Rolf Rødven passed the Cand. scient. degree in Ecology in January 2003 at the Department of Biology, University of Tromsø, Norway. The title of his thesis was: ***Density, climate, age and life history in a semi-domesticated reindeer herd in Finnmark.*** The committee consisted of Prof. Jon E. Swenson, Agricultural University of Norway, as the external censor and Prof. Rolf A. Ims, University of Tromsø, as the internal censor. Supervisors for the thesis have been Dr. Nicholas J. C. Tyler, University of Tromsø and Dr. Mads C. Forchhammer, University of Copenhagen. Dr. Torkild Tveraa at the Norwegian Nature Research (NINA) has assisted during the Cand.scient.-project.

Rolf Rødven (b. 1974) grew up in Finnmark, where semi-domesticated reindeer (*Rangifer tarandus tarandus*) is a key species for both ecology and Sami culture. During mid-eighties the number of animals increased, which has been claimed to be a major cause of a decrease in production of meat in the herds. Northern areas, like Finnmark, are also subjected to severe variation in climatic parameters like amount of snow. Together with the long life span of reindeer, this allows interactions between external factors like density and climate and internal factors like the individuals age to complicate the mechanisms. Rødven early became interested in reindeer and ecology in northern areas, and this brought him to study biology at the University of Tromsø and at UNIS, Svalbard. This also led him to the Cand. scient.-project on the relationships between production, density, climate and age-structure in a semi-domesticated reindeer herd that grazes near to Karasjok in the inner areas of Finmark in wintertime and at Magerøya island (North Cape) in summertime. The herd has been studied in the Cuobbojeaggi-project since 1991. Rolf Rødven is now PhD-student in Tromsø, on a project about spatio-temporal variation in life-history traits in semi-domesticated reindeer.

Abstract: Population dynamics in ungulates are mainly influenced by variation in juvenile mortality and fecundity. In seasonal environments regulation has been suggested to occur through density dependent mortality in winter, while fecundity is affected by density independent variation in climate. This pattern seems however to change between species with different life history strategies and between individuals of different age within species. Analysis of variation in body mass, pregnancy and survival of calves in a reindeer-herd in Finnmark show that increasing density reduces body mass in spring and pregnancy rates among females. Density influenced body mass of females in autumn positively, but body mass of calves negatively. This suggests that females favor own mass gain over the growth of the calf when the density is high. Increasing amount of snow reduced body mass of calves and females in autumn, and reduced the survival of calves. Body mass and production differed between females of different ages. Reproductive output of the youngest and oldest females was lower than that of prime-aged females. Yet there was no difference in the effect of either density or snow on production between females of different age. This study shows that density and climate affect recruitment, but do not support the hypothesis about reproduction in seasonal environments. The results suggest that the body mass of the female may modify the effect of climate and density on the life history of the calf. The modification of seasonal pattern in survival and reproduction because of the mother's body mass is suggested to imply delayed responses to environment and persistent population fluctuations.

The complete thesis (in Norwegian with English legends) is available in pdf-format. The author's address is Dept. of Biology, University of Tromsø, N-9037 Tromsø, Norway (Rolf.Rodven@ib.uit.no), Ph: +47 776 46 883.