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MECHANISMS OF HABITAT SELECTION OF REINTRODUCED WHOOPING CRANES ON THEIR BREEDING RANGE

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Abstract: We examined several mechanisms that influenced the habitat selection of reintroduced whooping cranes (*Grus americana*) on their breeding range in the midwestern United States. Visual observations on 56 whooping cranes from 2001 to 2006 provided accurate locations, habitat descriptions, and bird associations. Location information on each bird was mapped to create home range and to describe the habitat. We found evidence that habitat selection in these cranes resulted from multiple mechanisms, including habitat imprinting, philopatry, site tenacity, intra-specific interactions, and environmental stochasticity. The initial home ranges of all cranes contained habitat similar to that in which they were reared. Strong philopatry was seen in 87% of the first year birds who returned to within 7.2 km of the release site. Site tenacity was significantly stronger after the second year return with the mean distance between consecutive center of home ranges decreasing ($t = 3.136$, $df = 38$, $P < 0.003$). We found that as population density doubled there was no significant change in the distance between nearest neighbors ($F = 0.038$, $df = 51$, $P = 0.847$). We also found evidence of environmental stochasticity in a group of cranes that deviated off course during their initial northward migration. Our work revealed the primary mechanisms of habitat selection used by the reintroduced whooping cranes, reassuring project managers that their reintroduction techniques will have predictable outcomes for the locations and habitats used by the new population.

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Key words: breeding range, *Grus americana*, habitat selection, philopatry, reintroduction, site tenacity, whooping cranes, Wisconsin.
