Follett, R.F., Kimble, J.M., Lal, R. (ed.): **The Potential of U.S. Grazing Lands to Sequester Carbon and Mitigate the Greenhouse Effects.** – Lewis Publishers/CRC Press LLC, Boca Raton – London – New York – Washington 2001. ISBN 1-56670-554-1. xxix + 442 pp. GPB 59.99.

Grazing lands represent the largest and most diverse single land resources in the world. In the USA, rangelands and pastures together make up about 55 % of the total land surface, and more than half of the earth's land surface is grazed. The present book describes the role of grazing lands in sequestering carbon to help mitigate the greenhouse effect.

The editors and 37 other authors prepared 17 chapters arranged into 5 sections. The introductory Section 1 „The Extent, General Characteristics, and Carbon Dynamics of U.S. Grazing Lands" summarizes the negative effects of human intervention on grazing lands, and the best management practices needed to reverse those effects and effectively sequester carbon and prevent its further loss (Chapter 1), provides the broad-scale perspectives on the characteristics of grazing lands (Chapter 2), and describes the organic (Chapter 3) and inorganic (Chapter 4) carbon pools and cycles, and carbon sequestration. Section 2 (4 chapters) deals with soil and plant processes, and carbon dynamics on U.S. grazing land (roles of plant roots, soil microbial biomass for organic carbon sequestration, data on CO_2 flux across a transect of grazing land sites, plant and soil processes related to carbon sequestration in tundra, alpine, and mountain meadow systems, *etc.*). Five chapters of Section 3 "Managerial and Environmental Impacts on U.S. Grazing Land" focus on possibilities of decreasing soil erosion and restoring eroded grazing land soil to encourage soil carbon sequestration (carbon losses and emissions resulting from soil erosion, management of bulk density, crusting, aggregation and infiltration, effects of fire on soil carbon sequestration, *etc.*). "Using Computer Simulation Modeling to Predict Carbon Sequestration in Grazing Land" is the topic dealt with in two chapters of Section 4. It is shown how computer simulation modelling can help to evaluate the effects of environmental change and of management strategies to improve rangeland production. The other chapter also demonstrates the predictive capability of computer modelling by simulating changes in aboveground plant production and soil organic carbon during a 50- to 75-year period after initiation of altered climate conditions and a doubling of CO_2 concentrations in the Great Plains.

In Section 5, the editors of the book summarize information from all the other chapters and present an overview of U.S. grazing lands' potential to sequester carbon, and deal with research and development priorities. Some promising priorities include: Growing species with deeper root systems and perhaps those that contain high lignin content; Managing rangelands and pastures through controlled grazing, and vegetation management including fertility inputs, improved species, *etc.*; Using strategies that increase biomass yields; Using strategies to conserve water and soil resources; Converting marginal and degraded lands to restorative land uses, *e.g.* establish perennial cover, such as with Conservation Reserve Program or afforestation; Restoring degraded soils; Enhancing biological nitrogen fixation.

The readers of Photosynthetica can find interesting information (including computer models) mainly on biomass production and carbon pools, and ecosystem functioning under global climate change.

The book is well edited and produced, and is accompanied with an appendix of abbreviations used in the text, and a list of SI multipliers. I should also draw the readers' attention to the information on other 8 books (p. xxi) related to soil and global climate change, edited or written by the editors of this book. Fifty five tables, and 101 figures make the book self-explanatory. Individual chapters present together more than 1 100 references. However, the readers would surely welcome a subject and plant index. I recommend the book mainly to soil and plant scientists, ecophysiologists, and ecologists.

J. ČATSKÝ (*Praha*)