

Great Plains' historical stability vulnerable to future changes

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A survey of long-term trends in population, farm income, and crop production in the agricultural Great Plains concludes that threats to society and the environment are counterbalanced by “surprising stability” and the potential for short- and medium-term sustainability.

The survey, published in the October 2007 issue of *BioScience*, finds that technological advances, such as improved crop varieties, irrigation, and fertilizer use, have greatly increased production of major crops and allowed rural populations to remain stable over the past 50 years even as metropolitan populations have soared.

Rural counties with extensive irrigation have slightly increased their populations, although less-irrigated counties, which offer fewer opportunities for farm-associated work, have decreased theirs slightly. The Great Plains’ population is nonetheless falling behind that of the country as a whole, and their proportion of people over 55 has grown rapidly.

The authors, William J. Parton and Dennis Ojima of Colorado State University and Myron P. Gutmann of the University of Michigan, note that the increases in crop productivity have had substantial environmental impacts, including loss of soil carbon and high nitrate runoff, especially in irrigated areas. Farms have become more dependent on government subsidies to meet the increased costs of agricultural inputs and fuel.

Plans to develop biofuels could benefit agricultural counties, but increased crop prices also threaten income from livestock production and could accelerate soil erosion while reducing soil carbon. Declining aquifers and increasing fuel costs represent another potentially worrisome trend, since both will add to the cost of irrigation.

Source: American Institute of Biological Sciences

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