**Using comparative methods to investigate welfare in captive Psittaciformes: Are there ecological determinants?**

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Some wild species thrive in captivity, while others exhibit breeding or behaviour problems. Focusing on parrots, we completed a comparative study to identify ecological determinants of welfare among wild species in captivity. Our welfare measures were: species-typical rates of feather-damaging behaviour (FDB) and other stereotypic behaviours (SB), calculated from responses to a pet owner survey that yielded data for 53 species; captive reproductive rates (chicks/pair/year) published for 122 species (and corrected for natural annual fecundity); and ease of captive breeding (prolific/moderate/difficult) published for 141 species. We investigated four natural characteristics suggested to predict poor welfare: sociality, long foraging times, ecological specialism, endangeredness; and one, intelligence, suggested as either a risk or protective factor for poor welfare. For each species, we recorded from the literature data on several variables corresponding to these characteristics. We tested for predictive relationships between natural traits and welfare outcomes, controlling for phylogenetic non-independence with Mesquite software. Relatively long food search times predicted increased FDB rates (P=0.039) and greater breeding difficulty (P=0.001). Larger average relative brain volumes predicted increased SB rates (oral: P=0.048; whole-body: P=0.018), and, along with higher rates of reported innovative foraging behaviour, tended to predict decreased reproduction (P=0.088, P=0.086, respectively). Decreased reproduction (P=0.042) and greater breeding difficulty (P=0.012) were also predicted by increased endangeredness (IUCN) and narrower habitat breadths, respectively. Sociality was not a predictor. Thus, intelligent species with naturally long foraging times were at increased risk for behavioural and reproductive problems in captivity, and captive breeding was additionally compromised in endangered ecological specialists.