

VBORNET Newsletter Year 2 Issue 6, September 2011

VBORNET USEFUL LINKS

Project description:

http://ecdc.europa.eu/en/activities/diseaseprogrammes/emerging_and_vector_borne_diseases/Pages/VBORNET.aspx

Registration, newsletters and Vector Questionnaire to be downloaded for reporting data:

www.vbornet.eu

VBORNET vector maps:

http://ecdc.europa.eu/en/activities/diseaseprogrammes/emerging_and_vector_borne_diseases/Pages/VBORNET_maps.aspx

CONTENTS

1. VBORNET STATUS
2. SCIENTIFIC ADVANCES: MOSQUITOES
3. SCIENTIFIC ADVANCES: TICKS
4. SCIENTIFIC ADVANCES: PHLEBOTOMINE
5. VECTOR BORNE DISEASES EVENTS

1. VBORNET STATUS

VBORNET is now ending its first cycle of two years. The network is active, the databases have been established and are being populated on a regular basis, and updated maps of disease vector distributions are produced every three months. In addition a series of documents have been produced including fact sheets and risk assessments on invasive mosquitoes and on two tick species. A questionnaire on Public Health activities in Europe was circulated and results are being analysed. Finally, eighteen Newsletters have been produced.

The second VBORNET two year cycle starts with an intermediary phase of six months. During this phase focus will be on migrating and embedding all developed ICT tools to the ECDC website and requires an extra ICT development effort. Once achieved it should guarantee the full integration of VBORNET tools within the broader spatial data management and mapping services of ECDC. Most importantly this will ensure the long-term sustainability of VBORNET as part of ECDC.

In addition the other activities will go on: vector map data entry and three monthly map publication, factsheets and risk assessments, PH questionnaire analysis. On the vector mapping front particular attention will be given to validating and entering large data sets on tick distributions in Europe provided by EFSA (Parma, Italy) and CIRAD (Montpellier, France). During this period no additional Newsletters will be produced.

The next AGM will be planned at the start of the next phase in March-April 2012 and will be held jointly with the ENIVD network. We are looking forward to successfully complete this crucial phase in the maturation of the VBORNET network!

1. SCIENTIFIC ADVANCES: MOSQUITOES

First Detection of a Putative Knockdown Resistance Gene in Major Mosquito Vector, *Aedes albopictus*.

Kasai S¹, Ng LC², Lam-Phua SG², Tang CS³, Itokawa K¹, Komagata O¹, Kobayashi M¹, Tomita T¹.

¹ Department of Medical Entomology, National Institute of Infectious Diseases, Tokyo 162-8640, Japan

² Environmental Health Institute

³ Environmental Health Department, National Environmental Agency, Singapore

Japanese journal of infectious diseases 2011 May;64(3):217-21.

The Asian tiger mosquito, *Aedes albopictus* (Skuse), is the major vector of Chikungunya fever and the secondary vector of dengue fever. We collected *Ae. albopictus* from Singapore and performed genotyping assay to detect mutations of the voltage-gated sodium channel, which is the target site of pyrethroid insecticides. We detected an amino acid substitution, F1534C, which is suspected to confer knockdown resistance (*kdr*) to pyrethroid insecticides. Of the collected mosquitoes, 53.8% were homozygous for this mutation, and the allele frequency of this mutation was estimated to be 73.1%. No *kdr* mutation was detected in the 5 other loci of domains II and IV. This is the first evidence for the presence of the *kdr* gene in *Ae. albopictus*, and our findings highlight the need for studying the global distribution of this allele in this important vector insect.

Link to the article: <http://www.nih.go.jp/JJID/64/217.pdf>

Key words: *Aedes albopictus*, genotyping, pyrethroid resistance, Singapore

VBORNET comment: 2011-09-30

Vector control programmes are faced with increasing challenges due to growing number of vector species and populations that have developed resistance to biocides. In general, four different categories of resistance to insecticides are recognized: metabolic resistance, target site resistance, reduced penetration and behavioural resistance. *Kdr* mutations, indicators of target site resistance, have been detected in many pest insects and in the current study from Singapore shows that *Ae. albopictus* is not an exception. The Insecticide Resistance Action Committee (IRAC), formed in 1984, defines resistance as the selection of a heritable characteristic in an insect population that results in the repeated failure of an insecticide product to provide the intended level of control when used as recommended. According to this definition, differences in susceptibility apparent in laboratory bioassays may not necessarily constitute resistance if the difference does not result in a change in the field performance of the insecticide. Despite the fact that the paper does not report any bioassay results the finding of *kdr* mutations in *Ae. albopictus* is worrisome for the future of control attempts of this species in Europe. In September 2011, IRAS released a new Operational Insecticide Resistance Management Vector manual containing practical knowledge and tools required to implement insecticide resistance management in vector control programmes.

Surveillance of the chikungunya vector *Aedes albopictus* (Skuse) in Emilia-Romagna (northern Italy): organizational and technical aspects of a large scale monitoring system.

Carrieri M¹, Albieri A¹, Angelini P², Baldacchini F², Venturelli C³, Zeo SM³, Bellini R¹.

¹ Medical and Veterinary Entomology, Centro Agricoltura Ambiente "G. Nicoli", Crevalcore (BO), Italy

² Emilia-Romagna Region Public Health Service, Bologna, Italy

³ Public Health Department, Cesena (FC), Italy

Journal of Vector Ecology 2011 Jun;36(1):108-16. doi: 10.1111/j.1948-7134.2011.00147.x.

The chikungunya virus outbreak that occurred in 2007 in northern Italy (Emilia-Romagna region) prompted the development of a large scale monitoring system of the population density of *Aedes albopictus* (Skuse, 1894), comparable at the provincial and municipal levels. In 2007, egg density data presented an aggregated distribution (VMR >1) and Taylor's power law was applied to calculate the minimum number of ovitraps needed to obtain the prefixed precision levels: D=0.2 in the areas where the chikungunya epidemic occurred and D=0.3 in all the other urban areas >600 ha. The estimated minimum ovitrap number was then used to set up a monitoring network at the regional scale in season 2008 (May-October). In 242 municipalities 2,741 ovitraps were activated and the 2008 sampled data showed a similar aggregated distribution as in 2007. The adequacy of the monitoring design was evaluated by recalculating the Taylor's coefficients and the minimum ovitrap number for each urban area >600 ha using the 2008 egg density data. The comparison between the two estimates showed that the minimum ovitrap number calculated in 2007 was underestimated by 2.7% in weeks 22-41 but was overestimated by 29.4% if referring to the period of highest population density (weeks 27-37). The low cost of the proposed monitoring system, based on the use of fortnightly checked ovitraps, could make it economically sustainable even in a non-epidemic season.

Link to the article: <http://onlinelibrary.wiley.com/doi/10.1111/j.1948-7134.2011.00147.x/pdf>

Key words: *Aedes albopictus*, ovitraps, monitoring system, Chikungunya, Taylor's power law, Italy.

VBORNET comment: 2011-09-30

In this paper, Carrieri et al. provide well-supported data underlining the importance of using ovitraps to monitor *Aedes albopictus* even in low density areas. Ovitrap are already being used for several years for the monitoring of *Aedes (Stegomyia)* species like *Ae. albopictus* and *Ae. aegypti* and their use has become standard. However, the relationships between egg monitoring and adult densities remain unclear. Here the authors statistically test their data which allows them to adapt the sampling scheme and control measurements according to the specific site characteristics and regarding species abundances. This is a unique approach achievable at low cost and well-designed to estimate the infestation level in large urban areas (exceeding 600 ha) even in non-epidemic season. Moreover, one of the main advantages is the continuous sets of data on mosquito populations which can serve as a basis for more directed monitoring and control strategies. This paper correctly promotes the further use of ovitraps for studies on invasive *Aedes* species as a low cost and efficient surveillance method. Furthermore these long-term data can be implemented in prevention and control strategies, can be used in (GIS) applications which have been done by the authors for this region, and is an added value to the continuous invasive mosquito problematic in Europe.

2. SCIENTIFIC ADVANCES: TICKS

Mathematical modelling of the impact of climatic conditions in France on *Rhipicephalus sanguineus* tick activity and density since 1960.

Beugnet F, Kolasinski M, Michelangeli PA, Vienne J, Loukos H.

1 Merial, 29 Av. Tony Garnier, F-69007 Lyon, France

2 CLIMPACT, 79 rue du Faubourg Poissonnière, F-75009 Paris, France

Geospatial Health. 2011 May;5(2):255-63.

Rhipicephalus sanguineus, the brown dog tick, has a worldwide distribution in areas with a relatively warm climate, including mild winters. This tick plays an important role as vector for various animal and human pathogens, including bacteria and protozoa. Based on precise daily meteorological data from the past 40 years, combined with mathematical modeling designed to predict tick activity, two modeling approaches were developed. The first examined the evolution of the number of weeks with favorable biological conditions for ticks in four French cities located at various latitudes of the country: Nîmes in the south, Paris in the north, Lyon in the east and Nantes in the west. The second analyzed the extension of the geographical surface area in km² where the biological conditions favor tick activity for at least 12 weeks per year. Both analyses revealed clear evidence of increased temperatures coupled with an augmented tick activity index in three of the four cities. However, the change was not significant in Nîmes, where the climate is Mediterranean and the tick is already endemic. For Paris, Lyon and Nantes, the activity index values have increased significantly, i.e. by 4.4%, 4.0% and 3.4%, respectively. The distribution of the activity index values is evolving strongly with significantly fewer values below 50% since the 1960s and a clear decrease of values between 20% and 50% during the latest decade. Between 1960 and 2000, the theoretical extension of the surface area where the climatic index is suitable for *R. sanguineus* has increased by 66%. Even though several other important factors, such as changes in biotopes or human activity, are not included in this study, the resulting patterns and trends are noticeable. Our models constitute the first demonstration of the impact of climate change on the activity and distribution of ticks and confirm the observed northward migration trend for this Mediterranean domestic tick.

Link to the article: <http://www.geospatialhealth.unina.it/articles/v5i2/gh-v5i2-12-beugnet.pdf>

Key words: *Rhipicephalus sanguineus*, mathematical modeling, climate change, epidemiology, France.

VBORNET comment: 2011-09-30

Rhipicephalus sanguineus is the kennel tick and a vector of a number of human and veterinary diseases. The role of dogs in dispersing this tick throughout Europe and into previously non-endemic locations has been a topic of discussion in recent years, particularly in relation to European Union pet travel legislation. This paper presents a mathematical model that shows that more suitable environmental conditions have developed since the 1960s to facilitate a theoretical expansion of the

surface area for the climatic index for suitability of *Rhipicephalus sanguineus* in Europe, with a reported expansion by 66 % between 1960 and 2000 gaining 130,000 km².

High burden of tick-borne encephalitis in Slovenia-Challenge for vaccination policy.

Grgič-Vitek M, Klavs I.

National Institute of Public Health, Trubarjeva 2, 1000 Ljubljana, Slovenia.

Vaccine. 2011 May 25. [Epub ahead of print]

Slovenia is one of the countries with the highest reported incidence rates of tick-borne encephalitis (TBE). Vaccination uptake is low, estimated to be 12.4%. TBE surveillance data for the last 20 years were analysed. Though nearly all of Slovenia is endemic for TBE with national yearly incidence rates up to 26.7/100,000, we showed that two regions (Gorenjska and Koroška) were much more affected than other seven regions, with annual incidence rates up to 57.2/100,000 and 76.9/100,000 population, respectively. In the last decade, there was a shift in the age distribution of reported TBE cases to the older age groups, which resulted in the highest age-specific incidence rates nationally in 55-64 age group (up to 33.4/100,000 in 2006). To reduce this high burden of TBE, ideally the whole population of Slovenia should be offered free of charge vaccination against TBE. Alternatively, in view of limited resources available, sensible approach would be increasing vaccination coverage of the general population using social marketing and increasing TBE awareness, and in addition, offering free of charge vaccination to the most affected groups. The following priority target groups should be considered to be prospectively covered with free of charge vaccination: (1) 45-69 years old individuals in the two most affected regions (Gorenjska, Koroška), (2) the remaining age groups in the two most affected regions, (3) 45-69 years old individuals in the region with the next highest TBE incidence rates (Ljubljana), and (4) individuals 45-69 years old in all remaining Slovenian regions.

Link to the article:

http://www.sciencedirect.com/science?_ob=MIimg&_imagekey=B6TD4-52YBBTM-3-1&_cdi=5188&_user=3860242&_pii=S0264410X11007444&_origin=&_coverDate=05%2F26%2F2011&_sk=999999999&_view=c&_wchp=dGLzVzz-zSkWb&_md5=1b38d3e5c99e3975b4ac42da1900ca4c&_ie=/sdarticle.pdf

Key words: tick-borne encephalitis (TBE), surveillance, vaccination, advocacy, Slovenia.

VBORNET comment: 2011-09-30

This article reports the current TBE situation in Slovenia. Slovenia is one of the most affected countries in Europe and the regions of Gorenjska and Koroška show the highest incidence rates. Given this alarming situation the authors propose government subsidized vaccination of the entire population. Since this is unlikely to be implemented for a variety of reasons, the authors propose a mixed approach combining the free vaccination of age groups at risk in the two most affected regions and the country wide information of the general public to raise awareness. This is a nice example where spatial risk-maps databases may contribute to a better information of the public.

[Tick-borne diseases in the Republic of Croatia].

Mulić R, Petković B, Klismanić Z, Jerončić I.

Katedra za javno zdravstvo, Medicinski fakultet u Splitu, Soltanska 2, 21000 Split. rosanda.mulic1@st.htnet.hr

Lijec Vjesn. 2011 Mar-Apr;133(3-4):89-95.

This study analyses occurrence, trendline, occurrence by months and geographical distribution of tick-transmitted diseases: Lyme borreliosis, Tick-borne meningoencephalitis (TBM) and Mediterranean spotted fever in the Republic of Croatia in the period between 1999 and 2008. The vector for Lyme borreliosis and tick-borne meningoencephalitis is *Ixodes ricinus*, while Mediterranean spotted fever is transmitted by the *Rhipicephalus sanguineus*. Lyme disease is endemic in entire continental Croatia and Croatian littoral. Tick-borne meningoencephalitis is endemic in northern Croatia. Mediterranean spotted fever occurs only in Dalmatian counties and the average annual incidence rate increases from north to south of Dalmatia. All three diseases show extremely seasonal characteristics, which is conditioned by the biological cycle of ticks as their activity peaks in summer and spring. In terms of vaccines against the above diseases, the only one available in Croatia is the TBM vaccine and it is applied according to epidemiological indications. In preventing Lyme disease some authors have recommended a single 200-mg dose of doxycycline taken within 72 hours of being bitten by an infected tick.

Link to the article:

<http://www.ncbi.nlm.nih.gov/sites/entrez?cmd=retrieve&db=pubmed&dopt=genpept&uid=21612103>

Key words: Tick-borne diseases, *Ixodes ricinus*, *Rhipicephalus sanguineus*, distribution, seasonality, disease prevention, Croatia

VBORNET comment: 2011-0X-XX

Tick-borne diseases in the Republic of Croatia is published in Croatian. The abstract is very generic and provides little detail on the content of the paper. VBORNET will contact the authors to enquire whether recent data on the distribution of *Ixodes ricinus* and *Rhipicephalus sanguineus* are available for Croatia.

Multi-source analysis reveals latitudinal and altitudinal shifts in range of *Ixodes ricinus* at its northern distribution limit.

Jore S¹, Viljugrein H^{1,4}, Hofshagen M¹, Brun-Hansen H², Kristoffersen AB^{1,5}, Nygård K³, Brun E¹, Ottesen P³, Sævik BK², Ytrefhus B¹.

1 Norwegian Veterinary Institute, Oslo, Norway

2 Norwegian School of Veterinary Science, Oslo, Norway

3 Norwegian Institute of Public Health, Oslo, Norway

4 Centre for Ecological and Evolutionary Synthesis (CEES), University of Oslo, Oslo, Norway

5 University of Oslo, Oslo, Norway

Parasites & Vectors 2011 May 19;4(1):84.

BACKGROUND: There is increasing evidence for a latitudinal and altitudinal shift in the distribution range of *Ixodes ricinus*. The reported incidence of tick-borne disease in humans is on the rise in many European countries and has raised political concern and attracted media attention. It is disputed which factors are responsible for these trends, though many ascribe shifts in distribution range to climate changes. Any possible climate effect would be most easily noticeable close to the tick's geographical distribution limits. In Norway- being the northern limit of this species in Europe- no documentation of changes in range has been published. The objectives of this study were to describe the distribution of *I. ricinus* in Norway and to evaluate if any range shifts have occurred relative to historical descriptions.

METHODS: Multiple data sources - such as tick-sighting reports from veterinarians, hunters, and the general public - and surveillance of human and animal tick-borne diseases were compared to describe the present distribution of *I. ricinus* in Norway. Correlation between data sources and visual comparison of maps revealed spatial consistency. In order to identify the main spatial pattern of tick abundance, a principal component analysis (PCA) was used to obtain a weighted mean of four data sources. The weighted mean explained 67% of the variation of the data sources covering Norway's 430 municipalities and was used to depict the present distribution of *I. ricinus*. To evaluate if any geographical range shift has occurred in recent decades, the present distribution was compared to historical data from 1943 and 1983.

RESULTS: Tick-borne disease and/or observations of *I. ricinus* was reported in municipalities up to an altitude of 583 metres above sea level (MASL) and is now present in coastal municipalities north to approximately 69°N.

CONCLUSION: *I. ricinus* is currently found further north and at higher altitudes than described in historical records. The approach used in this study, a multi-source analysis, proved useful to assess alterations in tick distribution.

Link to the article: <http://www.parasitesandvectors.com/content/pdf/1756-3305-4-84.pdf>

Key words: *Ixodes ricinus*, Northern limit, distribution shift, Norway

VBORNET comment: 2011-09-30

Evidence for spread of *Ixodes ricinus* in Europe is limited, although there is much anecdotal evidence. It is known from other studies in Europe that the range and distribution of *Ixodes ricinus* is expanding to higher latitudes and higher altitudes. This study in Norway presents the first contemporary data available for the country and using a range of sources of data, has provided good evidence of both an increased in the distribution of *Ixodes ricinus*, both in latitude (69°N) and altitude (~580m). These are significant changes, and mimic those that have been reported in other parts of Scandinavia. This multi-source approach is indicative of an innovative approach to gathering data on vector distributions. There are a variety of indicators that can act as a surrogate for tick distribution data and other countries should follow this example. The paper is a very valuable contribution and we will include the published information in the VBORNET database on *Ixodes ricinus*.

Microclimate and the zoonotic cycle of tick-borne encephalitis virus in Switzerland.

Burri C, Bastic V, Maeder G, Patalas E, Gern L.

Institute of Biology, Laboratory of Eco-Epidemiology of Parasites, University of Neuchâtel, Emile-Argand 11, 2000 Neuchâtel, Switzerland.

Journal of medical entomology 2011 May;48(3):615-27.

The focal distribution of tick-borne encephalitis virus (TBEV; Flaviviridae, *Flavivirus*) appears to depend mainly on co-feeding transmission between infected *Ixodes ricinus* L. nymphs and uninfected larvae. To better understand the role of co-feeding ticks in the transmission of TBEV, we investigated tick infestation of rodents and the influence of microclimate on the seasonality of questing *I. ricinus* ticks. A 3-yr study was carried out at four sites, including two confirmed TBEV foci. Free-living ticks and rodents were collected monthly, and microclimatic data were recorded. A decrease in questing nymph density was observed in 2007, associated with low relative humidity and high temperatures in spring. One site, Thun, did not show this decrease, probably because of microclimatic conditions in spring that favored the questing nymph population. During the same year, the proportion of rodents carrying co-feeding ticks was lower at sites where the questing nymph density decreased, although the proportion of infested hosts was similar among years. TBEV was detected in 0.1% of questing ticks, and in 8.6 and 50.0% of larval ticks feeding on two rodents. TBEV was detected at all but one site, where the proportion of hosts with co-feeding ticks was the lowest. The proportion of hosts with co-feeding ticks seemed to be one of the factors that distinguished a TBEV focus from a non-TBEV focus. The enzootic cycle of TBEV might be disrupted when dry and hot springs occur during consecutive years.

Link to the article:

<http://www.ncbi.nlm.nih.gov/sites/entrez?cmd=retrieve&db=pubmed&dopt=genpept&uid=21661323>

Key words: Tick-borne encephalitis, focal distribution, co-feeding, longitudinal study, microclimate, seasonality, Switzerland.

VBORNET comment: 2011-09-30

This is further field evidence of the important role of co-feeding ticks in sustaining foci of Tick-borne encephalitis virus. Such field-based studies are crucial in ensuring that risk modeling approaches are evidence based, and in ensuring that the impact of changing weather or climatic trends can be properly assessed to understand and predict the changing transmission zones for TBE in Europe.

3. SCIENTIFIC ADVANCES: PHLEBOTOMINE

Low seroprevalence of sandfly fever Sicilian virus antibodies in humans, Marseille, France.

Bichaud L¹, Piarroux RP¹, Izri A², Ninove L¹, Mary C³, De Lamballerie X¹, Charrel RN¹.

1 UMR190 (Université de la Méditerranée Aix-Marseille 2 – IRD), Marseille

2 Laboratoire de Parasitologie-Mycologie, AP-HP Avicenne, Bobigny

3 Laboratoire de Parasitologie-Mycologie, AP-HM Timone, Marseille, France

Clinical microbiology and infection 2011 Mar 14. doi: 10.1111/j.1469-0691.2011.03509.x. [Epub ahead of print]

A seroprevalence study was carried out in the region of Marseille (south-eastern France) to address the public health importance of sandfly fever Sicilian virus (SFSV) and SFSV-like viruses, as recently recognized vectors of those viruses are present in this area. The low seroprevalence rate observed in this study suggests that SFSV is not likely to be of major medical importance in the Marseille area.

Link to the article: <http://onlinelibrary.wiley.com/doi/10.1111/j.1469-0691.2011.03509.x/pdf>

Key words: *Phlebotomus papatasi*, *P. perniciosus*, *P. ariasi*, sandfly fever Sicilian virus, seroprevalence, France.

VBORNET comment: 2010-08-26

Investigating the human exposure to sand fly fever Sicilian virus (SFSV) and antigenically-similar viruses in Marseille region (south-eastern France), Bichaud et al. found via immunofluorescence assay a seroprevalence rate of 1% (2/198) in residents of the area. Interestingly, this coincides with previous rates reported from France more than two decades ago. Also consistent is the observed rarity of *Phlebotomus papatasi*, the primary vector species for SFSV, in southern France, whereas *P.*

perniciosus and *P. ariasi* occur at high levels. Another sand fly-borne virus belonging to the same family as SFSV, the Toscana virus (TOSV), is an important pathogen responsible for human aseptic meningitis and is frequently observed in France, the vectors being reported to be common in southern France. This illustrates how data on vector population reflect the presence and activity of associated infections in human population.

Multilocus molecular and phylogenetic analysis of phlebotomine sand flies (Diptera: Psychodidae) from southern Italy.

Latrofa MS¹, Dantas-Torres F¹, Weigl S¹, Tarallo VD¹, Parisi A², Traversa D³, Otranto D¹.

¹ Dipartimento di Sanità Pubblica e Zootecnia, Università degli Studi di Bari, Strada Provinciale per Casamassima km 3, 70010 Valenzano (Bari), Italy

² Istituto Zooprofilattico Sperimentale della Puglia e della Basilicata, Contrada S. Pietro Pitumo, 70017 Putignano, Italy

³ Dipartimento di Scienze Biomediche Comparate, Università degli Studi di Teramo, Piazza Aldo Moro 45, 64100 Teramo, Italy

Acta Tropica 2011 May 25. [Epub ahead of print]

This study reports a combined analysis of mitochondrial and ribosomal DNA target regions of phlebotomine sand flies (Diptera: Psychodidae) from the Mediterranean region. A ~900bp long fragment of the mitochondrial DNA encompassing regions within *cytb* and *nd1* gene and the complete ITS2 ribosomal region (~500bp) were sequenced and characterized for *Phlebotomus perniciosus*, *P. perfiliewi*, *P. neglectus*, *P. papatasi*, and *Sergentomyia minuta*, captured in two sites of southern Italy. From one to eight mitochondrial haplotypes and from one to three ITS2 sequence types were found for the examined specimens according to the different sand fly species. The mean interspecific difference in the mitochondrial sequences was of 16.1%, with an overall intraspecific nucleotide variation from 0.1 to 2.8%. A higher interspecific difference (mean 25.1%) was recorded for the ITS2 sequence, with an overall intraspecific nucleotide variation up to 4.9%. The sequence types alignment of ITS2 region showed that all phlebotomine specimens possessed a split 5.8S rRNA, consisting of a mature 5.8S rRNA and a 2S rRNA separated by a short transcribed spacer. Phylogenetic analysis of the *Phlebotomus* spp. sequences, herein determined and of those available in GenBank™ were concordant in clustering *P. neglectus*, *P. perfiliewi* and *P. papatasi* with the same species collected from different geographic areas of the Mediterranean basin in four main clades for mtDNA and ITS2, respectively. This study demonstrates the utility of multilocus sequencing, provides a dataset for the molecular identification of the most prevalent phlebotomine sand flies in southern Europe and defines the phylogenetic relationships among species examined.

Link to the article:

http://www.sciencedirect.com/science?_ob=MIimg&_imagekey=B6T1R-52Y2W4Y-1-1&_cdi=4897&_user=3860242&_pii=S0001706X11001343&_origin=&_coverDate=05%2F25%2F2011&_sk=999999999&_view=c&_wchp=dGLzVlb-zSkzS&_md5=f58c1d9b24262173977078c866e79500&_ie=/sdarticle.pdf

Key words: *Phlebotomus perniciosus*, *P. perfiliewi*, *P. neglectus*, *P. papatasi*, *Sergentomyia minuta*, mitochondrial and ribosomal DNA, multilocus sequencing, phylogenetic relationships, Italy

VBORNET comment: 2010-08-26

Despite their potential utility in providing an unequivocal identification of sand flies and ulterior information on their ecology and vector capacity, no molecular datasets for mitochondrial and ribosomal DNA gene sequences have been generated for the simultaneous comparison of the most representative phlebotomine sand fly species of the Mediterranean region. The main goal of this study is to assess the genetic diversity within and among phlebotomine sand fly species collected in southern Italy and to compare them with those available from Mediterranean region, together with the analysis of their phylogenetic relationships. Latrofa et al. obtained and demonstrated the usable completed data set according to two DNA target regions. Such molecular data will also be useful for further investigations on the association between phlebotomine sand fly species genetic variability and their role as vectors of *L. infantum*.

4. VECTOR BORNE DISEASE EVENTS

The following information on relevant international conferences is available:

- EMOP – XI European Multicolloquium of Parasitology:
Cluj-Napoca, Romania, 25-29 July 2012.
More info at <http://www.zooparaz.net/emop11/>
- ICE – XXIV International Congress of Entomology:
Daegu, South-Korea, 19-25 August 2012.
More info at <http://www.ice2012.org/>

For the following events neither dates nor venues are known yet:

- WORLDLEISH – V World Congress on Leishmaniasis: will be organized in Brazil in 2013
- ISOPS – VII International Symposium on Phlebotomine Sand Flies: no date known.
- SOVE – Society for Vector Ecology: no date known.
- eSOVE – European SOVE: no date known.
- EMCA – European Mosquito Control Association: no conference planned in 2012.

