Impacts of new market institutions on timber harvesting in European Russia Kelly Wendland¹, Volker Radeloff¹, Mutlu Ozdogan¹, David Lewis¹, Matthias Baumann¹, Dimitri Aksenov², Alexey Yaroshenko³, Alexander Prishchepov¹ ¹Department of Forest & Wildlife Ecology, University of Wisconsin-Madison, Wisconsin, Madison; ²Transparent World, Moscow, Russia; ³Greenpeace-Russia, Moscow, Russia

Introduction

A fundamental challenge in resource management is designing appropriate institutions to provide society's desired economic and ecological outcomes. After the collapse of the Soviet Union in 1991, the Russian Federation decentralized forest management and privatized forest use: timber harvesting and ecological health have declined (Figure 1) while illegal logging has increased.



Research Objective

The purpose of this research is to examine how timber harvesting rates changed in Russia after the collapse of the Soviet Union and the implementation of new forest institutions. The research questions to be addressed include:

- How did harvesting rates vary across space and time?
- •How did timber auctions, firms, initial forest resources and roads impact harvesting rates?
- •How did firms, stumpage prices, initial forest resources and roads impact auction rates?

Study Area

This research focuses on the temperate and mixed forests of European Russia. Twenty-seven regions have been selected based on their forest cover (Figure 2).

Conceptual Framework

Using the Institutional Analysis and Design Framework (*sensu* E. Ostrom), we hypothesize that exogenous variables such as timber resources, roads and preferences for pro-market reform affected interactions between forestry actors and their actions (Figure 3).

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Results

Volume harvested and auctioned varied substantially across regions and time in the first decade since independence (Figure 4). In general, the volume harvested declined until 1996 and then leveled off. The volume auctioned increased after 1996 and peaked in 1999. Preliminary regression results suggest that independent variables had different effects on volume of timber harvested and volume of timber sold in competitive auctions (Table 1).



Outlook

This analysis will be expanded to explore how the consolidation of timber enterprises impacted timber harvesting. Data will be extended until 2008. Results from this study will inform econometric models of harvesting decisions and timber forecasts that rely on remote sensing data of Russian forests (see Baumann poster).

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Figure 4. Volume harvested and auctioned

Table 1. Regression results

ARVESTED	VOLUME AUCTIONED	
IMPACT (Sign)	VARIABLE	IMPACT (Sign)
Significant (Positive)	Timber volume (m ³)	Significant (Positive)
Not Significant (Negative)	Percent federal budget for forestry	Significant (Negative)
Significant (Positive)	Number of forestry employees	Not Significant (Negative)
Not Significant (Positive)	Number of timber firms	Not Significant (Positive)
Significant (Negative)	Road density	Significant (Positive)
Significant (Positive)	Stumpage prices (\$/m ³)	Significant (Negative)

