Population markers of the German origin red deer (Cervus elaphus hippelaphus) in Southern Russia: cytochrome b and the acoustics of rutting calls

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The “Voronezh” red deer population originated in XIX century from about 10 individuals introduced from Germany to the Southern Russia. This population serves for re-storing red deer on the European plain part of Russia, where the native red deer are extinct.

We describe the acoustic and genetic peculiarity of “Voronezh” red deer related to European red deer, Pannonian C.e. hippelaphus (mtDNA C haplogroup) and Iberian C.e. hispanicus (mtDNA A haplogroup).

AIM

September-October 2016, ~200 free-ranging stags

We analysed 467 bouts including in total 1335 stag rutting roars

METHODS

Acoustics: SongMeter SM2+

Genetics: MEGA 6 Network 4.5

Voronezh red deer: 3 locations – 44 samples
Iberian red deer, Spain: – 23 samples
Pannonian red deer, Hungary: – 7 samples

Acoustic results

Parameter Voronezh Pannonian Iberian

Roars per bout 2.85±1.89 3.18±2.17 2.11±1.71

Main roar

Duration (s) 2.46±1.14 1.13±0.50 1.90±0.50

f0max (Hz) 175±60 168±61 224±34

Main common roar 66 % 83 % 99 %

Main harsh roar 34 % 17 % 11 %

Main roar = high frequency roar 56 % 57 % 94 %

Acoustic traits separate Voronezh red deer from both Iberian and Pannonian red deer.

Genetic traits indicate that Voronezh red deer are strongly different from Iberian red deer and close to Pannonian red deer.

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