

Distribution and ecology of soft ticks in Southern Africa:
historical review and recent data analysis.

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Afrotropical ticks from the genus *Ornithodoros* are vectors of the virus of African swine fever, a hemorrhagic fever with high mortality for which no vaccine nor treatment are available. Since 2007, this disease has spread over Europe, Asia, Pacific and more recently to the Caribbean. In Southern Africa, ticks take part in the sylvatic cycle of the disease: they transmit the virus to wild suids and act as a natural reservoir for the virus. Over a century of research of *Ornithodoros* ticks in Southern Africa brought valuable information about their ecology and distribution. We started an extensive review of the literature as well as a statistical analysis of field data recently collected in Mozambique.

Review of the historical literature show a large distribution of *Ornithodoros* ticks, in bush and savannah environments from the Equator Line (Gabon, Congo, Kenya) to South Africa. Those soft ticks can live in high altitude (up to 3000 meters above sea level). As endophilous ticks, they hide in caves and cracks. In the past, soft ticks of the *O. moubata* complex were frequently found in human buildings (rustic huts and pigsties). Sometimes, they were even found attached to their hosts: waterbuck, elephant, pangolin, lion, bushpig and small rodents. Many authors mentioned their presence in warthog, porcupine and antbear burrows where they can still easily be found.

In Mozambique, field surveys were carried out in 2020 and 2021 in the game reserve of Coutada 9. As a result, 88 sites were investigated for the presence of soft ticks using a standardized protocol based on manual sampling. Among the 88 sites, 24 were free of ticks, whereas in the other sites tick density varies greatly (from one to more than 500 ticks sampled in a single warthog burrow). In each site, environmental parameters were registered: altitude, habitat type, vegetation, distance to water, proximity to human buildings and soil characteristics. Statistical analyses indicate that habitat type is the only variable that explains variation in tick density. Surprisingly, we found more ticks in rocky areas used by warthogs for resting than inside warthog burrows. We believe that more field work is needed to widen our dataset and register other relevant parameters such as temperature and humidity inside tick habitats. Other approaches such as population genetics may also bring valuable complementary information to understand soft tick distribution.