

Individual diet specialisation in sparrows is driven by phenotypic plasticity in traits related to trade-offs in animal performance

Maldonado, Karin

Newsome, Seth D.

Razeto-Barry, Pablo

Ríos, Juan Manuel

Piriz, Gabriela

Sabat, Pablo

© 2018 John Wiley & Sons Ltd/CNRS Individual diet specialisation (IS) is frequent in many animal taxa and affects population and community dynamics. The niche variation hypothesis (NVH) predicts that broader population niches should exhibit greater IS than populations with narrower niches, and most studies that examine the ecological factors driving IS focus on intraspecific competition. We show that phenotypic plasticity of traits associated with functional trade-offs is an important, but unrecognised mechanism that promotes and maintains IS. We measured nitrogen isotope ($\delta^{15}\text{N}$) and digestive enzyme plasticity in four populations of sparrows (*Zonotrichia capensis*) to explore the relationship between IS and digestive plasticity. Our results show that phenotypic plasticity associated with functional trade-offs is related in a nonlinear fashion with the degree of IS and positively with population niche width. These findings are opposite to the NVH and suggest that among individual diffe