Preliminary results from a combination of traditional and eDNA-based otter surveys in Hungary

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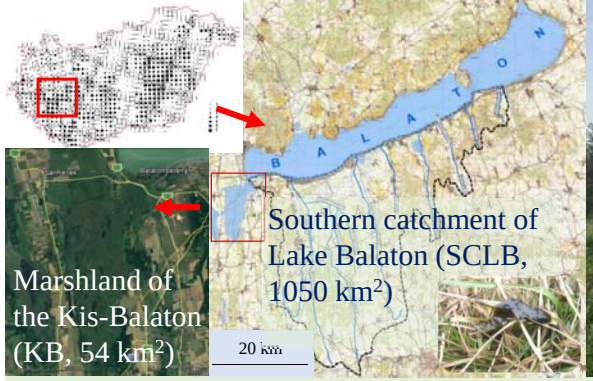

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Background

- stable otter (*Lutra lutra*) population in Hungary
- little knowledge on the density or demography of otter populations regionally
- little information on the movements of individuals

Aims

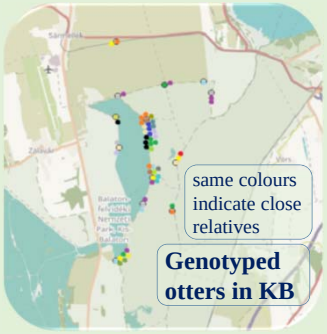
- to determine the effectiveness of an eDNA survey on spraint/anal jelly
- to compare traditional methods (standard survey and monitoring) with non-invasive genetic-based estimates
- to examine the genetic structure of the otter population in a catchment area and a strictly protected marshland

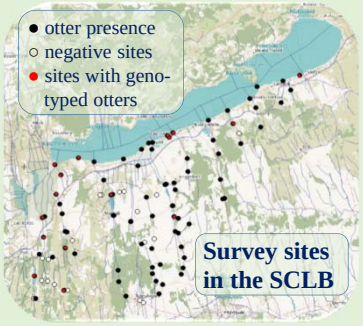
Methods

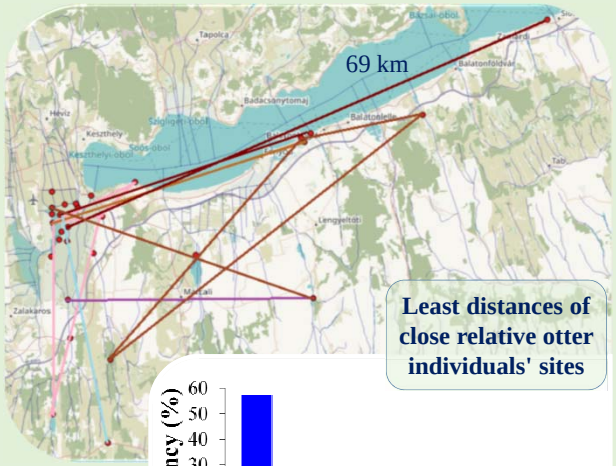
- one survey per location in SCLB (Reuther et al. 2000)
- 1.5-year monitoring, sampling every 6-weeks in KB
- otter spraint and anal jelly collection
- spraint density index (n/100m)
- capture-mark-recapture, minimum number alive
- estimated otter density (number of otters genotyped/km²)

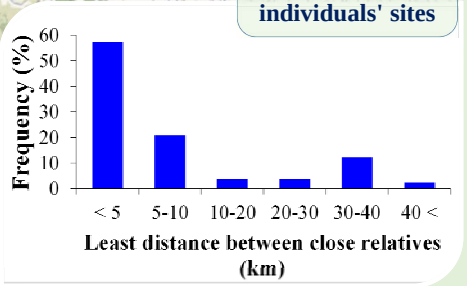
- sample storage at -80 °C until analysis
- DNA isolation with QIAamp Fast DNA Stool Mini Kit (Qiagen) – modification of the protocol
- samples were amplified with 9 microsatellite markers by Dallas and Piertney (1998) and Dallas et al. (1999)
- genotypes determined from 3 amplifications/sample
- UPGMA tree construction from genetic distances

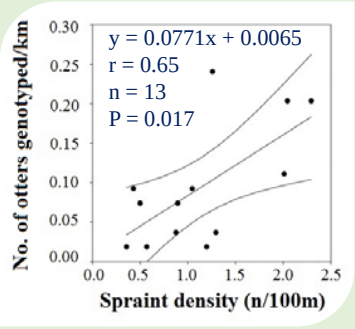
Results

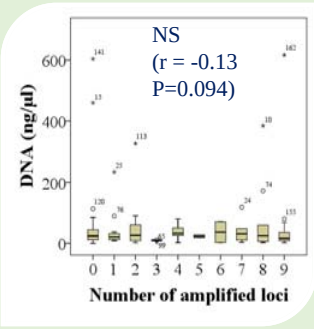




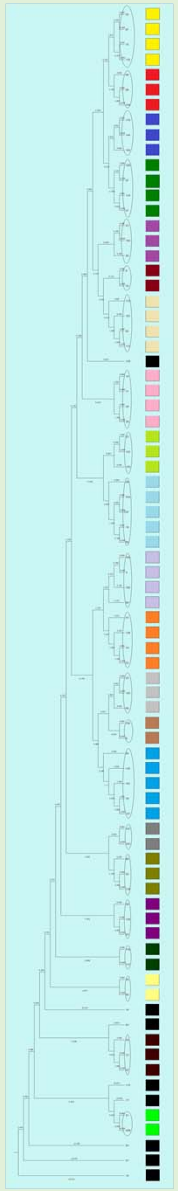








Dallas, J.F. et al. (1999): Genetic diversity in the Eurasian otter, Lutra lutra, in Scotland. Evidence from microsatellite polymorphism. Biol. J. Linn. Soc. 68: 73-86.
Dallas, J.F.; Piertney S.B. (1998): Microsatellite primers for the Eurasian otter. Mol. Ecol. 7: 1248-1251.
Reuther, C. et al. (2000): Surveying and monitoring distribution and population trends of the Eurasian otter (Lutra lutra). Habitat 12, Hankensbüttel, Germany.



Conclusions

- high ratio otter presence has proven in the region
- a high number (n=78) of otters genotyped, regionally
- „capture" of individuals once, or in case of „recapture" in the same locations
- mean geo distance of closely related individuals: 9-10 km, with outlier values
- number of amplified loci and DNA quantity has not been related
- spraint density and otter density indices have been related in the marshland of KB
- **applicability of experience: species and habitat conservation**