Developmental Effects of Correlated Color Temperature of Artificial Lights on Painted Lady Butterflies Vanessa cardui

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This experiment aimed to determine the effects of artificial night lighting on the life cycle of butterflies. Painted lady butterflies, Vanessa cardui, were exposed to various light sources with different correlated color temperature (CCT). Light intensity and temperature were monitored by data collection devices placed in each experimental unit. Butterfly development and life cycle stage length were observed and recorded regularly. The larvae that grew under artificial night light, which had high CCT (5000K and 6500K), were wider and longer than the larvae that grew under low CCT lights (2700K). The butterflies that grew under high CCT light sources pupated and emerged from chrysalides earlier than the ones that were under low CCT lights. This research suggested that artificial night light stimulates the development of the painted lady butterflies. Whether artificial night light induces similar effects in other species of insects remains to be explored, but light induced changes in phenology could have ecosystem wide effects.