

# Multi-tissue $\delta^2\text{H}$ analysis reveals altitudinal migration and tissue-specific discrimination patterns in *Cinclodes*

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© 2015 Newsome et al. One of the fastest growing uses of stable isotope analysis in ecology is using hydrogen isotope ( $\delta^2\text{H}$ ) values to characterize animal movement and migration strategies. Most studies measure  $\delta^2\text{H}$  values in metabolically inert tissues such as feathers, which are typically grown during or just after the summer breeding season and provide a limited snapshot of an individual's annual life history. In contrast, isotopic analysis of metabolically active tissues can provide ecological information integrated over weeks to months prior to sampling. Here we characterize  $\delta^2\text{H}$  patterns among multiple metabolically inert and active tissues in *Cinclodes*, a genus of South American songbirds noted for variation in altitudinal movement and foraging strategies. We also coupled  $\delta^2\text{H}$  with carbon ( $\delta^{13}\text{C}$ ) and nitrogen ( $\delta^{15}\text{N}$ ) isotope data to combine information on movement with marine versus terrestrial resource use at the individual level. We find that a combination of physiological and ecolo