Work Package Activity Number: (WP1a) Surveillance of invasive and native mosquito species

Dates: June 22nd to July 02th, August 04th to 11th, 30th of August, 11th to 25th (identification) and 29th of September 2015.

Working days: 36 (23 from LOVCEN + 11 VectorNet + 2 in kind support)

Partners FoA, CAA, BTF and USAMVBT (in kind contribution)

Leaders of WP's: WP1 Romeo Bellini and WP2 Dusan Petric

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WP where the activity belongs: WP1 and WP2

REPORT

The new classification of Aedini (Wilkerson et al 2015) which suggest to come back to Aedes and use new monophyletic groups proposed by Reinert et al (several papers since 2000, 2004, 2006, 2008, 2009…) as subgenus and species group, is recently published.

In a new classification of Aedini, Wilkerson et al. (2015) are giving some real arguments opposing the Reinert et al. works. This was not done so far, and criticisms given until now were not science based. It is the first paper that addresses Aedini classification with similar cladistics methods. It discusses the limits of these methods and is considering other aspects of systematics (eg. stability for wide-used taxon names, necessity to have diagnostic characters to sort genera, use of simple and clear names…). In most of the cases, they suggest to keep the species monophyletic group described by Reinert et al but only at subgenus level. After this paper it seems quite reasonable to accept authors' suggestion although *Ochlerotatus* subgenus stays an open and not well resolved question.

Purpose of the Activity

Short synopsis: Identifications of adult mosquitoes sampled by most appropriate trapping methods and formation of data base for the maps of their distribution which would be publicly available at the LOVCEN web site.

Trapping by EVS-CO_2 traps baited by dry ice (without light) and Gravid traps was conducted from June 22nd to July 02nd by Dr. Pajović, Dr

Ignjatović-Ćupina, Dr Dušan Petrić and Dr Cosmin Salasan at 62 sampling sites in municipalities Plužine, Šavnik Žabljak, Pljevlja, Bijelo Polje, Mojkovac, Kolašin, Andrijevica including Murina, Plav, Gusinje, Berane and Rožaje, in total 62 sampling nights. At the same period sampling by larval dipping, resting catch, resting catch using Žbun TiN MNE and human bait was conducted at 21 sampling site by the same researchers. At 06th and 12th July EVS-CO_2 traps were conducted at localities Mataguži and Zlatica in Podgorica by Dr Maria Zgomba and Dr Igor Pajović. From August 04th to 11th human bite sampling technique was conducted at Lustica peninsula in Tivat (Krtole, Radovići and Krašići) by Dr Romeo Bellini, Dr Dušan Petrić and Dr Igor Pajović. Oviposition traps were placed on 65 places. In three municipalities ovitraps were collected twice. In Plužine 5 ovitraps were collected at end of July and 30th of August, in Gusinje two were collected at 30th of August and five at 29th of September and in Rožaje one ovitrap was collected at 30th of August and five at 29th of September. In total 70 oviposition traps were checked.

Sampled haematophagous insects were dry preserved in small flasks marked with date and locality name. Samples of Culicidae, Ceratopogonidae (genus *Culicoides* – biting midges) and Simuliidae (black flies) were *identified* according to morphological characters by the dichotomous key Becker et al. (2010). Identification was performed by Dr Ignjatović Ćupina and Dr. Petrić from 12th to 25th September in Novi Sad (Serbia).

Results: Traps were positioned within the backyards of the houses and in nature, at the places protected from the strong wind, operating from the afternoon to the next day morning. EVS-CO_2 traps were baited exclusively by CO_2. In total 459 male and female mosquito specimens belonging to 15 species; 139 Culicoides spp. were sampled. Determination of Culicoides spp. to species level will be performed by expert of VectorNet project, Dr Thomas Belenghien.

Mosquito species sampled (red lettering and underlined – species/groups not registered in previous two years):

1. *Anopheles maculipennis* s.l. (malaria vector)*
2. *An. saccharovi* (malaria vector)*
3. Aedes *geniculatus*
4. *Aedes caspius* (vector of Rift Valley Virus and *Dirofilaria immitis* and *D. repens* nematodes)
5. *Aedes albopictus* (vector of Chikungunya and Dengue viruses and *Dirofilaria immitis* and *D. repens* nematodes)
6. *Aedes pulchritarsis*
7. *Aedes vexans*

8. *Aedes punctor*

9. *Aedes communis*

10. *Aedes cinereus*

11. *Culex pipiens* (vector of West Nile, Sindbis and Rift Valley Viruses and *Dirofilaria immitis* and *D. repens* nematodes)

12. *Culex hortensis*

13. *Culiseta annulata*

14. *Culiseta longiareolata*

15. *Coquillettidia buxtoni*

16. *Culicoides* sp.*** (Blue Tongue Virus vector)

17. Simulidae

***** In the brackets following the names of identified species only major pathogens of man (species 1, 2, 3, 5, 8, 9, 13) and/or animals (5, 8, 9, 13 and 14) are given.

** Subfamily Phlebotominae, sand flies, are important vectors of cutaneous and visceral laismaniasis in neighbouring Albania

*** Genus *Culicoides* belongs to family Ceratopogonidae, not Culicidae (mosquitoes) but we decided to register they presence being the vectors of deadly blue tongue disease of sheep.

Equipment Used: EVS-CO_2 and Gravid traps (in kind contribution BTF), battery powered aspirators (in kind contribution CAA Crevalcore), laboratory material (in kind contribution BTF Podgorica, FoA Novi Sad), identification keys (in kind contribution FoA Novi Sad).