

Assessing the long term effects of perceived predation risk on the avian brain

Predators affect prey populations not only through direct killing, but also through the perception of predation risk. Responding to predator threats is critical for prey survival, however perceived predation risk can have lasting effects ranging from individual changes in neurobiology up to the population level. My research focuses on the lasting effects of predator 'fear' on the avian brain. I will be using auditory playbacks to manipulate predation risk in black-capped chickadees (*Poecile atricapillus*) in acoustic isolation and brown-headed cowbirds (*Molothrus ater*) in large outdoor aviaries. Lasting behavioural changes have been found in black-capped chickadees one week after exposure to increased perceived predation risk, and I will be looking for long lasting changes in brain morphology and activation in regions thought to be involved in the avian fear network. My research aims to connect laboratory methods used to quantify the effects of fear in the brain with behavioural and physiological changes found from perceived predation risk in the field.