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Change of habitat preferences of the Common Kestrel: dynamic of the process, possible causes, benefits

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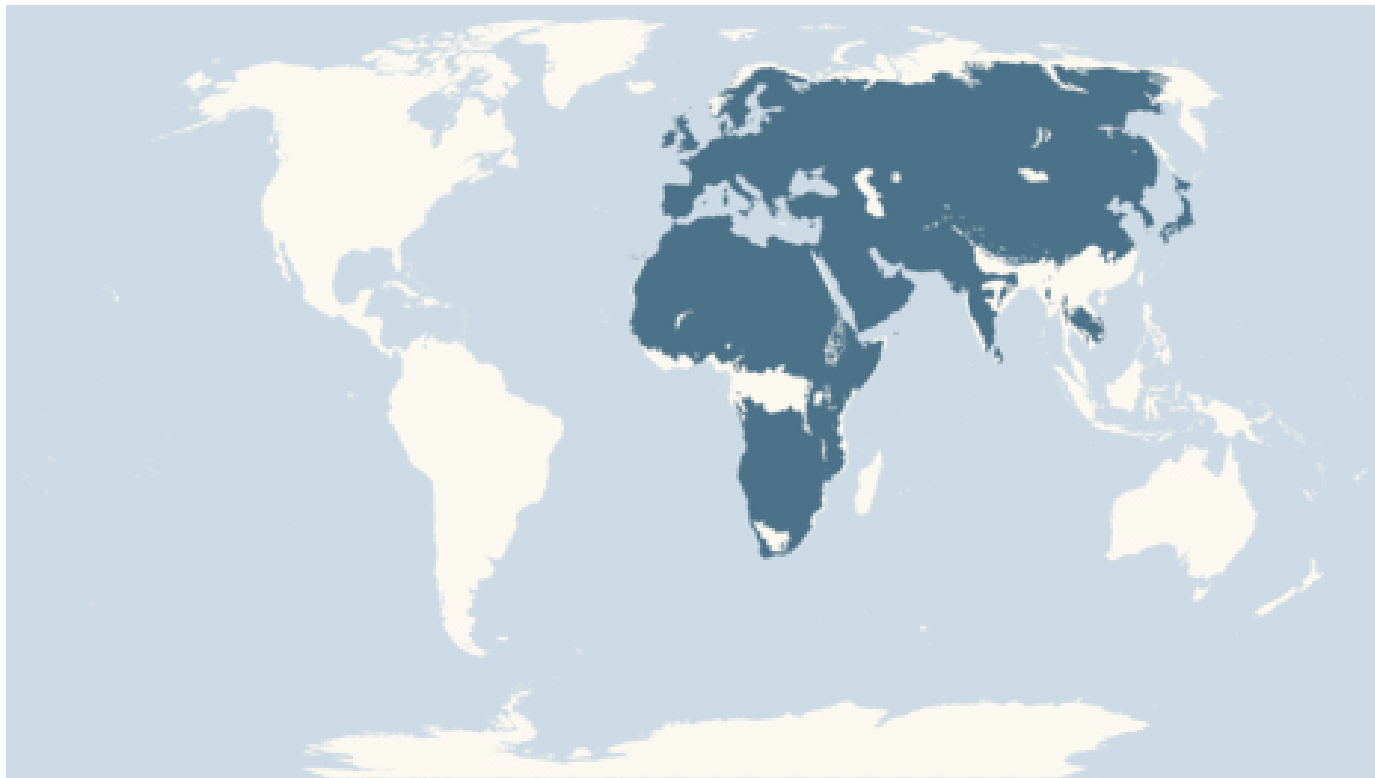
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Проблемы эволюции птиц: систематика, морфология,
экология, поведение , 23-25 сентября 2013 г.*



Areal

Kestrel is a widespread species, found throughout Europe, Asia, and Africa. Its range spans from Great Britain to China and as far south as South Africa. In Europe, *the Common Kestrel* is migratory and winters in southern Europe and sub-saharan Africa. However, the majority of the breeding population in Europe is non-migratory. ("Falco tinnunculus", 2004; Village, 1990)



Species range provided by WWF's Wildfinder



Habitat and nesting

Common kestrels prefer open, grassy fields and farmlands, which give them sufficient open areas to hunt. They can sometimes be found in forested areas and marshlands. Common kestrels occupy a wide range of altitudes, from sea level to almost 5000 m. (Channing, 2006; Shrubbs, 1993; Village, 1990)

Urban, suburban and agricultural habitats

Common kestrels nest on ledges, in buildings, in trees, or use abandoned nests of other bird species.





Study area



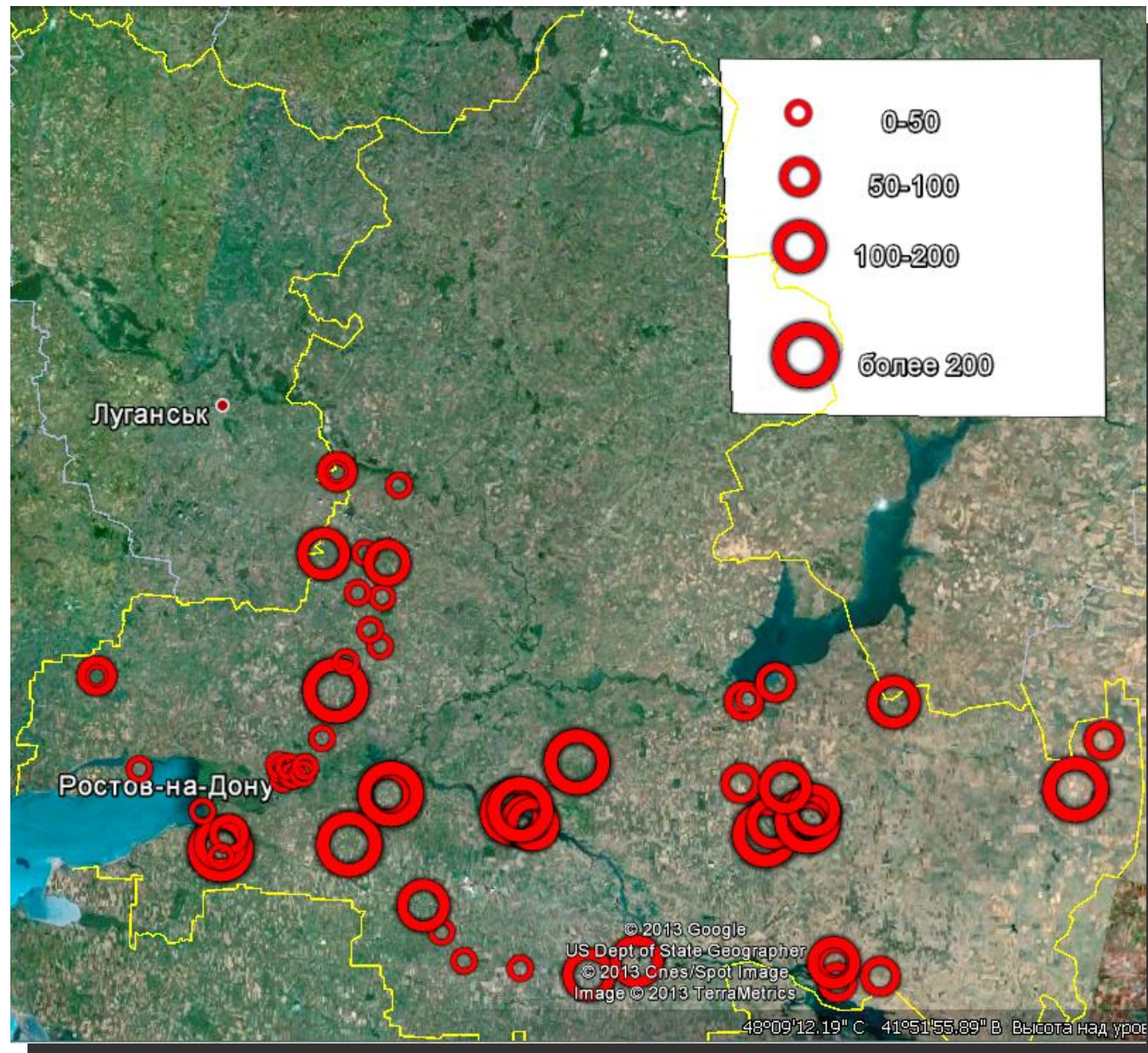
Density of nesting in the rookery in the Manych valley



The Black Locust *Robinia pseudoacacia* is the dominate species in forest belts with rookeries

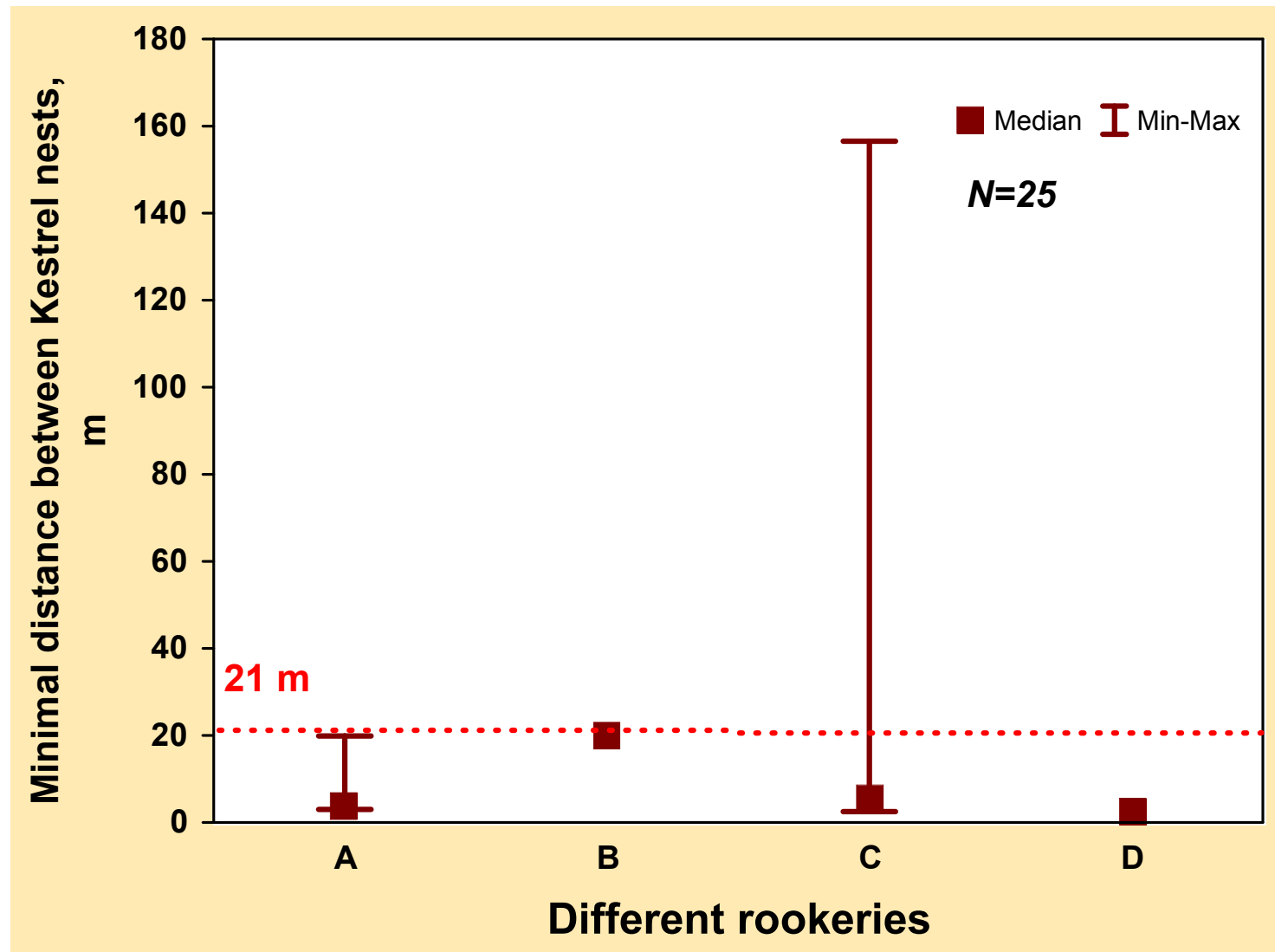


Distribution of rookeries in 2013





Minimal distance between Kestrel nests in the rookery in the Manych valley



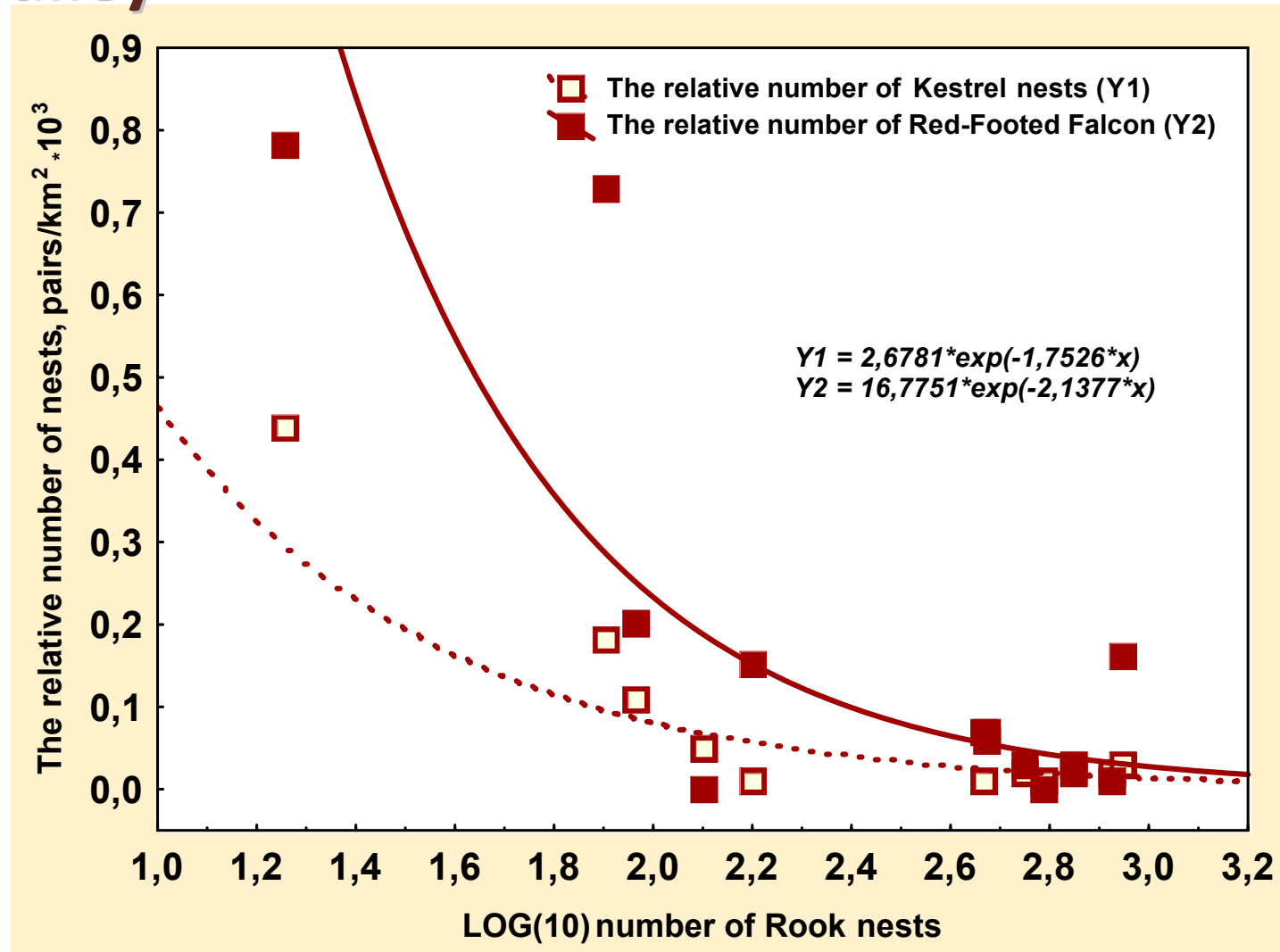


**Breeding density of the Common Kestrel
in wood habitats (rookeries)
 $0,04 \cdot 10^3$ - $2,5 \cdot 10^3$ pairs/km²**

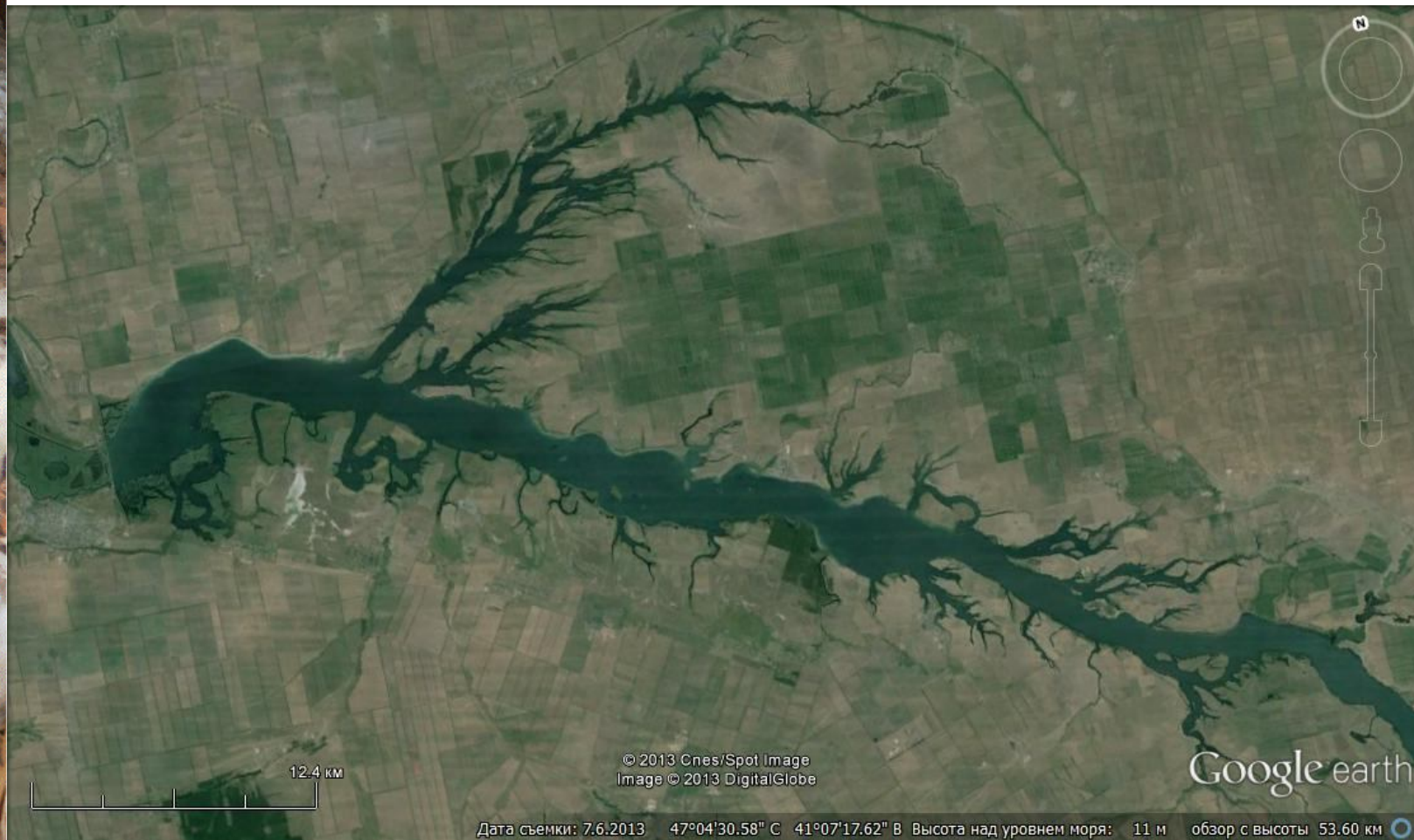




Relative number of Kestrel and Red-footed Falcon nests vs. LOG number of Rook nests in the rookery in the Manych valley



Veselovsky reservoir – Wetland International





Artificial forest belts



Steppe



Fields



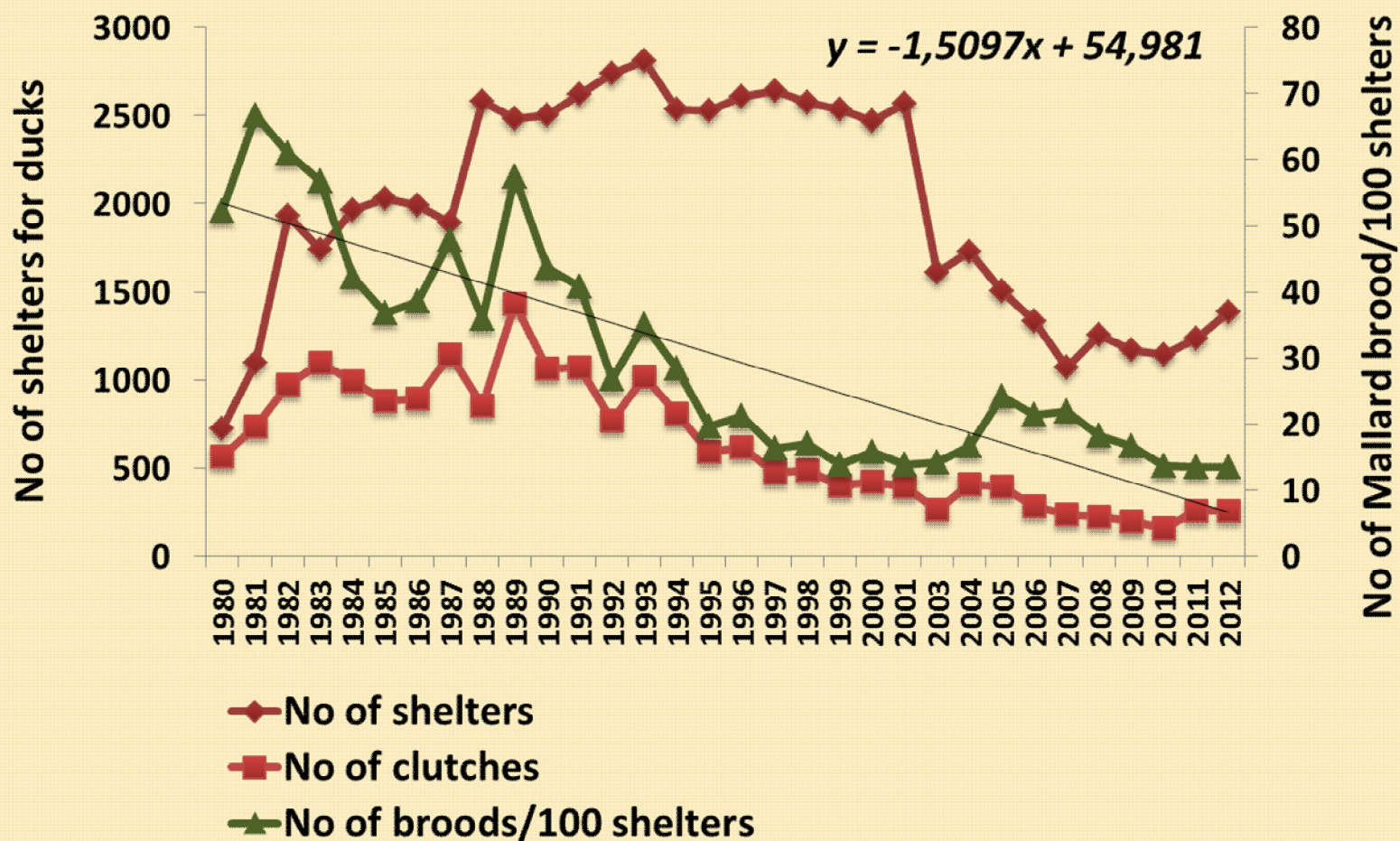
Steppe





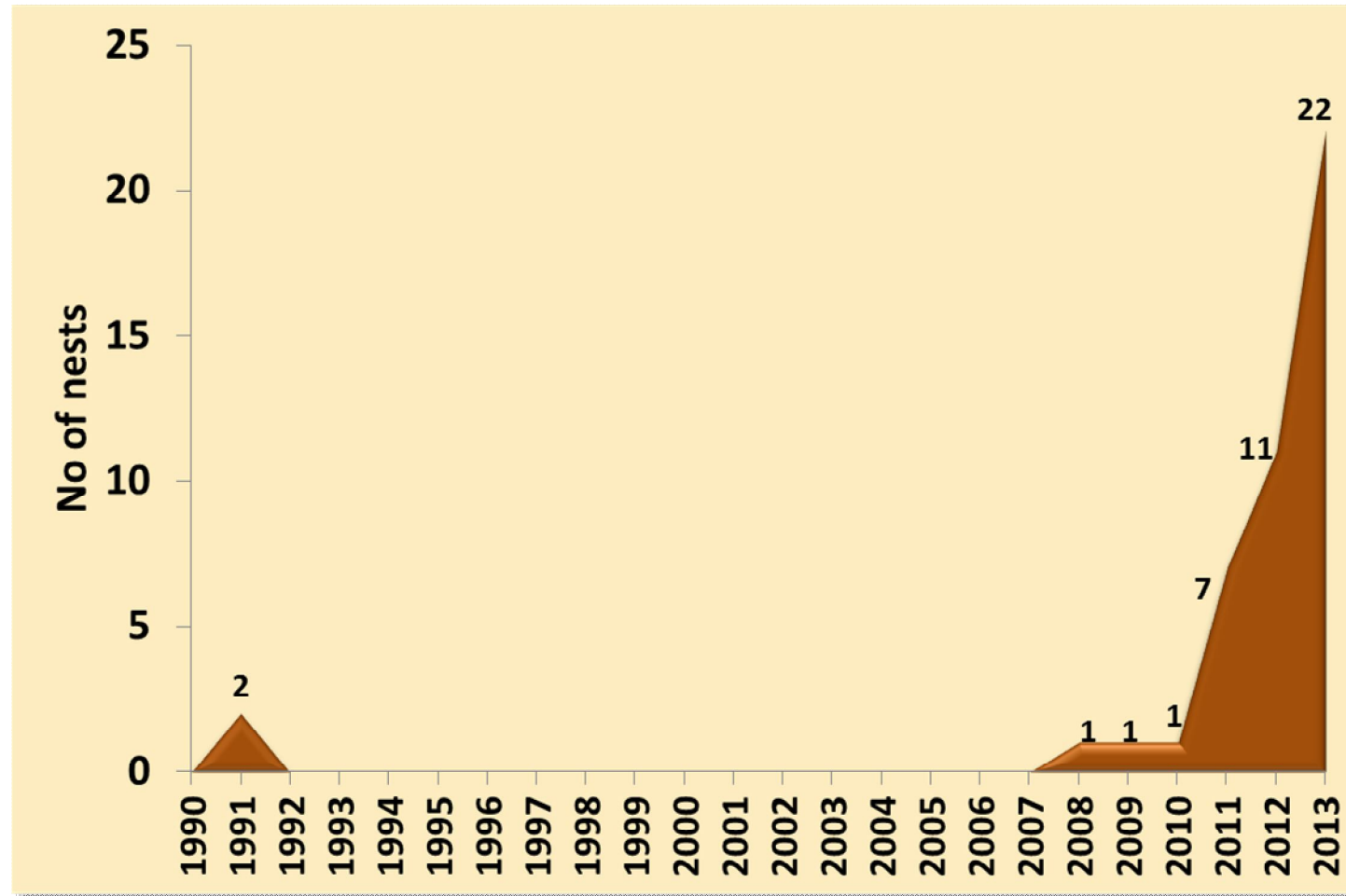
Artificial shelter for breeding ducks

Breeding of the Mallard in artificial shelters on Veselovsky reservoir (1980–2012)

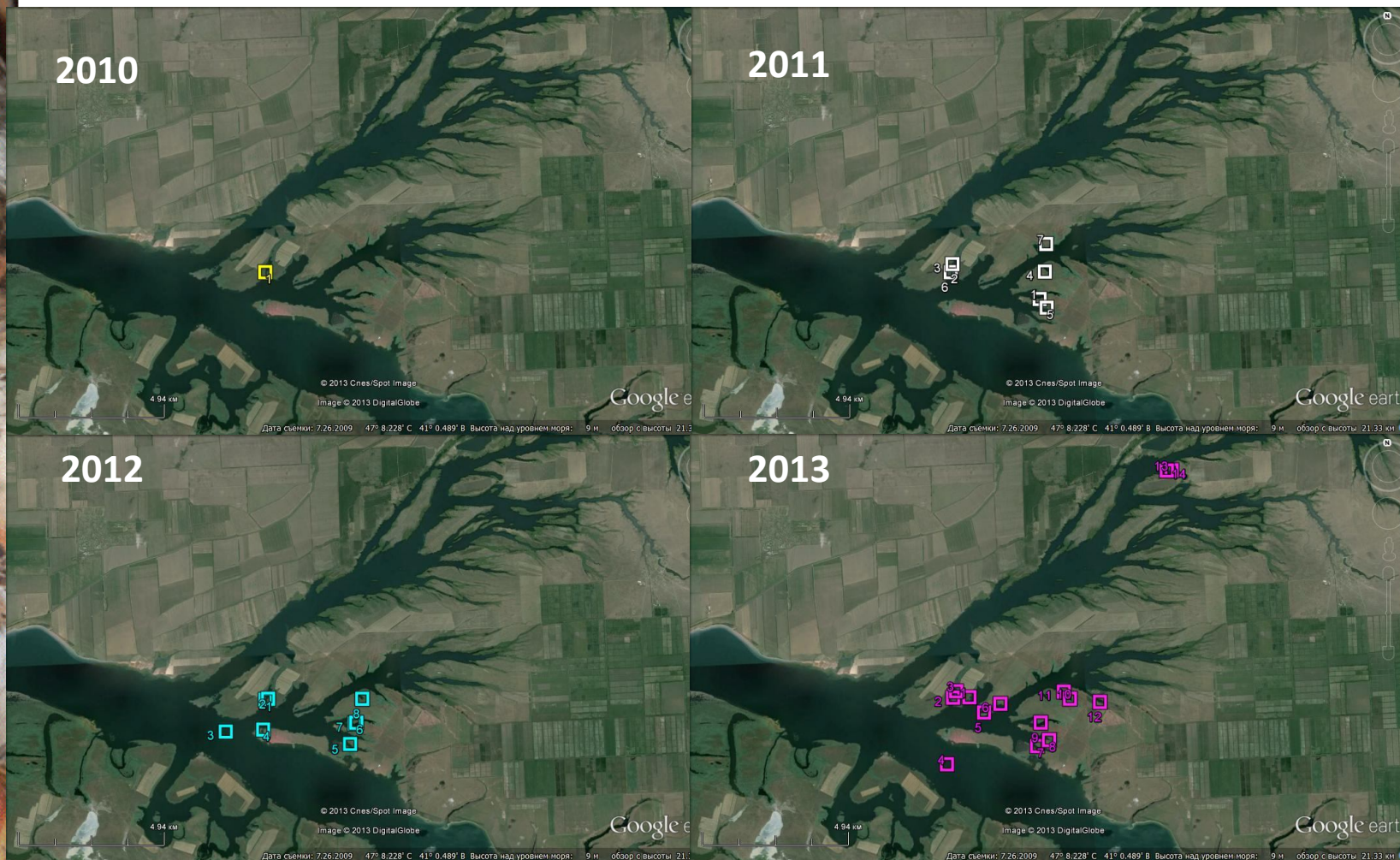
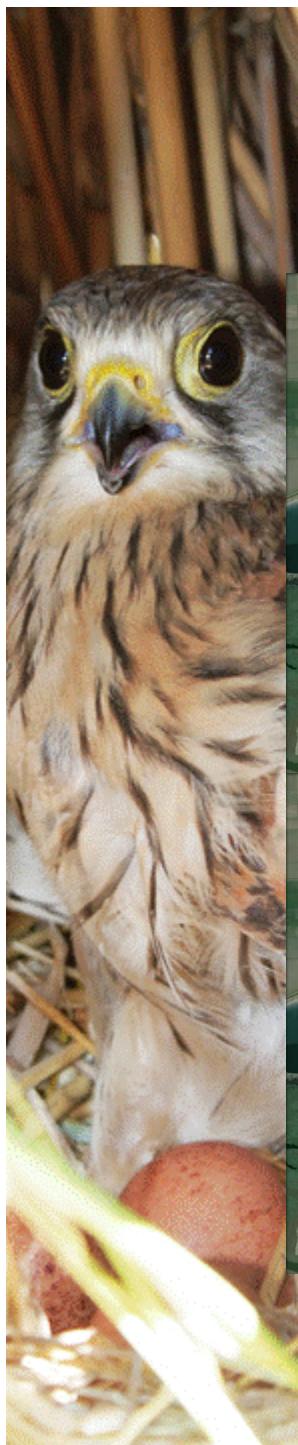




Year's dynamic of the Kestrel breeding in reed habitats



Kestrel nests distribution in reed habitat, 2010-2013



Typical nest of the Kestrel in the Rook colony (wood habitat)



Typical nest of the Kestrel in the reed habitat (artificial shelter for ducks)



Food items of the Kestrel breeding in the reed habitat

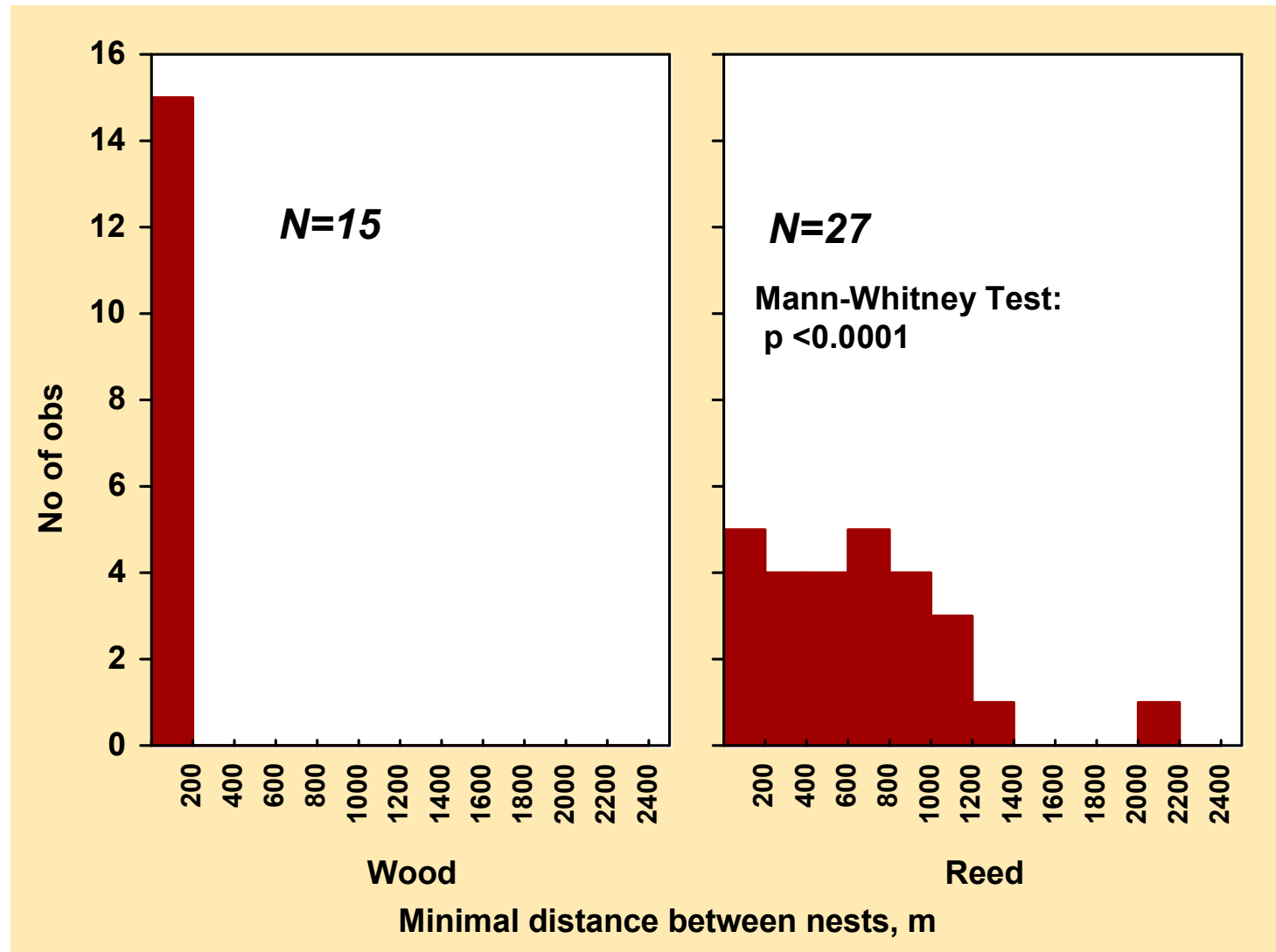
Hierophis caspius (Gmelin, 1789)

Microtus arvalis



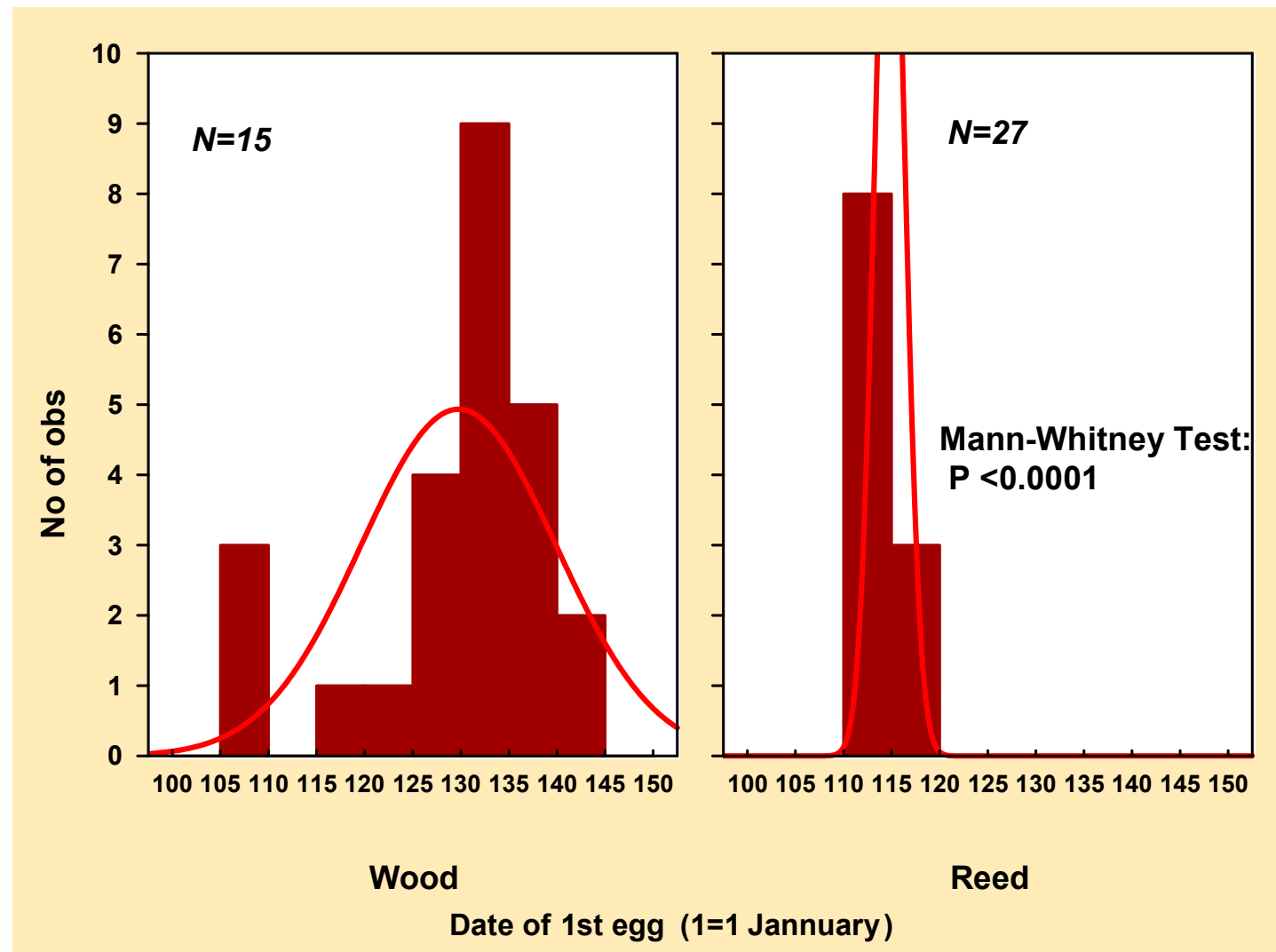


Variation of distance between the Kestrel nest in wood and reed habitats



Variation of clutching date of the Kestrel

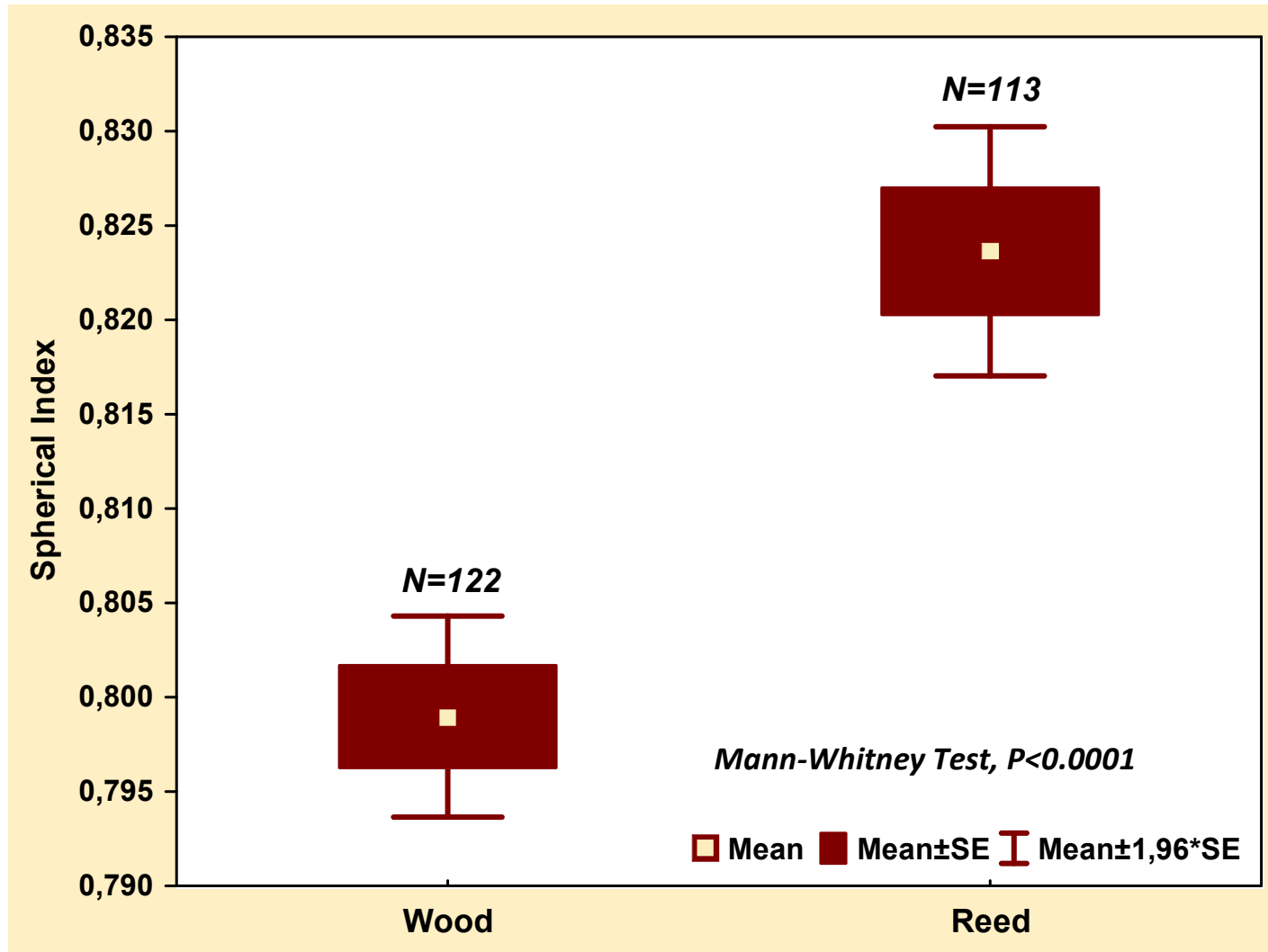
Kestrel in wood and reed habitats





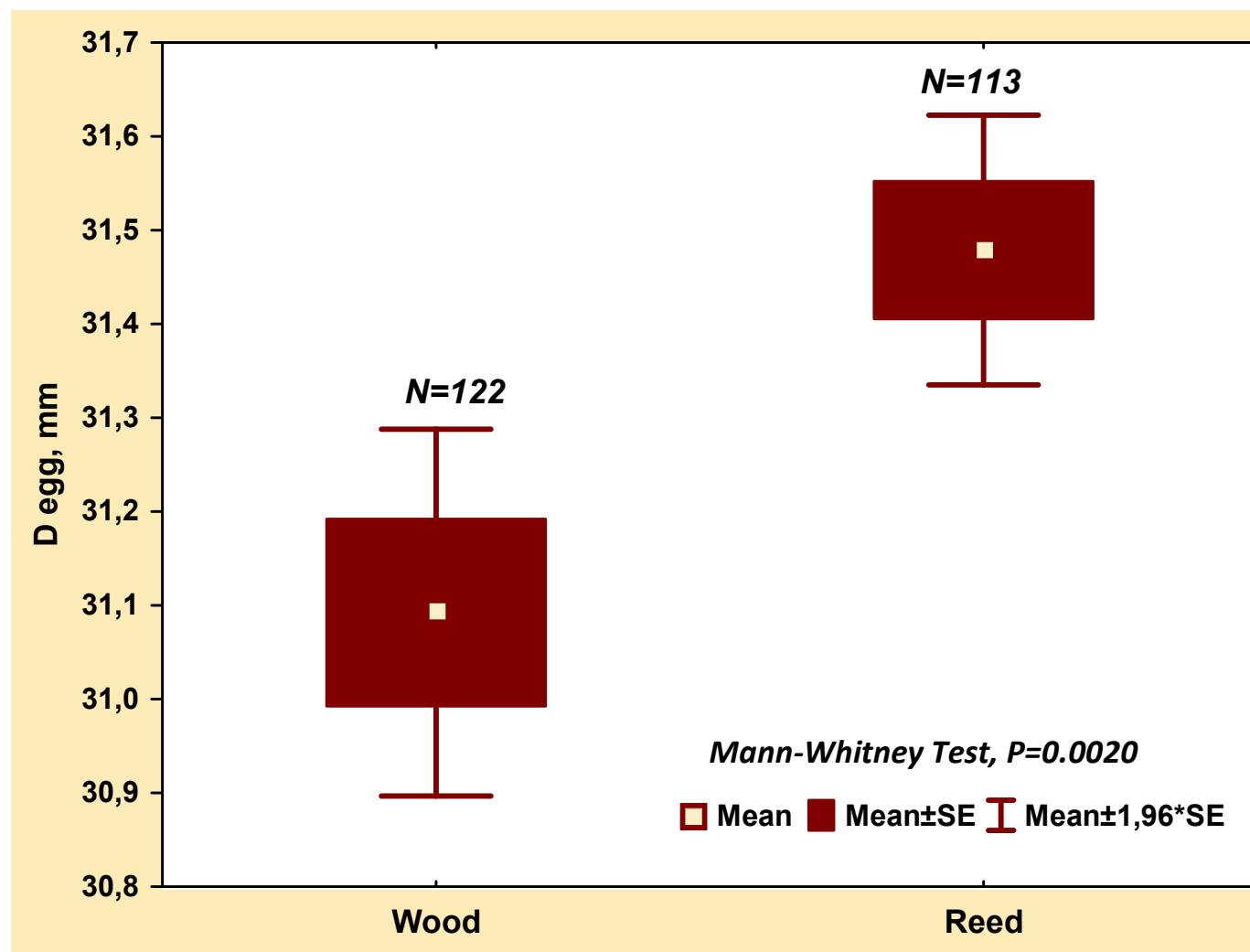
Egg Spherical Index of the Kestrel breeding in wood and reed habitats

$$Sph = D/L \times 100 \text{ (Myand, 1988)}$$

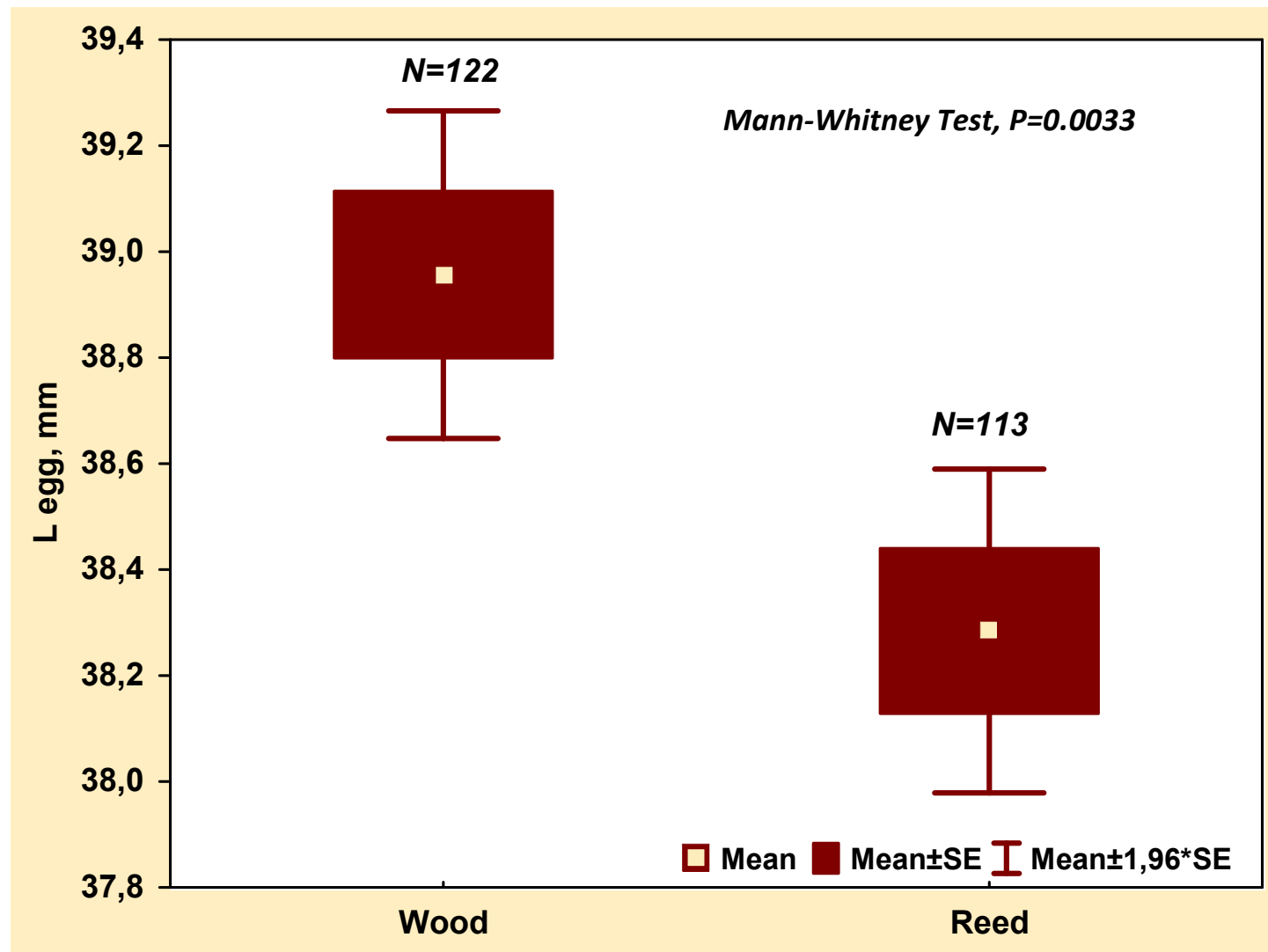




Egg Diameter of the Kestrel breeding in wood and reed habitats



Egg Length of the Kestrel breeding in wood and reed habitats





Conclusions

- Thus, local population of the Common Kestrel breeding in the reed habitat does not equal with population occupied nests of Rooks in wood habitats. For example there is difference in egg shape determined by size of female in two habitats (wood and reed).
- No significant variation of such important population traits like as egg volume and clutch size, correlating with breeding success, endorse to conclude that the reed habitat comparing with forest belts on this time of reproductive cycle is looking as optimal.
- Profit of breeding in the reed habitat could be a decreasing of a competition on nesting sites with another species like as the Rook and Red-footed Falcon. Aggressive behavior directed on host or competitor species need an additional energetic resources. In which case could be presume, that potentially parents' success on background of low interspecific competition could be more.



Conclusions

- Another potential profit could be obtained in case of early start of breeding. In this case if clutch will be failure there is more chance to form new one in same season.
- Penetration of the Kestrel in new breeding habitat, not ordinary for species, could be explained by different causes: increasing of local population, cutting down a trees in forest belts by local people and degradation of wood habitats linked with dry period of climatic cycle, and elevation of level of interspecific competition in early inhabited breeding habitats.
- Our study adds new evidences on ecological plasticity of the Common Kestrel, inhabited a new breeding habitat for a short time period.

Thank you for attention!

