

Maps of Monthly Distribution of Daily Light Integrals across Tennessee

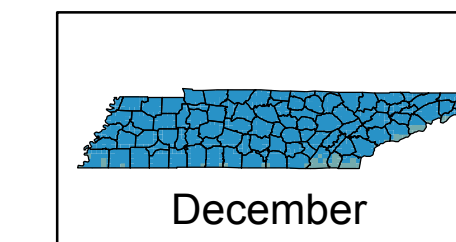
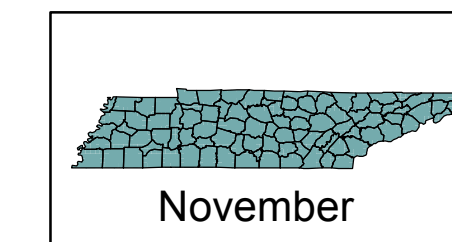
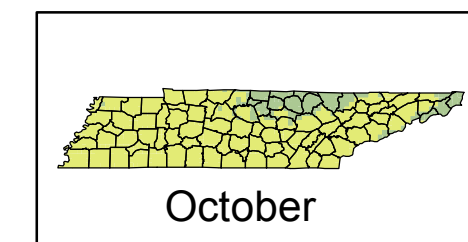
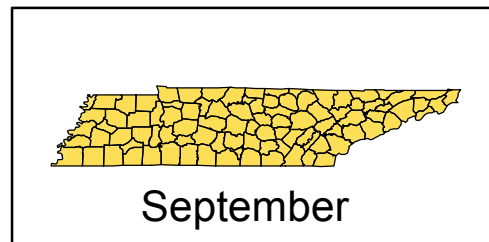
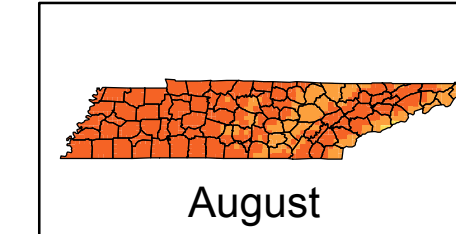
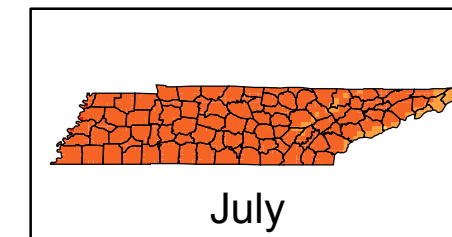
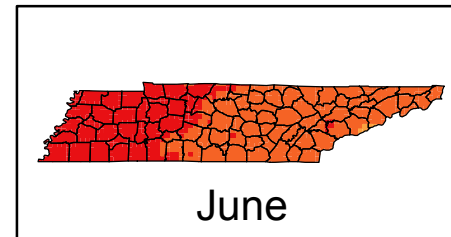
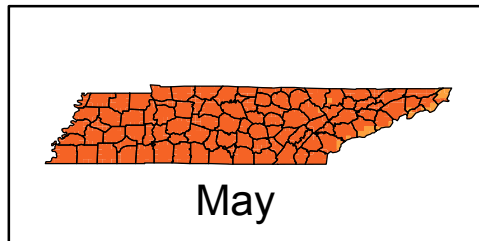
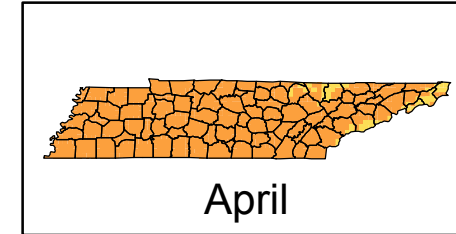
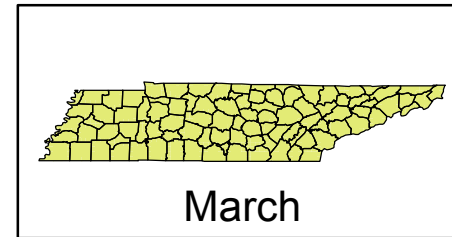
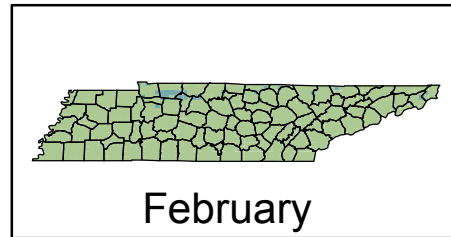
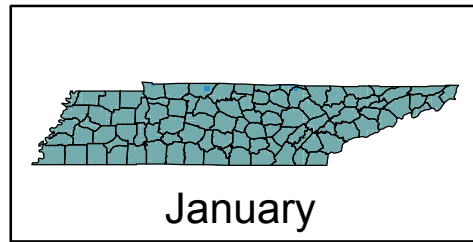
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The daily light integral (DLI) is a measurement of the total amount of photosynthetically active radiation (PAR) received on a flat surface over a 24-hour period and is an important factor influencing plant growth over weeks and months. A 10 km gridded map of DLI for each month was created using the 1998-2009 National Solar Radiation Database (NRSDB) developed by the National Renewable Energy Lab (NREL) and the State University of New York/Albany (SUNY). The maps are based on 1998-2009 data collected at 14 locations in Tennessee and from satellite derived estimates for the rest of the state. We converted Global Horizontal Irradiance (GHI in $\text{Kwh m}^{-2} \text{d}^{-1}$) to quantum units ($\text{mol m}^{-2} \text{d}^{-1}$) using a conversion of 7.058. The mean DLI ranges from $14.8 \text{ mol m}^{-2} \text{d}^{-1}$ to $47.1 \text{ mol m}^{-2} \text{d}^{-1}$ in June. There is not much variation across the state for any given month due to the fairly large classification interval of $5 \text{ mol m}^{-2} \text{d}^{-1}$.

Average Daily DLI mols/m2/day for Tennessee 1998-2009



mols/m2/day

