

GRADUATE EXIT SEMINAR

HENRY PELLER

Soil fertility, agroecology, and social change in southern Belize



Maya communities of southern Belize experience cascading pressures on their farms, forests, and livelihoods. Viewed from space, their ancestral lands straddle the calamitous Guatemalan border, where cattle ranching, deforestation, narcotrafficking, and mass migration disrupt the Maya's customary land use. This presentation views the complex dynamics of social-environmental change through three lenses: (1) soil formation or pedology, (2) agroecosystem dynamics of weeds, soil fertility, and management, and (3) agrarian political economy. In brief, land use change causes statistically significant, negative impacts on agroecological parameters including forest regeneration, noxious grass weeds, soil carbon and nitrogen, phosphorous availability, bulk density, and more. Grass weeds and soil degradation in turn pose serious management problems for small farmers

who grow maize and beans. In response, they commit to increasing chemicalization (herbicides and fertilizers) and, to some extent, regenerative practices including cover cropping and mulching—none of which provide satisfactory resolution. To understand why environmental degradation and land use change are so pernicious, I examine class processes in rural southern Belize. The reorganization of socio-economic life into increasingly capitalist formations has transformed livelihoods along two key pathways: the pursuit of higher education to sell labor power against racial and gender-based discrimination in the Belizean labor market; and a shift to exploitative, commercial land use activities to pay for household expenditures, education fees being paramount. I conclude by reflecting on a few recent experiments aimed at improving soil fertility, weed management, and rural livelihoods in southern Belize—and why the challenges thwarting these efforts demand systemic responses.

Advisors: Dr. Rattan Lal and Dr. Joel Wainwright

FRIDAY, APRIL 23, 2021
12:00 P.M.

Join the seminar via Zoom:

<https://osu.zoom.us/j/94423154367?pwd=R2VpekhhkN256MjhlWEVKdml3aXdzZz09>

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