A Conservation Medicine`s Realisation: Hemogregarines of Middle European Lizards and their presumptive vectors

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Background: Unicellular blood parasites of the apicomplexian suborder Adeleorina, collectively known as hemogregarines, are common, widely distributed, and speciose pathogens of all reptilian taxa. Lacertidae are specifically infected by members of the genera *Haemogregarina*, *Karyolysus*, and *Hepatozoon*, which use the blood cells of their hosts for maturing to gamonts. Among these pathogens, *Karyolysus* seems to be the most prevalent parasite in Palearctic lizards. Experimentally induced sporogony occurs in adult mites of the parasitic species *Ophionyssus saurarum*. But, epidemiological and biological data on lizard hemogregarines in Central Europe are scarce, especially concerning the incidence in lizards and mites, and the assumption of tick vectors.

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Karyolysus latus

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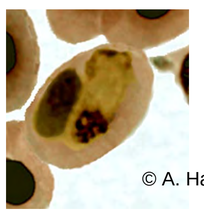
Karyolysus lacazei



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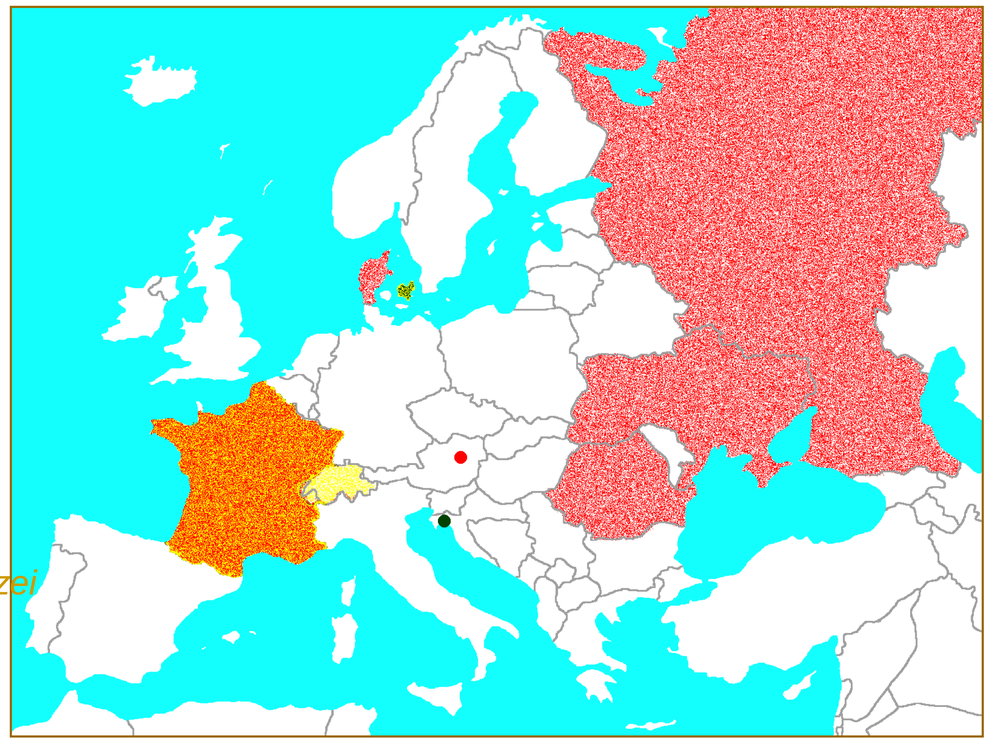

dots: own findings

Karyolysus lacertae = *K. lacertarum*

Karyolysus minor

Results of own field studies in Lower Austria, Carinthia, Croatia and Hungary:

In Lower Austria *K. lacertae* was detected in red blood cells of *Zootoca vivipara* associated with *Ixodes ricinus* ticks.

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In Croatia *K. latus* was detected in red blood cells of:

Algyroides nigropunctatus

Podarcis muralis

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Podarcis melisellensis

strongly associated with *Haemaphysalis concinna* ticks.

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Conclusions: Transmission of a lizard blood parasite by the bite of an infectious tick appears to be much more efficient than ingestion of transovarially infected mite nymphs, and ticks stuck to lizards are much more abundant in nature than molesting mite nymphs. Whether an European Karyolysus species may complete its life-cycle in some local tick species is unknown, but we hypothesize an association of palearctic Karyolysus species with ticks.

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