

**Food+ Research Symposium**  
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**Faculty Abstract**

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*Impacts of Global Environmental Change on Human Nutrition.*

ABSTRACT: The research I do with the greatest relevance to the Food Plus Symposium is a series of investigations into the nutritional and health implications of large-scale, anthropogenic environmental change. My group has evaluated the impact of rising concentrations of atmospheric CO<sub>2</sub> on the nutritional value of important food crops by building a large dataset of 41 cultivars of six important food crops grown in 7 locations on 3 continents over 10 years at both ambient and elevated (roughly 550 ppm) CO<sub>2</sub>. We found significant reductions in iron, zinc, and protein in these crops in response to concentrations of CO<sub>2</sub> that the world will experience within the next 40-50 years. We have also been studying the impacts of pollinator declines on human nutrition and health outcomes in a global analysis which calculates burden of disease for each of 160 countries in response to different pollinator decline scenarios. Finally, we have been studying how declines in both terrestrial and marine wildlife populations would impact nutrient intake and health outcomes. We are doing this at a fine scale in Madagascar where we are collecting data on dietary intake, wildlife population dynamics, and biological samples (blood, breast milk, blood spot, malaria and parasitology testing, and fecal samples) from 750 individuals over time. We are also conducting a global analysis of the ways in which fisheries management and fisheries declines would impact nutrient intakes and health outcomes for populations around the world.