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The ability to assess the relative demographic contributions of discrete habitats to the population dynamics of migratory species is critical for both ecology and management and conservation applications. Metrics for assessing habitat contributions have been well-developed for metapopulations, but less studied for migratory populations that have seasonal, directed movements between habitats. We developed a quantitative framework for estimating the demographic contributions of the discrete habitats used by migratory species during their annual cycle. Our framework accounts for seasonal movements between multiple breeding and nonbreeding habitats. We tested our framework on a hypothetical species migrating between two- and three-habitat networks. We found that habitat-specific contributions are dependent on habitat-specific survival rates and the portion of the population that migrates. These metrics are also spatially linked (e.g. reduced survival in one habitat also decreases the contribution metric in other habitats). Our contribution framework represents an expansion of theory on the dynamics of spatiotemporally structured populations to migratory species and a new quantitative method for identifying habitats that are important for migratory species conservation. (Received August 19, 2014)