the next EVPC meeting by one of the attendees.

## **CANDIDATE SELECTION**

The course is also open to researchers and students from any country of the world with a particular interest in parasitology, including those who intend to apply for an EVPC Alternative Training Program and all peers who would like to delve in an intense week of field parasitology in southern Europe. The course organizers will select the candidates based on motivation letter, CV, application date, and training level. Applicants from low-income countries will be prioritized (see also ParSCo student grant).

## **GROUP FORMATION**

- To facilitate the activities, attendees may be divided in two or more groups.

**XI Parasitology Summer Course (ParSCo)**

**Residency Course on:  
PARASITES, ARTHROPOD VECTORS AND TRANSMITTED  
PATHOGENS IN THE MEDITERRANEAN AREA**

**28 June to 04 July 2025**

**Application form  
(Submission deadline: 15<sup>th</sup> February 2025)**

To the Organizing committee  
Fax: +39 080/4679839

E-mail: [parscobari@gmail.com](mailto:parscobari@gmail.com)  
Phone: +39 080/4679837

Name: \_\_\_\_\_ Surname: \_\_\_\_\_  
Institution: \_\_\_\_\_  
City: \_\_\_\_\_ Country: \_\_\_\_\_  
Phone (WhatsApp): \_\_\_\_\_  
E-mail: \_\_\_\_\_

I will arrive by  Train  Plane

Arrival date: \_\_\_\_\_

Arrival time: \_\_\_\_\_

Acceptance of terms and conditions

Please be aware that the course organizers are not responsible for any damage or injury in any way arising from transfers and field, clinical and laboratory activities during participation to the course. We strongly suggest you opt for personal accident insurance if you do not already have it.

Date: \_\_\_\_\_

Signature

## DETAILED PROGRAM TIMETABLE AND CONTENTS

### Saturday 28<sup>th</sup> June

Arrival in Bari.

**18:30-21:30** Welcome to the XI ParSCo!

Welcome dinner (optional participation) in Torre a Mare, Bari. This is a welcome dinner offered by the course organizers. Meeting at the Bari Centrale Railway station at 18:30 for the departure (25' driving by car).

### Sunday 29<sup>th</sup> June

**8:30** Departure to Basilicata

**11:30** Check-in at the hunting lodge

**13:00-14:30** Lunch

**14:30-15:00** Introduction to the course (D. Otranto and F. Dantas-Torres)

**Contents:** Presentation of the course location, organization, learning material for attendees (e.g., slides, selected articles, tick and sand fly identification keys).

**15:00-16:30** Ticks (F. Dantas-Torres)

**Contents:** Oral lecture on tick origin, evolution, taxonomy and biology.

**16:30-17:00** Coffee break

**17:00-17:30** Tick collection and preservation (F. Dantas-Torres)

**Contents:** Oral lecture on tick collection and preservation.

**17:30-18:00** Refreshing break

**18:30-20:00** Visit to Castelmezzano

**Contents:** Castelmezzano is a town in the province of Potenza, in the Southern Italian region of Basilicata. Castelmezzano is part of *I Borghi più Belli d'Italia* (the most beautiful villages in Italy), an Italian association that notes small towns of strong artistic and historical interest. In 2017, *The Telegraph* ranked Castelmezzano among its "Italy's 19 most beautiful villages" list, defining it "one of southern Italy's most stunningly located villages".

**20:00-22:00** Dinner

### Monday 30<sup>th</sup> June

**7:30-8:30** Breakfast

**8:30-9:30** Ectoparasites and associated diseases in wild animals (J.A. Mendoza Roldan)

**Contents:** Oral lecture on mites and ticks of reptiles, rodents and birds in the park.

**9:30-13:00** Ectoparasite collection from the environment and wild hosts (whole team)  
**Contents:** Practical activities on ectoparasite collection (Parco Gallipoli Cognato).

**13:00-14:30** Lunch

**14:30-17:00** Tick identification (F. Dantas-Torres, A.D. Mihalca)  
**Contents:** Practical activity on tick identification.

**17:00-17:30** Coffee break

**17:30-19:00** Mite mounting and identification (J.A. Mendoza Roldan)  
**Contents:** Practical activity on mite mounting and identification.

**19:00-20:00** Refreshing break

**20:00-22:00** Dinner

## **Tuesday 1<sup>st</sup> July**

**7:30-8:30** Breakfast

**8:30-10:30** Tick and other ectoparasite collection from sheep and cattle (whole team)  
**Contents:** Practical activity on tick collection from livestock in a local subsistence farm.

**10:30-11:00** Return to Casa di Caccia

**11:00-13:00** Phlebotomine sand flies (M.A. Bezerra-Santos)  
**Contents:** Oral lecture on sand flies (taxonomy, biology, role as vectors of pathogens, and morphological identification) and practical activity on *Leishmania* xenodiagnosis.

**13:00-14:00** Lunch

**14:00-16:00** Sand fly identification (M.A. Bezerra-Santos, F. Dantas-Torres)  
**Contents:** Practical activities on sand fly identification (two groups).

**16:00-16:30** Coffee break

**16:30-19:00** Sand fly collection (whole team)  
**Contents:** Practical activity on sand fly collection using light traps and sticky traps (*Pizzaiolo*).

**19:00-20:00** Refreshing break

**20:00-22:00** Dinner

**22:00-22:30** *Team game*: sand fly collection (whole team)  
**Contents:** After dinner, practical activity on sand fly collection using mouth aspirators.

## Wednesday 2<sup>nd</sup> July

**7:00-8:30** Early good morning in the field! (R. Lia)

**Contents:** Practical activity on collection of light traps and sticky traps from the field.

**7:30-9:00** Breakfast

**9:00-10:30** Separation of sand flies from non-sand fly insects (M.A. Bezerra Santos).

**Contents:** Practical activity on the separation of sand flies from non-sand flies.

**10:30-13:00** Canine leishmaniosis and other vector-borne diseases (G. Baneth, D. Otranto, L. Palazzo)

**Contents:** Oral lecture and practical activities on sample collection from sick dogs (e.g., lymph node, blood, skin, and bone marrow) and diagnosis of vector-borne diseases.

**13:00-14:00** Lunch

**14:00-16:00** Clinical and diagnostic aspects of *Dirofilaria* spp. (L. Kramer)

**Contents:** Oral lecture and practical activity on *Dirofilaria* spp.

**16:00-16:30** *Thelazia callipaeda* and its vector (D. Otranto)

**Contents:** Oral lecture on *T. callipaeda* and *Phortica variegata*

**17:00-19:00** *Phortica variegata* field collection (Whole team). (*Casa Bianca*).

**19:00-20:00** Refreshing break (use this extended break also for studying)

**20:00-22:00** Dinner

## Thursday 3<sup>rd</sup> July

**8:00-8:30** Breakfast

**8:30-10:00** Diagnosis of canine vector-borne diseases (G. Baneth)

**Contents:** Oral lecture on the diagnosis of canine vector-borne diseases.

**10:00-10:30** Coffee break

**10:30-13:00** Cytological diagnosis of vector-borne diseases (G. Baneth, A.D. Mihalca)

**Contents:** Practical activities (divided in two groups) on the cytological diagnosis of canine vector-borne diseases.

**13:00-14:00** Lunch

**14:00-16:00** Parasites meets conservation (A. Mihalca)

**Contents:** Oral lecture on conservation parasitology and practical activity on the observation of parasites of wildlife.

**16:00-16:30** Coffee break

**16:30-19:00** Dissection of ticks and sand flies (F. Dantas-Torres, M.A. Bezerra Santos)  
**Contents:** Practical activity on dissection of ticks and sand flies.

**19:00-20:00** Refreshing break (use this extended break also for studying)

**20:00-22:00** Dinner

## **Friday 4<sup>th</sup> July**

**7:30-8:30** Breakfast

**8:30-10:00** It's your turn: attendees' talks

**Contents:** Attendees will deliver a short presentation (up to 10 min, including discussion) about their main activities and interests. The idea exchange is to stimulate future collaborations among attendees and the ParSCo team.

**10:00-12:00** Final exam

**Contents:** Attendees will sit a final exam (10 multiple-choice questions) on all topics discussed during the course. Attendees will also receive an evaluation questionnaire to give their impressions on the course.

**12:00-13:00:** Free time for refreshing and packing

**13:00-15:00** Final results and delivery of certificates  
Lunch

**15:00** Checkout and return to Bari (back to reality!)