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Redheads in Winter: Is There Enough Food to Go Around?

Redheads (*Aythya americana*) winter along the western and northern coast of the Gulf of Mexico. Several hundred thousand birds traditionally winter in the Laguna Madre of southern Texas, and approximately 20,000 redheads winter in the Chandeleur Sound of Louisiana. Both Texas and Louisiana winter ranges support dense beds of shoalgrass (*Halodule wrightii*), the rhizomes of which form the basis of the winter diet of redheads. The nearly total dependence of redheads on shoalgrass in winter could affect the abundance of redheads if the critical resource of rhizomes becomes limited. Here we examine data on the feeding of redheads in Texas and Louisiana to ascertain whether the birds are resource limited.

Redhead Feeding in Texas and Louisiana Was Observed and Analyzed

During daylight we scanned flocks of birds with spotting scopes for 2 minutes of every 15 minutes, during which we recorded the sex and behavior of each bird we observed. We observed

redheads in 103 flocks in Texas for two winters (1987–89), and collected data for 54,330 redhead behaviors. We observed redheads in 44 flocks in Louisiana for one winter (1988–89), and collected data for 31,787 redhead behaviors. For this analysis we placed each observed behavior in one of two categories: feeding or nonfeeding. For each flock, we calculated percentage of feeding birds, which we then used in a three-way analysis of variance. The three explanatory variables we used were location–year (Texas 1987–88, Texas 1988–89, and Louisiana 1988–89), month (November–March, inclusive), and sex.

Redhead Feeding Was Compared

Statistically significant ($P < 0.05$) main effects were location–year and month, and the interaction term of location–year $\times$ month. Sex was not significant ($P > 0.50$) as a main effect or as an interaction term. Redhead feeding levels in Texas and Louisiana differed temporally during winter (Figure). Redheads in Texas fed at relatively stable levels in winter, whereas redheads in Louisiana showed a decline in feeding as winter progressed.

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Is Resource Limitation Imminent?

We predicted that redheads, if they were experiencing resource limitation, would increase their feeding levels over time in winter to compensate for limited and declining food supplies. Redheads in Texas and Louisiana did not increase levels of feeding during the two winters of study. We concluded from our results that redheads are not presently limited by food resources on their winter ranges in Texas and Louisiana. Nevertheless, continuing declines in abundance of *Halodule wrightii* in the Laguna Madre may foretell a future when redheads could experience food limitation on their major North American winter range.

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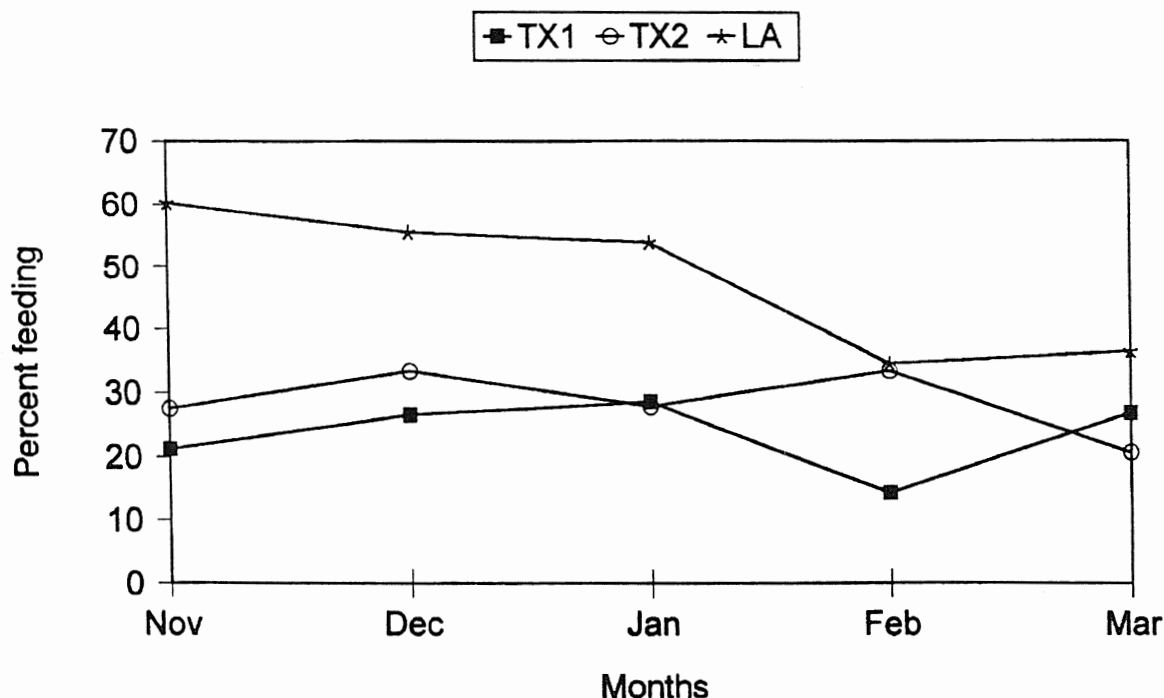


Figure. Monthly mean percentage of feeding redheads (*Aythya americana*) in Texas during the winters of 1987-1989 (TX1 and TX2) and in Louisiana during winter 1988-1989.