Cervids have variable degrees of sociality, within and among species and oftentimes between sexes. The premise that social behavior confers a net fitness benefit is not novel nor is its corollary that pathogens carefully hitchhike on the evolutionary balance of costs and benefits of social behavior to ensure they persist. At the fine scale, however, there is still much to learn by understanding the role ecological contexts has on manipulating the ties that bind social animals, their shared affiliation or association, and the implication for fine-scale behaviors upon which pathogens persistence and spread depend. To better understand the potential dynamics of pathogen transmission and density we studied fine-scale social associations of elk in captivity and in the field across a range of conspecific densities. Here we will illustrate how density affects different scales of social behavior: from fine-scale pairwise social associations, to how pairwise social associations affect individual position in a social networks, and to how social network architecture affects pathogen prevalence for male and female elk. These results are then scaled up and discussed in the context of a spatially structured population elk where disease has historically been confined into one subpopulation. Though some surprises emerge during this synthesis, what is likely most remarkable is how similar are the patterns and outcomes across scales.