A comparison of peregrine *Falco peregrinus* and lanner *Falco biarmicus* trophic niche in Sicily

Elisa Vitale, Enrico Guzzo, Salvatore Bondi, Nicola Antioco, Enrico Schifani, Rosario Mascara, Maurizio Sarà
Section Animal Biology of STEBICEF Department, Palermo University (I). E-mail: asilevitale@gmail.com

Prey availability is a crucial factor for the reproductive success of apex predators and the analysis of their diets can provide meaningful information about the quality of their habitats. In Sicily the declining lanner falcon *Falco biarmicus feldeggii* and the increasing peregrine falcon *Falco peregrines brookei* share similar habitats and trophic needs. By studying their current and past diets, we have investigated whether the characteristics of their foraging ecology could explain these different demographic trends. In 2014-2016, we identified 805 peregrine and 250 lanner Vertebrate prey from 15 peregrine and 6 lanner nests, and compared our dataset with previous data from Sicily (Peregrine 1978-81; Lanner 1981-88). The average number of Vertebrate prey in peregrine nests (53,7 ± 28,7) was higher than in lanner nests (42,0 ± 25,6). Expectedly, peregrine preyed exclusively upon birds, while lanner upon birds (92,9%), small mammals (4%), and reptiles (2,4%). Orioles and common swifts were significant prey for the former, while the european rabbit was important for the latter in terms of biomass. Pigeons, starlings and magpies formed the majority of prey for both species, and collared dove, previously absent in Sicily, appears in their current diet. The average avian prey was smaller for peregrine (97,7 g) than for lanner (122,5 g). Over decades, the lanner richness of prey species (S) decreased (from 55 to 33) while the one of peregrine increased (from 38 to 63). Alfa-diversity index showed a similar figure, while dominance as expressed by the Simpson index (1-D) was lower in present lanner diet (0,83) than in past lanner, as well as in past and present peregrine diets (all indexes >0,90). Trophic niche overlap between the past and present datasets is medium according to Whittaker's index (0,44 peregrine; 0,48 lanner; 0,42 peregrine/lanner past; 0,48 peregrine/lanner present). Lanner preyed also on insects in both periods, with considerable differences (npast = 341 and ncurrent = 2) which can be attributed to different seasons of data collection. The two predators are responding to variations in habitats and prey populations; however the more aerial-hunting peregrine, demonstrates to be flexible and more successfully adapted to the alteration of traditional agro-ecosystems.