15. **Higher rat abundance and zoonotic pathogen prevalence and diversity in urban green: smart urban greening required?**

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Urban greening has become an increasingly popular strategy to improve urban life and human health. However, there are indications that the presence and extent of urban green may increase the abundance of wild rats and the risk for rat-borne zoonotic pathogens. Therefore, we investigated which environmental, socio-economic and climatic factors are associated with rat abundance, with a special focus on factors related to urban green. Furthermore, we tested all captured rats for 18 different zoonotic pathogens (bacteria, viruses and parasites) to investigate the relation between the amount of urban green and pathogen prevalence and diversity. We observed positive relations between rat abundance and both urban green and different proxies for food sources (restaurants, waste items and petting zoos). Additionally, we observed that the presence of ground-covering plants had a negative relation and the presence of mixed shrub forest and perennial plants had a positive relation with the relative abundance of rats. Furthermore, the carriage of *Bartonella* spp. and *Borrelia* spp. was positively associated with urban green, and we also observed a positive trend between pathogen diversity and urban green. Our findings corroborate that urban green is associated with both a higher abundance of wild rats and an increased prevalence and diversity of rat-borne zoonotic pathogens. We provide new insights that can support policy makers and city planners how to perform smart urban greening, in which urban green is designed to optimize its beneficial effects, while structurally reducing the carrying capacity for rats and thereby the potential risks for public health.

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