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Evaluation of the hybridization between the domestic cat and the European wildcat in the Walloon region

Clotilde Lambinet, Vinciane Schockert, Roland Libois
 Université de Liège, LIÈGE, Belgium

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Nowadays, in Europe, the wildcat is represented by fragmented populations whose genetic integrity is considered to be seriously threatened by crossbreeding with widespread free-ranging domestic cats.

The problem of hybridization of the wildcat (*Felis silvestris silvestris*) with domestic cat (*Felis silvestris catus*) being highlighted in several neighbouring countries in Europe, we wanted to investigate the situation in Belgium and especially in Wallonia.

Thus, 167 cats with 11 microsatellite loci were genetically analyzed. The programme STRUCTURE clearly identified two distinct genetic cluster corresponding to on the one hand, wildcats and on the other hand, domestic cats. However, 13.17% of the whole sample are considered as hybrids. In total, 80 cats were determined as domestic cats, 65 as wildcats and 22 as hybrids. 17.86% and 7.31% of the cats respectively presumed 'wild' and 'domestic' regarding their phenotypic characters are hybrids.

Significant genetic differentiation ($F_{st} = 0.11$, $p < 0.001$) between domestic and wild cats suggests that the Walloon population of *F. silvestris silvestris* has generally maintained its identity and genetic integrity.

Moreover, the study confirmed that the range of wildcat in Wallonia is in progression to the north of its previous range (env. 1850).

Extensive monitoring of genetic integrity of wildcat populations could lead to elaboration of a wildcat conservation action plan (at national and international levels), particularly in areas the most affected by hybridization.