

*Expanded abstract*

## Sexual segregation in reindeer (*Rangifer tarandus*) on the Seward Peninsula, Alaska

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Sexual segregation is common among north temperate ungulates and has been investigated for a number of species (Main and Coblenz, 1990). Adaptive advantages of this behaviour remain a matter of debate. On the Seward Peninsula, Alaska initial radiotracking data and observations of habitat use began in 1987 with the primary purpose to locate animals for herding and handling as well as to describe seasonal movements. At the time, herding strategies were relatively intensive in that bull, cows, and parturient cows were maintained in areas close to the corral and potentially disrupted any pattern of sexual segregation. Since 1990, however, herding is minimal and observations and radio-tracking data is beginning to suggest more defined habitat differences especially during calving. One hypothesis of particular interest is that cows with calves must chose habitats that provide effective safeguards for their young even if it means compromising nutrition. Bulls, on the contrary, have more flexibility. Polygynous males would enhance reproductive success by acquiring muscle and consequently size and dominance. Thus, they should utilize highly nutritious ecotypes as soon as they become available. In avoiding females with young they may also

increase their survival rates. Of particular interest in the continuing study is the potential implications sexual segregation has as a management tool to enhance productivity.

The Seward Peninsula, located in northwestern Alaska has a continental climate with windy, cool summers and long, cold winters. The study area is 392,000 ha and is divided into four ecological units: a). the coastal plains where grasses predominate; b). mountainous regions which tend to be devoid of vegetation with woody shrubs at lower elevations; c). rolling valleys which consist of low shrubs and grasses; and d). river floodplains and lowlands characterized by woody shrubs and sedges. In 1987, eighteen bulls and eight cows were radio-collared (Telonics, Mesa, AZ) and monthly flights were made from fixed-wing aircraft to locate animals and make observations of the habitats used and animal activities. Animals were located through to 1991. Locations were digitized and plotted by the Geophysical Institute at the University of Alaska Fairbanks utilizing an USGS transformation package. Although preliminary results were inconclusive about the degree of sexual segregation in 1987 a more intensive study that started in 1990 has began to

show some differences in habitat use by sex, particularly during calving. There are a number of implications for herding strategies and management goals aimed at productivity.

Typically, herders handle bulls in early June to remove antlers for sale to oriental markets. Initially, cows, cows and calves, and bulls were often rounded up at the same time and handled even though the only animals being cut were the bulls. Consequently cows would be handled more than once and during the process both stress, on cows and calves, and orphaning could well translate into economic losses. By maintaining the groups of bulls that tend to segregate anyway, herders should see a reduction in losses that result from unnecessary handlings. Si-

milarly, parturient cows have a number of postulated antipredator behaviours that may have been altered during the intensive herding during calving time. This may have enhanced predation by grizzly bears (*Ursus arctos*) on neonates which is purportedly high.

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### Reference

**Main, M. B.** and **Coblentz, B. E.** 1990. Sexual segregation among ungulates: a critique. - *Wildl. Soc. Bull.* 18: 204-210.

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