

Contrasting seasonal and aseasonal environments across stages of the annual cycle in the rufous-collared sparrow, *Zonotrichia capensis*: Differences in endocrine function, proteome and body condition

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© 2018 The Authors. *Journal of Animal Ecology* © 2018 British Ecological Society The timing and duration of life-history stages (LHSs) within the annual cycle can be affected by local environmental cues which are integrated through endocrine signalling mechanisms and changes in protein function. Most animals express a single LHS within a given period of the year because synchronous expression of LHSs is thought to be too costly energetically. However, in very rare and extremely stable conditions, breeding and moult have been observed to overlap extensively in rufous-collared sparrows (*Zonotrichia capensis*) living in valleys of the Atacama Desert—one of the most stable and aseasonal environments on Earth. To examine how LHS traits at different levels of organization are affected by environmental variability, we compared the temporal organization and duration of LHSs in populations in the Atacama Desert with those in the semiarid Fray Jorge National Park in the north of Chile—an extremely