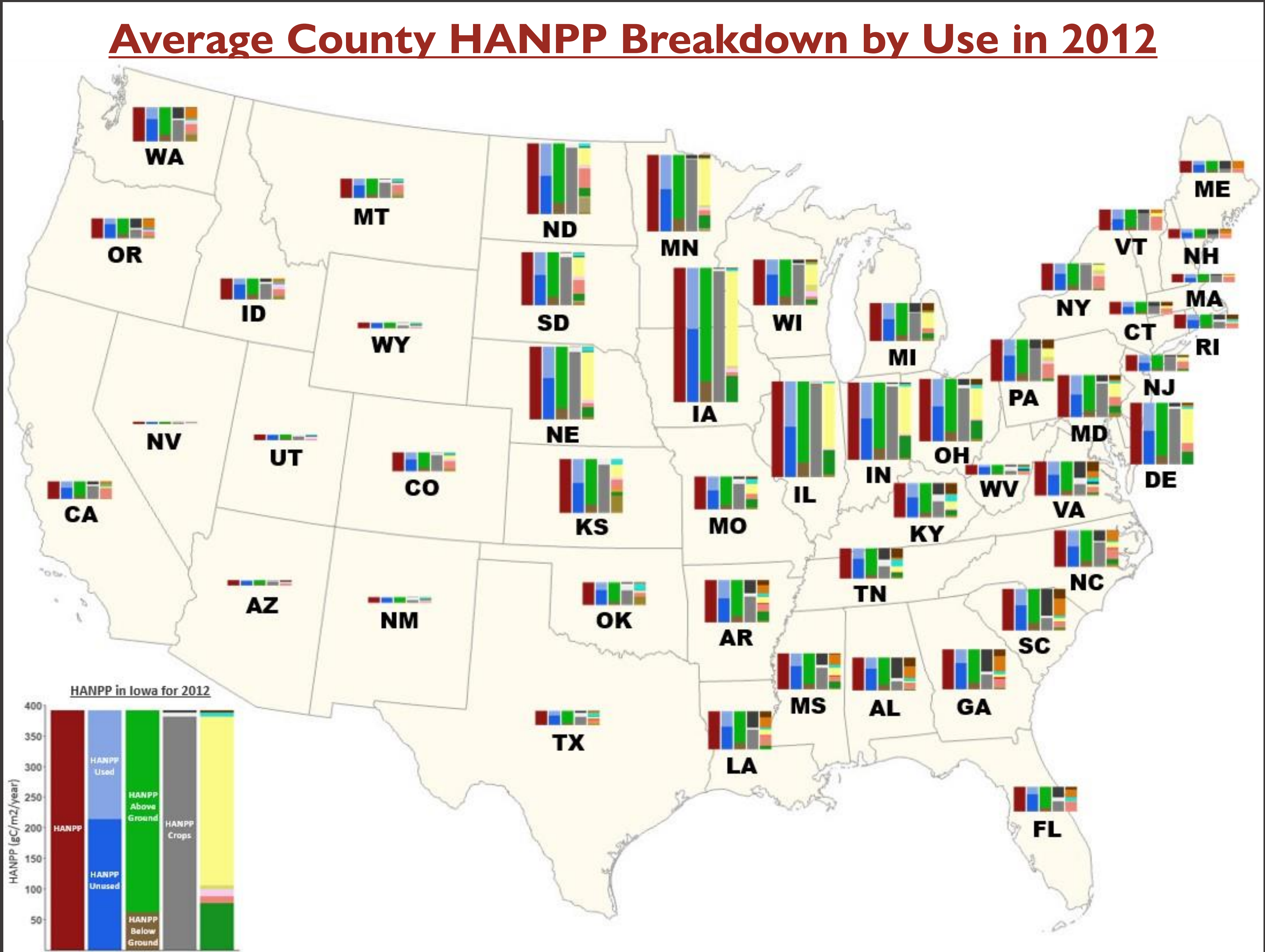
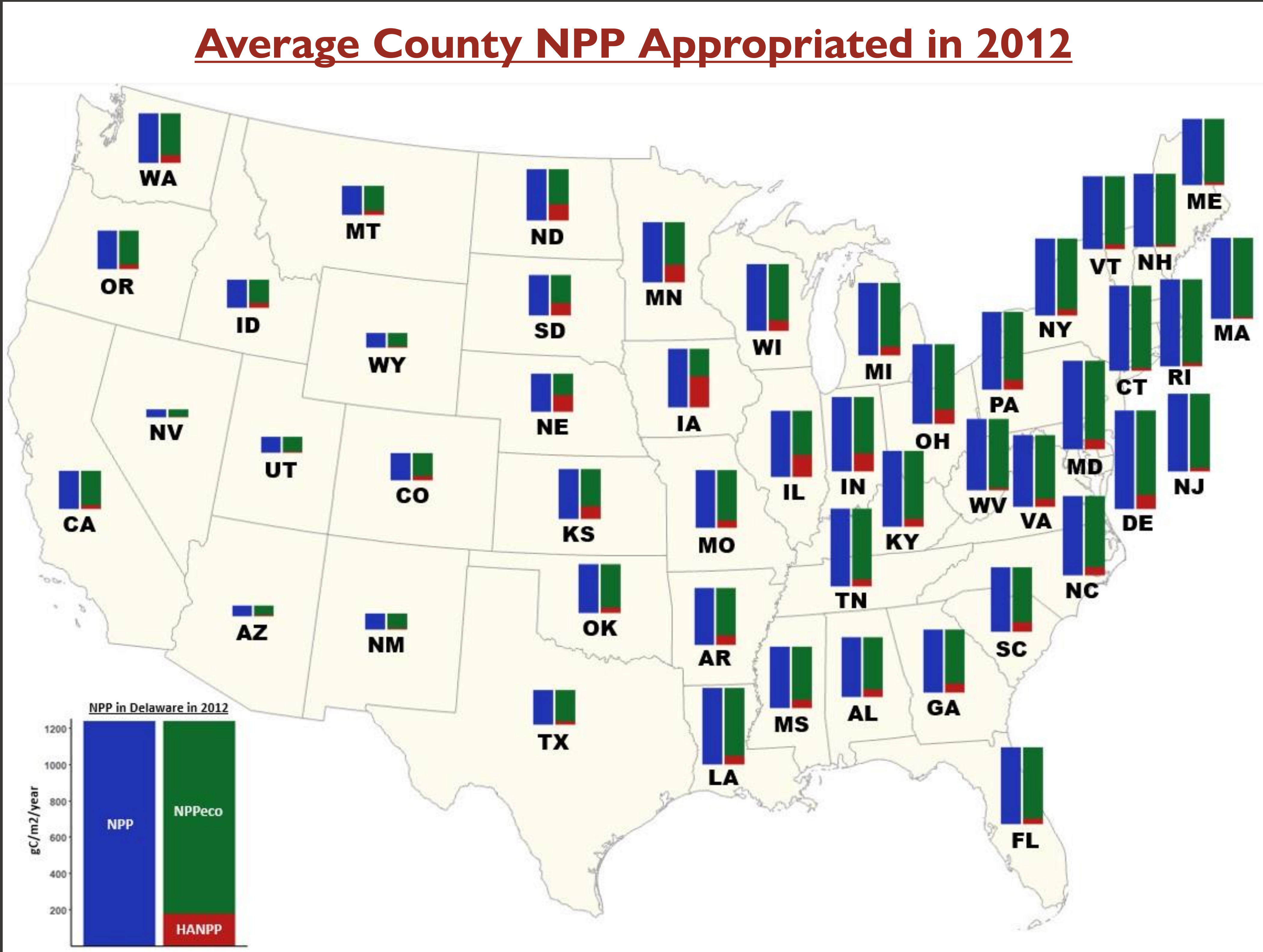


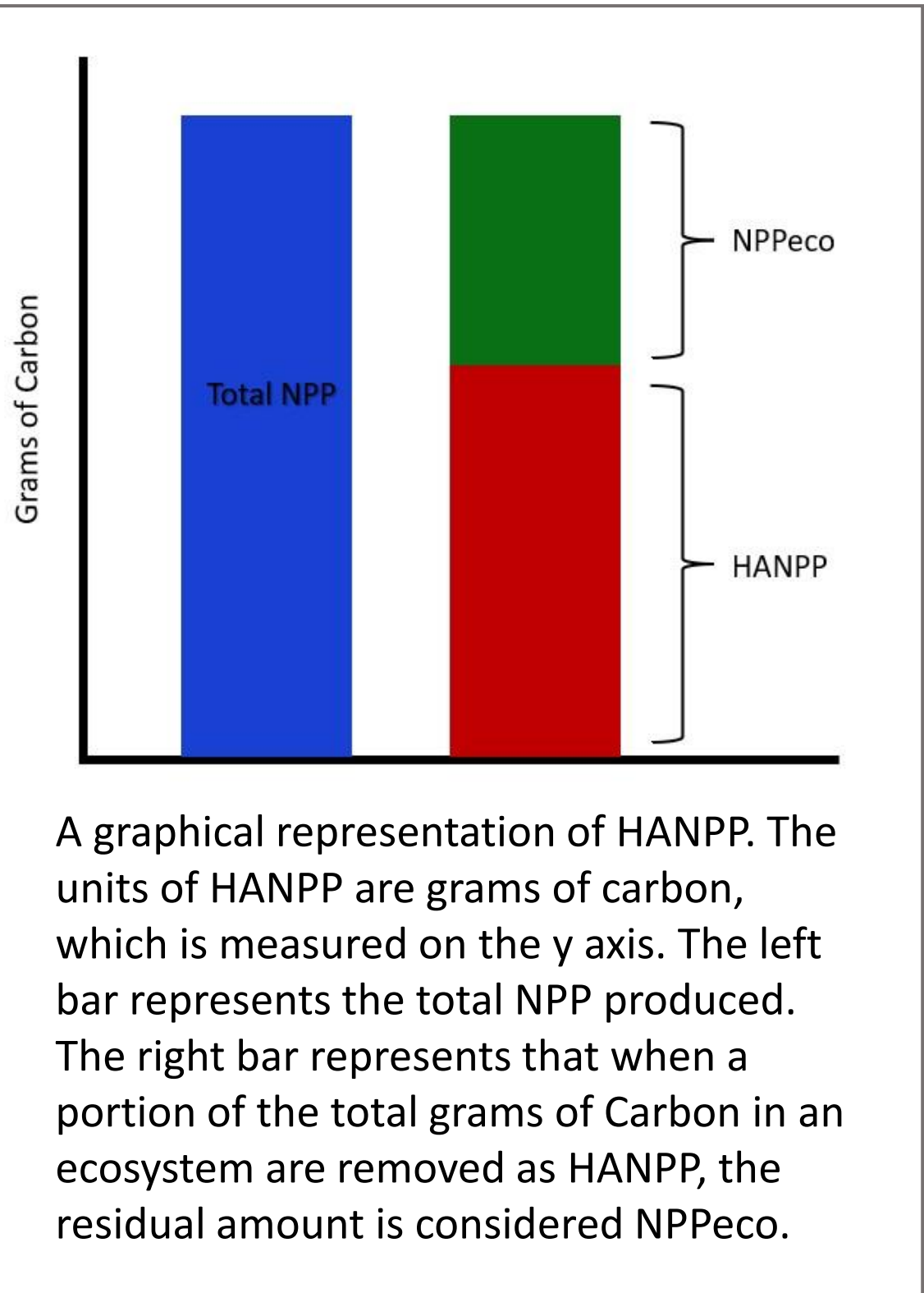
Human Appropriation of Net Primary Production

Kaeli Mueller, Suman Paudel, Christopher Lant, Gustavo Ovando-Montejo



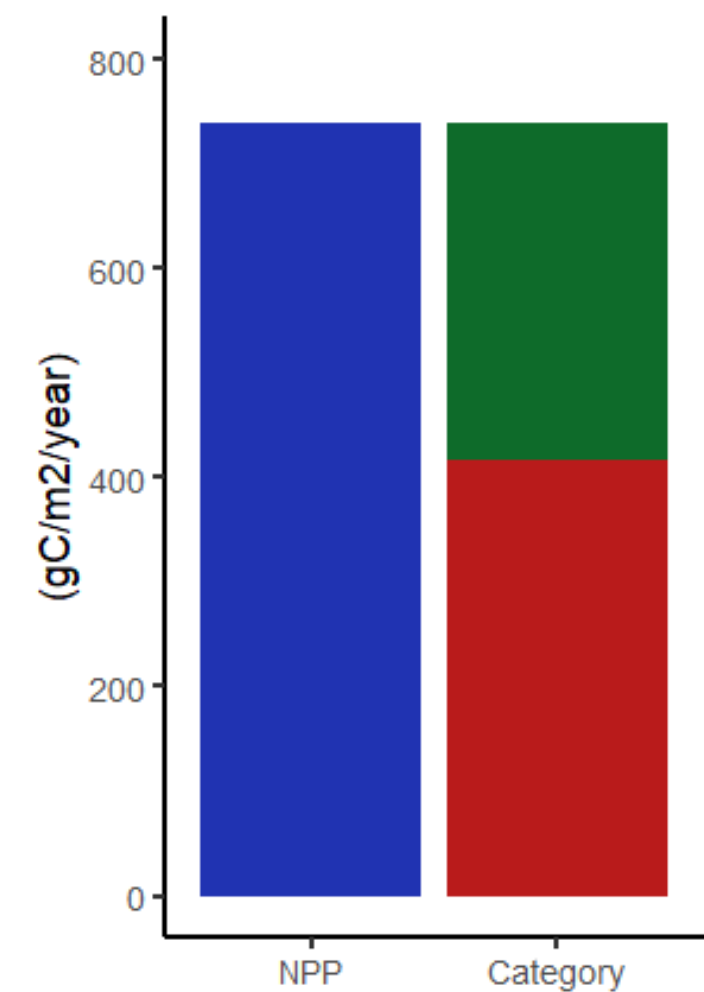
Human Appropriation of Net Primary Production

The concept of Human Appropriation of Net Primary Production (HANPP) was first developed to measure harvest of energy (NPP) by humans¹. HANPP quantifies the total amount of energy that humans remove from the environment and appropriate for their own use. Humans appropriate NPP through harvesting crops, harvesting timber, and cattle grazing. The amount of NPP left in the environment after harvest is called NPP ecological (NPPeco)². It is important to study HANPP because it connects human consumption of natural resources to global energy cycles. The concept of HANPP presents a new framework for the idea of a “carbon footprint” because it incorporates the spatial element of land use. HANPP has important implications for the agriculture and economy of a region. This poster represents the findings of the first study to quantify HANPP at the county and state level for the conterminous US. Above are maps displaying both the proportion of HANPP compared to the total NPP of each state, as well as the total HANPP and the breakdown of the specific uses and products.

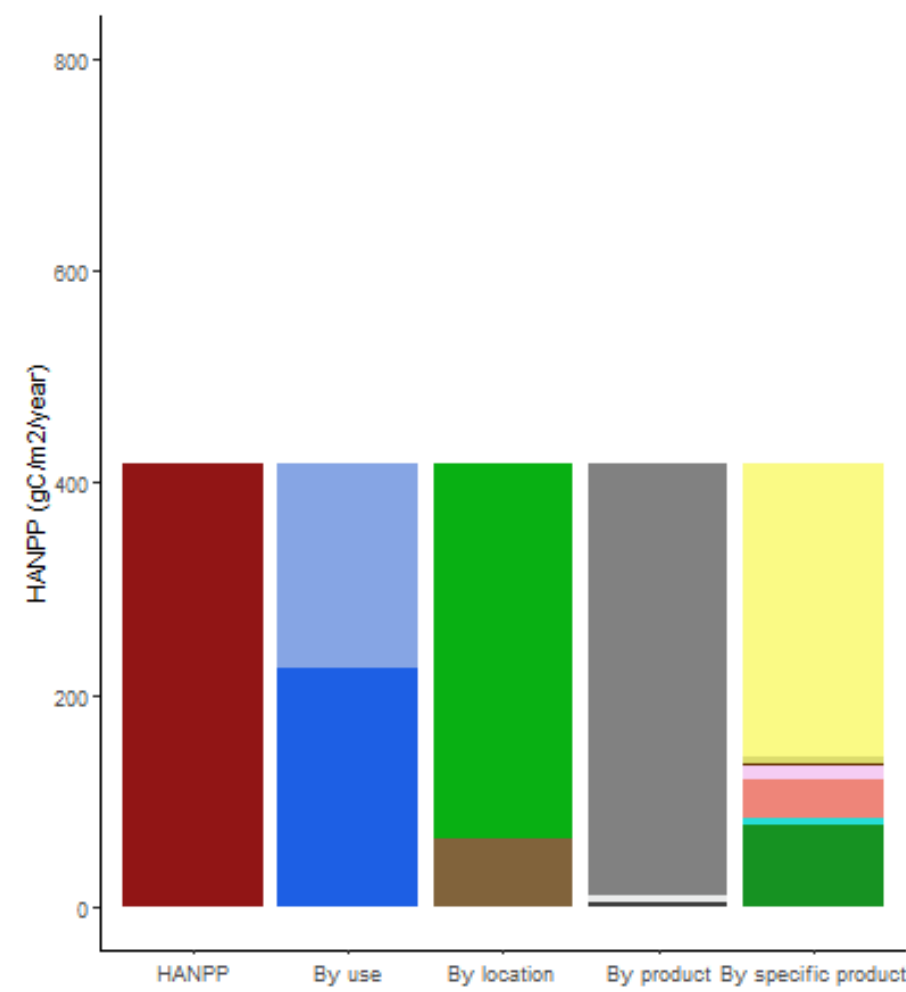


Case Study: Iowa

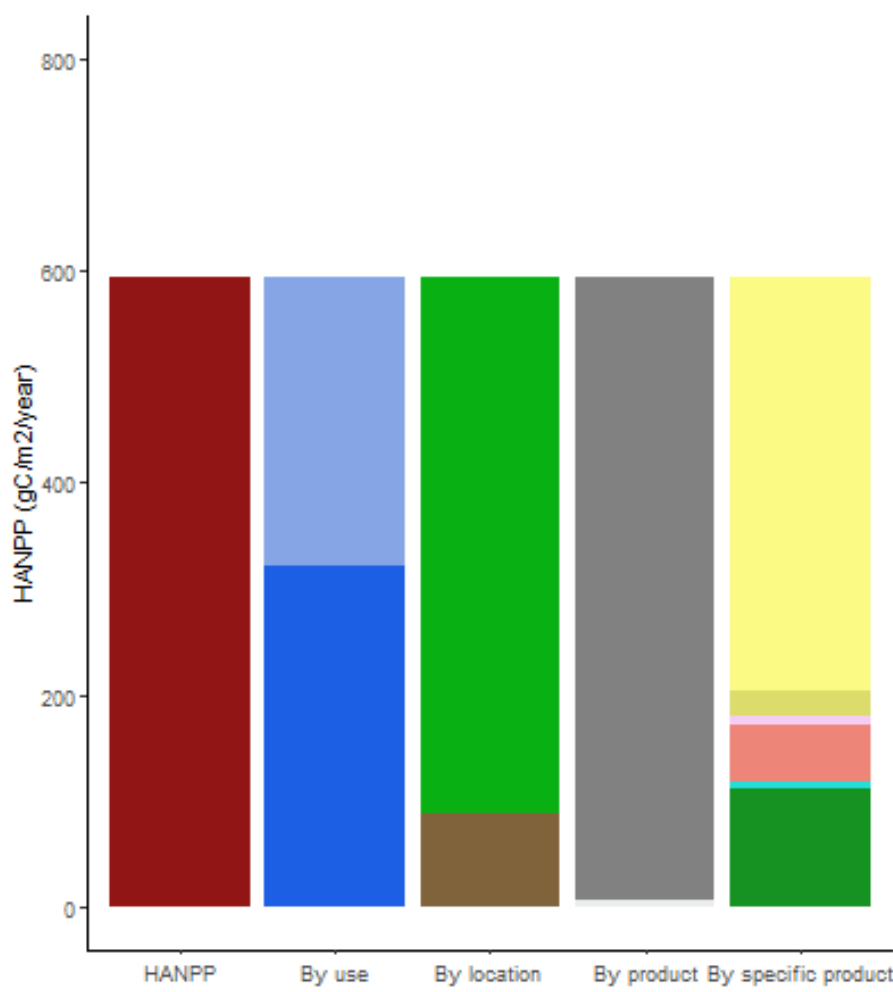
Average County NPP and HANPP in Iowa



Average County HANPP by Use in Iowa



HANPP by Use in Lyon County, Iowa



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1. Vitousek, P. M., Ehrlich, P. R., Ehrlich, A. H., & Matson, P. A. (1986). Human Appropriation of the Products of Photosynthesis. *BioScience*, 36(6), 368–373. <https://doi.org/10.2307/1310258>

2. Haberl, H., Erb, K.-H., & Krausmann, F. (2014). Human Appropriation of Net Primary Production: Patterns, Trends, and Planetary Boundaries. *Annual Review of Environment and Resources*, 39(1), 363–391. <https://doi.org/10.1146/annurev-environ-121912-094620>