

**The Royal Museum for Central Africa - Belgium
The Entomology Section**

**The Sokoine University of Agriculture - Tanzania
Sokoine Pest Management Centre (SPMC)**

Training course in taxonomy and systematics of African fruit flies

Organized at the Sokoine Pest Management Centre

Session 2015

Call for applications for 15 scholarships

Opening and closing date of the applications: 01/01/15 till 27/02/15

Training: from 04/05/2015- 20/05/2015

1. Context

The fruit flies (Diptera, Tephritidae) belong to one of the main insect groups that are harmful to the agriculture. Various species cause damage to fruit and vegetable farming (cucurbitaceae and solanaceae). This problem is further aggravated by accidental introduction, through human activity, of exotic fly species that are new to the African fauna.

Several agricultural and agronomic institutes have carried out numerous research activities on the group of the fruit flies. These persons are regularly called upon in relation to matters of importation and exportation of agricultural products for the quarantine problem.

It is absolutely necessary to be able to proceed to an unambiguous identification; however, the identification of certain groups is not easy and requires a specific training. In addition, some ground level knowledge on how to assemble data of use for studying basic ecological aspects, is a prerequisite in any applied program.

By means of this basic training, the local specialist will be less dependent on exterior expertise in this respect and will be able to carry out independent research.

This training is organized by two institutions: the Entomology section of the Royal Museum for Central Africa in Belgium and the Sokoine Pest Management Center (SPMC) at the Sokoine University of Agriculture (SUA) in Tanzania.

The Royal Museum for Central Africa has at the moment an internationally renowned expertise related to the taxonomy and systematics of African fruit flies. The entomology section has vast documentation and sample collections at its disposal (more than 20.000 specimens, 250 species, from different regions in Africa, in particular Central and East Africa, but also a reasonable representation from the other regions).

The RMCA has a research partnership on fruit flies with the Sokoine Pest Management Centre (SPMC; a co-ordinating unit within SUA dealing with research on agricultural pest organisms and their management).

There is a long-standing relationship between the Sokoine Pest Management Center (SPMC) at the Sokoine University of Agriculture (SUA) and the Entomology Section of the Royal Museum for Central Africa (RMCA). Over the last decade, collaborative projects (funded by the Belgian Development Cooperation) have resulted in the development of a regional centre of excellence at SUA with regard to fruit fly research. The investment has resulted both in a basic infrastructure with regard to trapping and rearing methodologies, as well as training of experts in applied fruit fly research at different levels (technical, student and research staff). As a result, SUA is now considered a centre of expertise in this field in eastern Africa. In particular within the field of developing and testing Integrated Pest Management (IPM) programs, SUA has acquired considerable expertise.

2. Training programme

The objective of this group training is to ensure, for the sake of the African scientists or the persons confronted with the problem, a basic training on the identification and ecology of African fruit flies that have an economic impact on agriculture.

The course will take place over 13 working days and be taught in English.

It shall consist of ex-cathedra courses on morphology, classification, identification, identification methods, collection methods, and conservation methods. Practical exercises will be used to comment on and test the topics presented in the courses.

Participants shall be asked to bring material they collected so it can be identified during practical work sessions. Likewise, should they have large datasets at their disposal, these may also be analysed.

Provisional programme

Day 1 (Mo/4)

Introduction, practicalities, programme
Visit university, orchard, rearing facilities

Day 2 (Tu/5)

Trapping methodologies
Lures and attractants
Rearing methodologies
Practical: setting up traps in SUA orchard and/or other localities
Collecting fruits for rearing

Day 3 (Wed/6)

Introduction to family Tephritidae
Morphology of fruit flies
Practical in morphological terminology

Day 4 (Thur/7)

Introduction to major genera of economic significance
Recognition of genus *Ceratitis*
Practical in identification *Ceratitis* spp

Day 5 (Fri/8)

Recognition of *Trirhithrum*, *Capparimyia*

Recognition of *Dacus*, *Bactrocera*

Practical in identification *Dacus*, *Bactrocera* spp

Day 6 (Ma/11)

Exchange own experience and presentation activities

Introduction to molecular identification: principle of DNA barcoding

Presentation of DNA barcoding initiatives

Practical in use different professional identification tools (major keys, electronic keys, websites)

Day 7 (Tu/12)

Emptying traps in orchard

Identification of trapped specimens

Identification of own material

Image taking (Automontage)

Public sources for identification information

Day 8 (Wed/13)

Biogeography

Phylogeny

Identification of trapped and own material

Day 9 (Thu/14)

Diversity indices?

Analysis trapped flies (comparison sites/attractants)

Day 10 (Fri/15)

Rearing facilities?

Host range and infestation rate analysis

Day 11 (Mo/18)

Phenology

Population dynamics

Day 12 (Tu/19)

Control mechanisms

IPM

Invasive species

Legislations and Quarantine aspects

Day 13 (Wed/20)

Networking & Regional groups

Future collaboration

Conclusion

Handing out certificates

After having followed this training, the selected candidates will be able to discover the possibly harmful types of insects and to proceed to an unambiguous identification. They will have general knowledge on the basic ecology and the control of the harmful insects.

After the training, a collaboration can be considered between the candidate, the institute of origin and the SPMC and the RMCA.

3. Profile of the participants

The training can receive 15 participants, among whom researchers and employees who are confronted with fruit flies on a professional level. They may be employees from agricultural institutes, quarantine officers, professors of agricultural faculties, researchers from national or international institutions, etc.

Participants must have a minimum level of knowledge in basic ecology and insect pest control.

The candidates' maximum age at the moment of their application is not to exceed 45 years.

4. Admission requirements

Only applications from people with residence in Sub-Saharan Africa and working for an institution, ministry, research institute or university can be taken into consideration. Applications from consultants or individuals cannot be accepted.

Candidates must be citizens of one of the following countries: Benin, Burundi, Burkina Faso, Côte d'Ivoire, Cameroon, Democratic Republic of Congo, Ethiopia, Guinea, Kenya, Madagascar, Mali, Mozambique, Niger, Rwanda, Senegal, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe.

Scientists with a diploma other than M.Sc or PhD. should demonstrate a record of substantial work related to the subject that is presented (control of fruit flies; quarantine, etc).

All applications will be subject to an evaluation by internal experts.

The training staff may formulate specific conditions for sharing existing data with successful applicants.

In addition to the candidate's CV, the following questions will be used for evaluation of the application (to be developed in the motivation letter) :

- (1) Which direct or indirect benefits does this training entail for the candidate in his future research? Or which are the immediate perspectives offered by the training in the progress of the professional activities?
- (2) Which are the candidate's projects as to the use of the knowledge gained during the training?
- (3) Which are the perspectives of a continued collaboration between the candidate, his institution and the RMCA? Which are the mutual benefits that may be expected from this collaboration?
- (4) What would be the benefits of your training to your home institute ?

Mastering of languages

As the training and the complete documentation (identification keys, scientific articles) are in English, the candidate is to master this language well.

Equality of opportunities

Special attention is given to the participation of women to this programme.

5. Instructions for application

A complete application file consists of :

1. the application form, which can be downloaded from the RMCA internet site at the following address: www.africamuseum.be (in the cooperation section from the research institute). This application form has to be completed, dated and signed by the applicant.

2. a separate motivation letter outlining

- why you consider yourself a good candidate for this training,
- what would be the benefits of your training to your home institute,
- what is the level of direct or indirect benefits of the training for you in future research/work,
- your intentions as to sharing the knowledge gained during the training,
- the perspectives of a continued collaboration between yourself, your institution of origin and the SUA and the RMCA

3. a letter from your employer (research institution, ministry, university,...) authorizing your participation in the requested training, confirming the direct benefits to the institution, confirming your current position within the institution and indicating a commitment to make good use of the newly acquired expertise. This letter must be dated and signed (+ stamp of the institution). The name, position and address of the author of the letter must be clearly mentioned.

4. a letter of recommendation indicating, amongst others, why you are particularly well placed or suited for this training. This letter must be dated and signed with clear mention of the name, position and address of the person.

5. copies of relevant diplomas,

6. 1 recent passport photograph.

Only complete application files will be taken into consideration. No additional information communicated afterwards will be accepted, unless upon specific request from the RMCA.

The complete application file should reach the following email address before 27/02/2015 (deadline) :

E-mail : callfruitflies@africamuseum.be

Applications per email are preferred. If not possible, a paper copy of the application file can be send per regular mail to the following postal address (file must arrive before the deadline):

Ms. Muriel Van Nuffel, Training and Study Visit Coordinator
Royal Museum for Central Africa
Leuvensesteenweg 13
B 3080 Tervuren, Belgium

Reception of application files will only be acknowledged by e-mail to the e-mail address to be mentioned in the application form. This acknowledgement will be done shortly after the application form is received.

All applicants will be personally informed of the results of the selection process by end of March 2015. Successful applicants will have to send their original file per regular mail.

NB: the persons **selected for the training** will be asked to bring along the samples of fruit flies well preserved in alcohol or prepared (stuck) and clearly labeled, in view of the training.

6. Scholarship conditions

Duration:

13 days' training session

Travel expenses:

One round-trip ticket (economy class) will be provided
Some expenses related to obtaining the visa will be reimbursed.

Allowances:

- Daily allowance covering board, individual transport, and personal expenses of the selected applicant,
- Accommodation provided.