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## **Identifying Life-History Processes behind the Abundant-Center Distribution of a Forest Herb along a Latitudinal Gradient**

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Understanding the processes that underlie geographic variation of population abundance has implications for determinants of geographical range limits. In addition, for assessing the potential influence of future climate change on organisms, macroclimatic variation along latitudinal gradients is relatively underutilized compared to altitudinal gradients. We compared the abundance and multiple fitness components across 23 populations of a forest herb, *Trillium camschatcense*, along a latitudinal gradient in northern Japan, from central Iwate (southern range limit) to northern Hokkaido. Flowering plant density was highest at the mid-latitude populations (~43 °N) and became progressively lower toward range limits. While the average size of flowering plants and seed production increased with latitude, the average seed mass and recruitment rate of juveniles tended to be greatest at the mid-latitude populations. A preliminary analysis showed that flowering plant density strongly positively correlated with habitat suitability predicted by an ecological niche modeling with climate variables, suggesting that demographic processes are likely to be affected, either directly or indirectly, by future climate change. Although our results suggest that reduced reproduction and recruitment play key roles in restricting the distribution of *T. camschatcense* at its range limits, the contribution of these processes to population dynamics requires further investigation.