

Max Post van der Burg, 2024, Measuring butterfly persistence in the face of deep uncertainty: A case study using the regal fritillary, *Frontiers in Ecology and Evolution*, 15 November 2024, vol. 12, <https://doi.org/10.3389/fevo.2024.1482783>.

Abstract Scientists have documented effects of climate and land use change across a range butterfly species. However, incorporating future climate and land use change into butterfly conservation plans is a difficult task. These difficulties arise mainly from assumptions that future processes are the same as past processes (stationarity) and because scientists cannot reliably predict the future (deep uncertainty). In this case study, I used land use and climate change scenarios to compare possible futures for the regal fritillary, a grassland butterfly in the central United States. My analysis indicated that climate and land use change have the potential to influence species persistence, but that climate change has the larger effect. Moderate warming scenarios may improve the possibility of persistence, whereas extreme warming reduces this possibility. My analysis demonstrates the importance of considering nonstationarity and alternative plausible futures in butterfly conservation planning.

... I used an info-gap analysis to assess how uncertainty impacts the possibility of regal fritillaries persisting.

Keywords regal fritillary, climate change, land use change, uncertainty, decision making.