

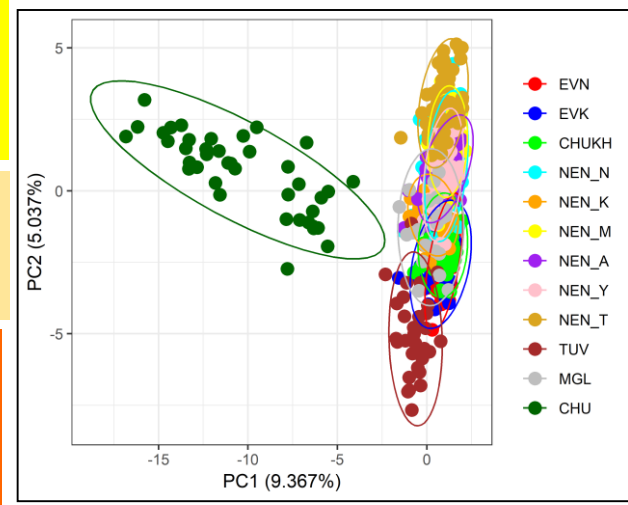
# PSIII-15 GENETIC VARIABILITY OF RUSSIAN DOMESTIC REINDEER POPULATIONS (RANGIFER TARANDUS) BY MICROSATELLITES

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**INTRODUCTION:** There are currently about 2.5 million domesticated reindeer located in nine countries among which the Russian Federation is the largest reindeer-breeding one. Domestic reindeer are bred across the Russian tundra from the Kola Peninsula to Chukotka and in the mountain-taiga zone.

Our **AIM** was to understand the genetic diversity and population structure of all domestic reindeer inhabiting the area from the Kola Peninsula in the west to Chukotka region in the east

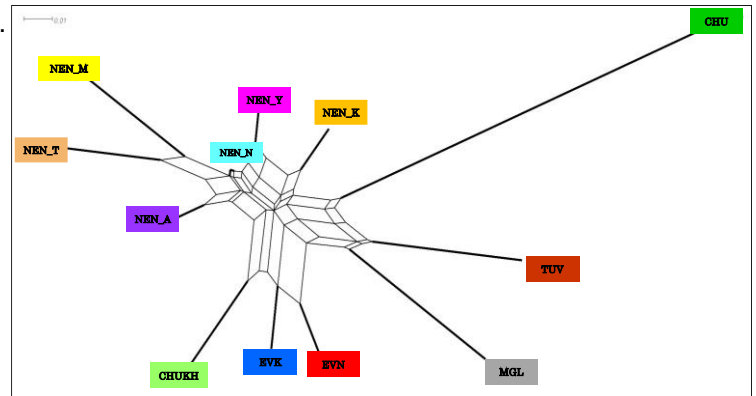


**Fig.2. PCA of the domestic Russian reindeer**

**MATERIALS:** The set included 568 individuals of the Nenets breed of the Komi Republic (NEN\_K, n=42), Nenets (NEN\_N, n=148), Yamalo-Nenets (NEN\_Y, n=46), Archangelsk (NEN\_A, n=47), Murmansk (NEN\_M, n=43), Taymyr (NEN\_T, n=52) regions; the Even (EVN, n=33), the Evenk (EVK, n=31), the Chukotka (CHUY, n=33) breeds of Yakutia; the Chukotka breed (CHU, n=40) of Chukotka Region; the Tuvian (TUV, n=32) and Mongolian (MGL, n=21) populations of the Tuva Republic and Mongolia. Calculations were done in R package "diveRsity", software SplitsTree 4.14.6., Structure 2.3.4, based on 14 STR

**Table 1.** Measures of genetic diversity within domestic reindeer groups.

Pop	n	$A_R$	$H_E$	$H_O$	$F_{IS}$ (95%CI > 0)
EVN	33	6.701±0.451	0.734±0.022	0.656±0.041	0.113[0.039;0.187]
EVK	31	7.635±0.442	0.762±0.018	0.682±0.029	0.102[0.027;0.177]
CHUY	33	7.474±0.376	0.732±0.027	0.608±0.04	0.169[0.084;0.254]
NENN	148	7.712±0.463	0.774±0.023	0.635±0.034	0.175[0.095;0.255]
NENK	42	7.277±0.465	0.763±0.024	0.65±0.031	0.149[0.091;0.207]
NENM	43	6.951±0.596	0.694±0.06	0.576±0.058	0.171[0.089;0.253]
NENA	47	7.153±0.528	0.75±0.025	0.638±0.043	0.147[0.05;0.244]
NENY	46	7.048±0.414	0.768±0.018	0.627±0.05	0.18 [0.051;0.309]
NENT	52	6.643±0.464	0.699±0.034	0.623±0.044	0.097[-0.02;0.214]
CHU	40	6.606±0.632	0.674±0.051	0.571±0.068	0.131 [-0.054;0.316]
TUV	32	6.988±0.824	0.712±0.03	0.551±0.053	0.229 [0.104;0.354]
MGL	21	6.206±0.418	0.695±0.038	0.483±0.064	0.324 [0.185;0.463]



**Fig.1. Neighbor-Net tree of the domestic Russian reindeer**

At PCA (fig. 2), we observed a clear clustering of CHU, MGL, TUV. While other groups showed the overlapping clusters

Neighbor-Net tree (fig. 1) showed that all groups united in accordance with their pedigree accessory and habitat region and three main clusters were formed: the Nenets reindeer from different regions, three breeds of Yakutia and Tuvian and Mongolian populations. CHU branched individually with a distance from others..

**CONCLUSION:** Here, we obtained more detailed information on genetic variability of Russian domestic reindeer, which would assist to fill current gaps in knowledge about this essential species for many indigenous peoples of the Far North.



**RESULTS:** Possibly due to constant animals exchange among farms of the Nenets region and thus renewing the gene pool of herds, a higher level of genetic diversity was found in NEN\_N ( $H_E=0.699$ ;  $A_R=6.086$ ) (table.1).

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