Genetic Determination of Migration Strategies in Large Soaring Birds: Evidence from Hybrid Spotted Eagles

GENETICHESKA OBUSLOVLENNOST MIGRACIONNYH STRATEGIJ U KRUPNYX PTIČ, ISPOLZUJUJUЩIH PARENIJE: PODTVERЖDENIE NA PRIMEREE GIBRIDNYX PODORLIKOV

Väli Ü. (Estonian University of Life Sciences, Tartu, Estonia)
Mirski P. (University of Białystok, Białystok, Poland)
Sellis U. (Eagle Club, Hauka, Estonia)
Dagys M. (Nature Research Centre, Vilnius, Lithuania)
Maciorowski G. (Polish University of Life Sciences, Poznań, Poland)
Вяли Ю. (Эстонский Университет Естественных Наук, Тарту, Эстония)
Мирски П. (Университет г. Белосток, Белосток, Польша)
Селлис У. (Eagle Club, Хаука, Эстония)
Дагыс М. (Центр Исследования Природы, Вильнюс, Литва)
Мациоровский Г. (Университет Естественных Наук г. Познань, Познань, Польша)

Contact:
Ülo Väli
ulo.vali@emu.ee
Pawel Mirski
mirski.pawel@gmail.com
Urmas Sellis
urmas@kotkas.ee
Mindaugas Dagys
dagys@ecoi.lt
Grzegorz Maciorowski
gmaclanga@gmail.com

What is guiding soaring migratory birds to choose right direction for migration and right path during the migration and to find right place for wintering? Would be easy to say – the instinct. But is it the instinct to follow individuals of the same (or similar) species or instinct to choose own (right) migration path. Or both? The relative contribution of genes and environment in shaping the living world is one of the crucial questions in science. Genetical predominance for migration is predominantly genetically determined in passerine birds (“clock and compass” mechanism), while in large soaring birds, it is presumed that social (cultural) factors play the largest role.

Hereby we show that genetic determination in soaring birds is also more important than hitherto ascertained. We used GPS-telemetry to compare the autumn journeys and wintering ranges of two closely related large raptorial bird species (Lesser Spotted Eagle – 27, Greater Spotted Eagle – 21) and hybrids between them (14). That is remarkable part of GSEs and hybrids population on western margin of the range. Hybrids timed their migrations similarly to one parental species but had wintering distributions and home range sizes like the other. Tracking data was supported by ring recovery and habitat suitability modelling. These results suggest a strong genetic influence on migration strategy via a segregated dominance effect, although it does not rule out the contribution of social interactions. No differences between sexes was found. We wish maybe, to find easy solutions, but...
By today, there is more data about these species and we can compare if new data suit for results of the research described above, e.g. Belorussian Clanga-project. As well as in the future, if you will have tracking data of different species – there is possible to look these data considering current study.

These appear to be complex.