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UNBC TWS Fish & Wildlife Student Chapter

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Dept. of Biological Sciences,
University of Calgary

Friday

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3:30 - 4:30

LECTURE THEATRE

7-158

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

APPLYING SOCIAL NETWORK THEORY TO WILDLIFE

Social network analysis is increasingly used as a tool to infer relationships between pairs of individuals in social groups. Potential benefits of close associations range from decreased stress levels, information gathering, cooperation, increased survival and reproductive success, while the costs of close or many social ties can include increased susceptibility to disease transfer. In this talk I will report on the nature and benefits of social networks in two species, the European red deer (*Cervus elaphus*) and Rocky mountain bighorn sheep (*Ovis Canadensis*) for which we have longterm data sets. Red deer females are philopatric, and typically stay within the home range of their mother. We found that hinds closely associated with their mothers, sisters, daughters and other close relatives for most of their lives. These matrilineal groups were very cliquish and the degree of sociality and embeddedness of daughters within the social network closely matched those of their mothers. When looking for potential benefits of social ties, cliquishness, degree centrality, and matriline ID strongly affected the lifetime reproductive success of females. We also explored what happens to females that lose their close associates, such as mothers or sisters. Individuals who lost their mother had an increased risk of death but this trend was more pronounced, and persisted, in females compared to males. Bighorn sheep are very social and live in sexually segregated groups for most of their lives. We investigated the nature and potential benefit of social ties in bighorn rams, and found that rams form associations with relatives and same age peers. They exhibit both cooperative and controlling behaviours towards particular rams. It thus seems that both species benefit much more from being social than simply predator dilution effects, which have been typically put forward as the main driver for sociality.