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University of Zadar;  
Department of ecology,  
agronomy and aquaculture

**u<sup>b</sup>**

**UNIVERSITÄT  
BERN**

# “RNSBB 2018 Workshop”

## Proceedings



**Zadar, Croatia  
28.02. – 01.03.2018.**

# RNSBB 2018 Workshop

## Tentative Schedule

27 February, 2018

Time	ARRIVAL 2nd Group RNSBB
20:00	Informal gathering at caffe bar "Porto"

28 February, 2018

Time	
<b>13:00 - 14:00</b>	<b>Joint Lunch with Varroa Control Workshop</b>
<b>Session 1 – RNSBB</b>	
14:00 - 14:30	<b>Registration</b>
14:30 - 16:00	Welcome and workshop organization Introduction and welcome to new members Update on RNSBB activities in the past year (website, APIMONDIA round tables, COLOSS general conference)
<b>16:00 - 16:30</b>	<b>Coffee break</b>
16:30 - 18:00	SMR Common experiment – status of planned publication
19:00	City guided tour
<b>20:00</b>	<b>Social dinner</b>

1 March, 2018

Time	Session 2 – RNSBB
09:00 - 10:30	Status of RNSBB Book "Sustainable Bee Breeding" Website and Cloud use
<b>10:30 - 11:00</b>	<b>Coffee break</b>
<b>Session 3 – RNSBB</b>	
11:00 - 13:00	Presentation of results of ongoing projects and new projects (SMARTBEES, EurBest...)
<b>13:00 - 14:00</b>	<b>Lunch</b>
<b>Session 4 – RNSBB</b>	
14:00 - 16:15	Update on subspecies discrimination methods / inventory / database
16:15 - 18:00	Collection of Ideas for next common experiment Protection of honey bee biodiversity: reply to Science article? Miscellaneous topics Next meeting – where and when?

2 March, 2018

Time	Excursion day
10:00	Visit to breeding apiary on the way to Plitvice National Park <b>(optional)</b>

**OPTIVAR: PROMOTING THE DEVELOPMENT OF SELECTION AND BREEDING FOR HONEY BEE COLONIES THAT ARE ABLE TO NATURALLY LIMIT THE BURDEN OF VARROA INFESTATIONS**

**Léa Tison, Fanny Mondet and Yves Le Conte**

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Varroa resistance can be defined as the ability of honey bee colonies to survive the parasite for several years in the absence of any treatment against the mite. Long-term survival of untreated *Apis mellifera* populations has been reported in the US and Europe. The ability of honey bee colonies to survive varroa mite infestations has been associated with the development of the Varroa Sensitive Hygiene behavior (VSH). Resistant colonies are able to detect the presence of varroa through the cap of developing brood and to remove parasitised brood and the mites. Our study aims to validate a new method of evaluation of the resistance potential of honey bee colonies through estimation of the VSH expression level. To ensure the appropriate use of the method, a simple and clear protocol is needed, but it must be accompanied by recommendations on the environmental conditions in which the test may be used. Such efforts are particularly important to standardise testing in different locations, a feature that is essential to ensure the success of breeding efforts.

**TOWARDS CHARACTERIZATION AND CONSERVATION: PROGRESSES IN TURKEY**

**Irfan Kandemir**

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Characterization studies and conservation efforts are increasing in the last years, in Turkey. For the characterization, morphological studies are mainly based on both standard morphometric measurements and also the application of geometric morphometric studies. Molecular characterization studies, however, are mostly based on the DNA sequences of limited number of genes on the mitochondrial DNA and also limited number of microsatellite loci in the nuclear DNA. After the characterization and conservation of Anatolian honey bees by the joint project between Ali Nihat Gökyiğit (ANG) Foundation and the Ministry of Food, Agriculture and Livestock, two more apiaries were also characterized with the projects. One of them is the honey bee populations from the isolated place in western Black Sea region, Zonguldak-Karakavuz-Gümeli and the other one is the honey bee population of the Aegean Agricultural Research Institute. For the registration of the honey bees such research projects are needed and before the certification of the honey bees and decision on isolation and conservation it is required to have such characterization. First certificate is given to the ANG Foundation for the efforts made on the Anatolian honey bees. These studies will be followed by the others in other isolated honey bee populations in different parts of Turkey. All aspects of the efforts will be presented and knowledge on the characterization and conservation in Turkey will be updated.

**SMR and recapping in Croatia**  
**Marin Kovačić, Zlatko Puškadija**

University of J.J. Strossmayer in Osijek, Faculty of Agriculture in Osijek

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The research was conducted in Baranja region during 2016. and 2017. In total, 85 brood samples were collected and analyzed. Before brood collection, adult bee infestation with varroa mites and hygienic behaviour was determined. Adult bee infestation was determined with soapy water wash method, while hygienic behaviour was evaluated two times (during June and July) with „pin test“ method. The average result of two test was taken as a result of hygienic behaviour. During July and August, brood samples were taken from 85 colonies and stored in freezer (-18 °C) until analysis. The SMR and recapping activity were evaluated in accordance with RNSBB protocol. The average adult bee and brood infestation were 1,83% and 10,72% respectively. On average 54% of totally cleaned cells were recorded 18 hours after conducting pin test. After brood samples examination, 25,55% of single infested mites found in brood were non-reproductive. The 15,84% of all cells were recapped at least once, while the rate of recapping of infested and uninfested cells was 40,38% and 13,52% respectively.

## Minutes of RNSBB Zadar meeting

28/2/2018

### Welcome and introduction to new members:

- Janez Presern (Agricultural Institute of Slovenia)
- Yannick Poquet (INRA, France)
- Dylan Elen (Bangor University, Wales, UK)
- Rahsan Tunca (Mugla University, Turkey)

### RNSBB activities past year

- New Website on old domain! (Skype to Melanie Parejo= new webmaster)
- APIMONDIA round table «Conservation» (Maria Bouga)
- APIMONDIA round table «Breeding Healthy Bees» (Marina Meixner)
- COLOSS General Conference Athens, Nov 2017
- A brief summary of the RNSBB sessions during the COLOSS conference in Athens led to a discussion on how to improve the productivity of the COLOSS general conferences. After remembering that previously we had already suggested that participants should inform themselves on our activities from documentation available on RNSBB and COLOSS websites, and after noting that other task groups have similar problems of integrating new participants with discussions on ongoing task-force activities, and that many Task Forces need 4-5 hours each , new suggestions included:
  - a session on presentations, make it more formal like a normal conference
  - ask any participant to give a 5 minute presentation
  - more time dedicated to presentation of Task Forces activities during the GA, to enable all members to have a better picture of what is ongoing
  - a general session parallel to task forces session, where representatives of each Task Force can give information

### SMR / VSH

New Protocol was published September 2017 and is being applied by several members

#### Presentations

Pierre Giovenazzo: project on VSH

Lea Tison (post doc of Fanny Mondet): OPTIVAR project.

Marin Kovacic: delay in development main reason of non-reproducing mites in colonies.

Ralph B uchler: recapping is higher in infested cells.

1/3/2018

### Popular Bee Book

- status of the book is 80% complete (aim is to achieve progress by the autumn)

Next meeting of Editorial Board and lead authors from August onwards.

### Projects affiliated to RNSBB

- SMARTBEES
- EURBEST
- Conservation projects
- *AMOREF: Apis mellifera* morphometry reference database

**Plans and ongoing activities**

- Abstract for COLOSS Symposium EURBEE on RNSBB activities: NO
- Comment on Science paper on honey bees VS wild bees:

RNSBB encourages COLOSS EC to produce a press release with opinion statement underlying the ecological importance of honey bees, and the need to protect their biodiversity.

- Next meeting: Israel, hosted by Victoria Soroker

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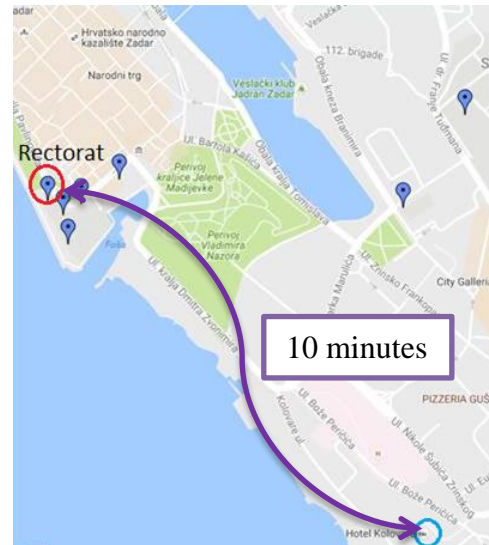
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### **Workshop location:**

The Workshop will be held in main building of University of Zadar (Street: Mihovila Pavlinovica bb; Zadar).



### **About Zadar**

Zadar is a city of exceptional history and rich cultural heritage. Situated in the heart of the Adriatic, Zadar is the urban center of northern Dalmatia as administrative, economic, cultural and political center of the region with 75,000 inhabitants. The coast is particularly indented, the islands and the untouched nature allures many boaters to this regions. The archipelago counts 24 bigger and about 300 smaller islets and rocks, 3 nature parks - Telašćica, Velebit and Vransko jezero and 5 national parks - Paklenica, Plitvice lakes, Kornati Islands, Krka and Sjeverni Velebit classifying Zadar and its surroundings at the very top of the Croatian tourist offer. Zadar is a city monument, surrounded by historical ramparts, a treasury of the archaeological and monumental riches of ancient and medieval times, Renaissance and many contemporary architectural achievements such as the first sea organs in the world.