

Land-cover and land-use change in Eastern Europe 1990-2010: Impacts of the breakup of the Soviet Union

Book project status update

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Status

- Good news!
 - All chapters in hand and finalized
 - In the midst of editing and formatting
 - Will submit everything to Springer by late summer

Book Outline

Chapter	Author	Working Title
1	Gutman and Radeloff	Introduction
2	Feranec et al.	Overview of changes in land cover and land use in Central Europe
3	Elvidge et al.	Urban changes from Nighttime Lights data
4	Munteanu et al.	Changes in the Carpathians
5	Prishchepov et al.	Patterns and drivers of agricultural land-use changes in Eastern Europe
6	Ivanov et al.	Changes in Ukrainian climate, aerosols, landforms, and Black Sea delta's
7	Ozdogan et al.	Changes in carbon budgets associated with land-use changes in the Black Sea region
8	Loboda et al.	Land management changes and impact of extreme drought events on agriculture in European Russia
9	McCarthy et al.	Fires
10	De Beurs et al.	Agricultural land changes in European Russia

Chp. 1: Gutman + Radeloff

- Introduction and Background
- Land use patterns during socialism
- The dynamics of the collapse
- Major socioeconomic changes affected land use during the transition

Chapter 2: Feranec et al.

- Analysis of CORINE Land Cover Change from 1990 to 2006
- Major land use changes:
 - Urbanization
 - Agricultural intensification and extensification
 - Afforestation and deforestation
- Changes rates highest in the more western countries and in the Baltics

Chapter 3: Elvidge et al.

- Nighttime light changes since 1990
- Group 1: Declines without recovery
 - E.g., Belarus, Russia, Ukraine
- Group 2: Slow growth
 - E.g., East Germany, Czech Republic, Hungary
- Group 3: Rapid increases
 - E.g., Poland, Estonia, Romania

Chapter 4: Munteanu et al.

- Carpathian region land use change since mid 1800s
- Increase in forests since WWI, but especially rapidly since 1990
- Concomitant declines in agriculture
- Legacies of past land use and the empires of the 1800s

Chapter 5: Prishchepov et al

- Patterns and drivers of agricultural abandonment
- Highest rates of abandonment in Russia, then Lithuania, and Belarus (31, 19, 13%)
- Cross-border differences striking
- In Russia and Lithuania, abandonment patterns followed land rent theory, but not in Belarus

Chapter 6: Ivanov et al.

- Focus on changes in Ukraine
- Gradients in land use intensity from Carpathians to the Black Sea coast
- Climate has become less continental and precipitation has increased
- Strong declines in irrigated area after the collapse
- Changes in the delta's of the Black Sea

Chapter 7: Ozdogan et al.

- Forest changes in the Black Sea countries
- Increases in logging in Romania and Bulgaria
- Forest degradation in Georgia, and illegal logging problems in Ukraine
- All of these countries are carbon sinks due to past forest disturbance, and tree growth on abandoned fields

Chapter 8: Loboda et al.

- Effects of the 2010 droughts were exacerbated by land use decisions
- Planted pines provided fuels for widespread fires
- Changes in crop rotation to accommodate markets increased drought vulnerability

Chapter 9: McCarty et al.

- Fires in Lithuania, Belarus and European Russia
- Seasonal spikes in spring and fall
- Most fires on active farmfields, and abandonment
- Burning bans enforced in Belarus, but not in Russia
- Considerable source of atmospheric emissions

Chapter 10: de Beurs et al.

- Agricultural abandonment trends in different regions of Russia
- Permanent in the North, temporary in the Center, minor in the South
- However, not farming every year there
- Differences in land use among ethnicities

Conclusions

- The collapse of socialism provided one of the greatest natural experiments for land use science
- 25 years later: Many important lessons
 - Socioeconomic shocks have major effects on land use trends
 - Policies matter and can have surprising consequences
 - Land use legacies last for centuries
- The experiment continues!