

A SOURCE SINK MODEL OF LAZULI BUNTINGS IN MONTANA^{TWS}

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Although Lazuli buntings (*Passerina amoena*) are currently widely distributed in the western US and southwestern Canada, parasitism by brown-headed cowbirds (*Molothrus ater*) is extremely high in many populations. Such populations do not appear to be self-sustaining. To examine spatial structures of potential source and sink populations of Lazuli buntings, we developed GIS models of Lazuli bunting and brown-headed cowbird distributions for the state of Montana. These models suggest that Lazuli buntings may be more vulnerable to cowbirds than currently appreciated. Of the 4,375, 746 ha identified as potential Lazuli bunting breeding habitat, 97% falls within areas with a high risk of cowbird presence (possible sink habitats), and <1% occurs in areas with no cowbirds (possible source habitats). Furthermore, Lazuli buntings breed in habitats that occur in configurations that make them especially vulnerable to cowbirds: patches tend to be small (>90% of patches are <1 0 ha) with

high edge to interior ratios, and are generally surrounded by habitats that could support livestock and thus cowbirds.