Book reviews

Under the Blade: The Conversion of Agricultural Landscapes.

Under the Blade is a collection of writings by different authors and 22 regional case studies that discuss diverse dimensions of the conversion of US agricultural land (cropland, pastures, rangelands, and some forests) to housing, industrial parks and other forms of development. The overall goal of the book is to convince the reader that farmland conversion has serious implications, and to propose solutions to minimize it. In the Introduction, editor Richard Olson presents a useful overview of a “spatial hierarchy” useful for evaluating the causes and outcomes of farmland “loss”. He notes that no single factor or group predominates in the observed pattern of farmland conversion. Rather, the current pattern of land use in the US reflects the cumulative impact of millions of individual land-use decisions.

Subsequent authors discuss the available evidence about farmland conversion, legal aspects of land use, economics of farmland conversion, relationships between industrialization and globalization of agriculture and farmland loss, ethical and aesthetic dimensions of land-use decisions, and the necessity of a national policy (rather than local or regional efforts) to ensure that an adequate amount of farmland is preserved. A number of the authors address the question “why preserve farmland?” from different perspectives. One main argument offered is that farmland needs to be preserved in order to ensure adequate global food availability in an uncertain future (i.e. that once developed into houses, the land is for all practical purposes irreparably lost for agricultural activities). In addition, the authors argue that the value of services other than agricultural production of farmland (and undeveloped land in general) is large, and that the benefits of these services accrue to both owners of land and society more generally. Key non-production services provided by farmland are higher quality water and air, greater biological diversity (wildlife habitats), aesthetically pleasing views, preservation of local culture and communities, and recreational opportunities. These non-productive services of land, argue authors Libby and Stewart, require striking “a balance between the exclusive rights of the land owner . . . and non-exclusive rights of others to benefit” — a key issue in the regulation of land use.

The authors of several chapters note the limited effectiveness of many local and regional restrictions on land use as a way of controlling farmland loss (e.g. zoning laws are often perceived as impermanent, and growth restrictions in one community may lead to more growth in a neighboring community). Thus, the final chapter high-
lights a proposed national land-use policy “mandated at the federal level, managed at the state level, and implemented at the local level.” This proposed policy, modelled after policies in Europe and in the US state of Oregon, would create Urban Growth Boundaries (UGBs), within which incentives would be provided to builders and residents for “compact, high-quality communities”. Outside the UGB, land use other than for agriculture or forestry would be severely limited. Recognizing that a US national land-use policy is politically unlikely in the near future, the authors outline additional measures that would support local farmland preservation efforts. These include greater care in the allocation of federal funding for infrastructure development, reduction of estate taxes on farmland encumbered with permanent conservation easements, and increases in funding for Purchase of Development Rights (PDR) programs.

The case studies, which discuss the loss of active farmland and natural areas in 20 separate areas across the US and one in Norway, describe the challenges and opportunities that municipalities, counties and states face in their efforts to curb farmland conversion. Although urban and suburban development are the primary result of conversion, the case studies cite a variety of reasons for the initial loss of agricultural and natural landscapes, including burdensome tax policies, population expansion, low farm profitability, increased mobility, lack of farm successors, and farmland abandonment. The case studies suggest that minimizing conversion requires a blend of incentives to support and strengthen agriculture while creating disincentives for low-density residential development. A variety of tools are discussed, including “cluster development” used in the Rocky Mountains; coalition building between the business, farming and development communities in Fresno County, CA; agricultural economic development in Tompkins County, NY; and impact fees for real estate developers in Florida. Regardless of the specific techniques, the case study authors all argue that a strong comprehensive land-use plan is critical to protecting farmland.

One case study is particularly illustrative of farmland protection efforts in the US. Lancaster and Berks counties in southeastern Pennsylvania comprise one of the most threatened agricultural areas in the US. Development pressures, low farm profitability, labour shortages, and declining support services all contribute to the conversion of the most productive, non-irrigated agriculture in the country. To prevent farmland conversion, a coalition of business people, developers, farmers and environmentalists are working on a regional strategic plan and are encouraging a town-centre pattern of development that uses UGBs. Lancaster’s Planning Director says that “…by shaping new development in the form of traditional, compact communities, where homes, offices, and schools are close enough so people can walk to some of their activities, Lancaster can preserve all its prime farmland.” Other tools used in the region include PACE (purchase of agricultural conservation easements), a voluntary program where farmers permanently give up their right to develop the land in exchange for compensation; Farm Link, an educational program that matches beginning farmers with farming opportunities; and “Clean and Green”, a state statute that provides farmers with property tax relief by assessing farmland for use value rather than its development potential. Zoning is also used to curb low-density development, but with limited effectiveness.
The book’s two main strengths are its comprehensive approach and accessible style. The range of issues covered is broad, yet there is sufficient detail for the reader to gain a deep appreciation of the complex system that affects farmland conversion and the resulting outcomes. The conceptual framework and arguments presented are useful yet easily understood by interested lay readers. The blend of chapters discussing the farmland conversion issue in general are complemented nicely by the case studies that illustrate that nuances and diverse experiences of individual US and European localities. Occasional lapses into a condescending tone (some authors come close to suggesting that anyone who disagrees with their ideas must be ignorant) and shrill rhetoric (“Do we really think that the biotech gene-jockies or the shop-till-you drop children of the urban mall can take the lead in creating healthy and productive landscapes?”) distract from the strong conceptual presentation. Further, despite the amount of the book devoted to the question of why farmland should be preserved, relatively little empirical evidence is presented about the magnitude of nonproductive services of farmland — particularly compared with those from other non-developed land — and the tradeoffs inherent in different land uses. The “global food security” argument ultimately boils down to a suggestion that we should exercise “prudence”, given that empirical studies do not conclusively demonstrate that there will be a global food production problem in the future if farmland conversion continues at current rates.

Thus, for the ardent proponent the book provides a comprehensive framework and many conceptual arguments to support farmland preservation efforts. Opponents of national land-use policies will find gaps in the logic and empirical evidence presented by the book. The reader interested in an objective understanding of the farmland preservation issues may be left with the question: “What’s the other side of the story?”

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This book provides an overview of the development of the Kenya Maize Data Base Project (MDBP), especially as it relates to the application of local spatial data bases and geographic information systems (GIS) for research improvement. The first