



Lyme *Borrelia* species identified in regions of the United States. Map courtesy of Rudenko, Golovchenko, Grubhoffer, Oliver.

New Research Dispels “Lyme Disease Doesn’t Exist in the South” Myth

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New research data confirms the Southeastern United States has infectious *Borrelia burgdorferi sensu stricto* strains and several other Lyme borrelia species - including the newly-identified *Borrelia kurtenbachii*, as well as *Borrelia bissettii* - species that may be human pathogens. Researchers Nataliia Rudenko, Maryna Golovchenko, and Libor Grubhoffer at the Institute of Parasitology of the Czech Republic and James H. Oliver, Jr. at the Institute of Arthropodology and Parasitology at Georgia Southern University presented their findings recently at the 2011 Ticks and Tick-borne Pathogens International Conference in Zaragoza, Spain.

In the first poster, **Genotypic diversity of southeastern *Borrelia burgdorferi sensu stricto*: distribution of *OspC* gene in southeastern United States**, the scientists explain they identified pathogenic strains of *Borrelia burgdorferi sensu stricto* (Bbss) in the Southeastern United States. Although several *Borrelia* species have now been discovered in North America and some are highly suspected as infectious, the species Bbss is proven to cause Lyme disease in humans. These findings further dispel the myth that there are no infectious Lyme disease strains in the Southeastern United States.

In another poster presentation, ***Borrelia kurtenbachii* is widely distributed in southeastern United States**, the researchers show that more species of the Lyme Disease Borrelia Group (*Borrelia burgdorferi sensu lato complex*) have been found in the Southeastern United States than in any other region of the country. *Borrelia americana*, *Borrelia andersonii*, *Borrelia carolinensis*, *Borrelia bissettii*, and *Borrelia kurtenbachii* have been confirmed here. *Borrelia carolinensis* and *Borrelia americana* were actually discovered by some of the same researchers in recent years.

While 3 to 4 Lyme Borrelia species are known to cause disease in humans in Europe, only the species *Borrelia burgdorferi sensu stricto* has been recognized as a pathogen in North America. This assumption, however, appears to be on shaky ground. In recent years, *B. bissettii* has been reported to induce disease in mice and has been found in symptomatic patients in the Western United States; in serum samples of Lyme disease patients in the Czech Republic; and in the cardiac valve tissue of a patient with endocarditis. However, there is now some confusion as to whether these patients were actually infected with the newly-identified *Borrelia kurtenbachii*, making it unclear whether *B. bissettii*, *B. kurtenbachii* or both of these Lyme Borrelia species may cause disease in humans. If proven, it would confirm that more than one species may cause Lyme disease in North America, which several researchers have suspected for years.

Other infectious Lyme Borrelia species remain high on the suspect list as the cause of Lyme disease symptoms in many southerners who have negative or only slightly positive test results. Lyme disease tests used to detect *Borrelia burgdorferi sensu stricto* may not detect other Lyme strains and species. In China, when western blot test criteria were adjusted to detect antibodies made against antigens in the indigenous Lyme borrelia, the test became more sensitive. As noted in a 1999 report by Felz et al., the South may need its own Lyme disease testing system. Patients are still waiting. Until then, medical providers are urged to remember that Lyme disease remains a clinical diagnosis and current tests are problematic.

We at Georgia Lyme Disease Association sincerely thank these researchers for their ongoing investigations into Lyme disease in the Southeastern United States.

To see the poster presentations, click on a title below:

Genotypic diversity of southeastern *Borrelia burgdorferi sensu stricto*: distribution of *OspC* gene in southeastern United States.

***Borrelia kurtenbachii* is widely distributed in southeastern United States**

To read more about Dr. Jim Oliver of Georgia Southern's IAP, please visit our [We Salute](#) page. Our [Lyme in the Southeast](#) page lists many of his valuable research publications.