Key findings

1. Three major elements influence the risk of scout-tick contact

LANDSCAPE COMPOSITION | **LANDSCAPE CONFIGURATION** | **ACCESSIBILITY OF SUITABLE ENVIRONEMENTS FOR TICKS**

2. Importance of adding **variables related to exposure** when predicting the risk of human-ticks contact

HAZARD (H) related to vector and host ecology

HUMAN-TICK CONTACT

EXPOSURE (E) related to landscape attractiveness

Risk = f (Hazard , Exposure)

Scouts and ticks: which environmental conditions favor the contact ?

UCL Université catholique de Louvain

Background

Just as with forest workers or people practicing outdoor recreational activities, scouts are exposed to a risk of contact with ticks.

As children from age 3 to young adults (who join as leaders) can participate in scouting activities, scouts constitute a substantial fraction of the general population in terms of age and number. By focusing on scouts as the at-risk population, this study brings attention to the risk of an important sector of the general population, which has never been studied before.

The aim of this study was to assess the effect of landscape, land management and weather and climatic conditions on **scout-tick contacts** and thus gain insight into the environmental conditions that favor human-tick contacts.

Materials and Methods

931 scouts, originating from 27 sections, took part in the survey in summer 2009 to investigate the incidence of tick bites and of bitten scouts among scouts camps located in Belgium.

Independent variables were collected from weather station records and game management data or measured by Geographic Information System (GIS) on land use maps in four different buffer sizes.

Joined effects of landscape composition and configuration, weather, climate, forest and wildlife management and land ownership were examined by using multiple gamma regression with a log link on the residuals including interactions between factors.

Results

LANDSCAPE COMPOSITION impacts the risk of scout-tick contacts

- Proportion of arable land decreases the risk (H)
- Proportion of forests and semi-natural habitats increases the risk (H)

Related to (un)suitable environments for ticks

The risk is higher in a **complex, fragmented landscape**

- Fragmented forest is more attractive for hosts (H)
- A complex and fragmented landscape supplies more ecotones

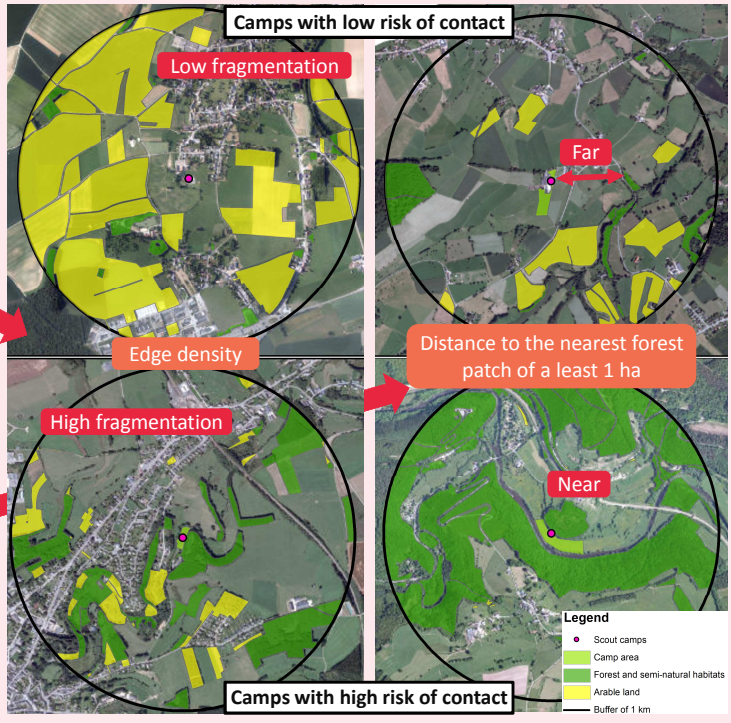
Have been associated to high tick abundance and so the risk of scout-tick contact is higher

- A complex and fragmented landscape makes forest more accessible (E)

Accessibility environments suitable for ticks significantly increases the risk of contact

- Proximity to the forest relates to better accessibility to suitable environments for ticks (E)

Favour contact to tick infested areas for scouts



Conclusions

- Our results shows that environmental conditions favour scout-tick contacts: landscape composition and configuration but also the accessibility to environments suitable for ticks influence the risk of contact.
- We also highlight the significant effect of both hazard and exposure: both hazard- and exposure- related variables contributed significantly to the frequency of scout-tick contact.

De Keukeleire, M[1,2], Vanwambeke SO[1], Somassè YE[2], Kabamba B[3], Luyasu V[1], Robert A[2]

[1] Earth and Life Institute (ELI), Georges Lemaitre Center for Earth and Climate Research, Université catholique de Louvain (UCL), Louvain-la-Neuve, Belgique
[2] Pôle Epidémiologie et Biostatistique (EPID), Institut de Recherche Expérimentale et Clinique (IREC), Faculté de Santé Publique (FSP), Université catholique de Louvain (UCL), Bruxelles, Belgique
[3] Division of Clinical Biology, Cliniques Universitaires Saint-Luc, Université Catholique de Louvain (UCL), Bruxelles, Belgique

mathilde.dekeukeleire@uclouvain.be

IREC Institut de Recherche Expérimentale et Clinique

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