

Genetic variation in Finnish wild and semi-domesticated reindeer (*Rangifer tarandus*)

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The genus *Rangifer* comprises today of 10 living subspecies. The morphometric variation in skull and body characteristics of reindeer from various wild and semi-domesticated populations in Fennoscandia is well documented (Nieminen 1980, Nieminen & Helle 1980, Espmark 1981). The Finnish semi-domesticated reindeer are descendants of wild mountain reindeer. The transferrin locus in reindeer is highly polymorphic (Røed 1985). In the present study blood samples from 307 semi-domesticated reindeer from 6 different herding co-operatives and from 8 wild forest reindeer (*R. t. fennicus* Lönnb.) from Kuhmo were analysed for transferrin variability by starch gel electrophoresis during 1974 - 86. Liver and skeletal muscle samples from 36 semi-domesticated reindeer from 3 different localities and from 7 wild forest reindeer were also analysed for 15 enzymes.

A total of 31 presumed protein loci were identified. On the basis of electromorphs 11 of the enzymes were monomorphic: aldehyde oxidase (AO), alkaline phosphatase (APH) leucine aminopeptidase (LAP), malic enzyme (ME), aldolase (ALD), α -glycerophosphate dehydrogenase (α -GPD), phosphoglucomutase (PGM), glucose dehydrogenase (GDH), hexokinase (HK), isocitrate dehydrogenase (IDH) and malate dehydrogenase (MDH). Acid phosphatase (ACPH), esterase (EST), lactate dehydrogenase (LDH), superoxid dismutase (SOD) and

transferrin (TF) were polymorphic. All of the polymorphic loci found in muscle samples were also polymorphic in liver samples. Three phenotypes were observed at the *Acpb-2* locus and two at *Est-2*, *Ldh-2* and *Sod-4*.

Seven electromorphs of transferrin were found in the present study, corresponding to seven different alleles, named *TfA*, *TfC*, *TfE*, *TfG*, *TfH*, *TfI* and *TfK*. No *TfG*, *TfI* and *TfK* alleles were observed in wild forest reindeer. Altogether 13 alleles have been reported in reindeer from the Soviet Union and 12 alleles from southern Norway. The two alleles *TfC1* and *TfE1* have been the most common alleles in all populations of Scandinavian reindeer. The heterozygosity of alleles was high in semi-domesticated reindeer (mean 0.744) but rather low (0.402) in wild forest reindeer. The mean heterozygosity in previous studies has been 0.746 among the semi-domesticated herds and 0.764 among the wild populations. The genetic distance (*D*) (Nei 1972) between herds was highly variable, ranging from 0.021 between herds in Savukoski and Kuusamo to 0.326 between the wild forest reindeer in Kuhmo and the semi-domesticated reindeer in the Rovaniemi area.