

Paper published in

Morales, M., Naughton-Treves, L., y Suárez, L. (Eds.).
2010. **Seguridad en la tenencia de la tierra e
incentivos para la conservación de bosques.**
ECOLEX. Quito-Ecuador.

(In English)

Morales, M., Naughton-Treves,
L., and Suárez, L. (Eds.). 2010. **Security in land
tenure and incentives for forest
conservation.** ECOLEX. Quito-Ecuador.



This document was generously supported by the American people through the United States Agency for International Development (USAID), under the terms of the TransLinks Cooperative Agreement No.EPP-A-00-06-00014-00 to the Wildlife Conservation Society (WCS). TransLinks is a partnership of WCS, The Earth Institute, Enterprise Works/VITA, Forest Trends and the Land Tenure Center. The contents are the responsibility of the authors and do not necessarily reflect the views of USAID or the United States government.



USAID
FROM THE AMERICAN PEOPLE

This work was funded with the generous support of the American people through the Leader with Associates Cooperative Agreement No.EPP-A-00-06-00014-00 for implementation of the TransLinks project. The contents of this report are the responsibility of the author and do not necessarily reflect the views of the United States government.

Land Tenure Center

LAND TENURE AND DEFORESTATION RESEARCH UPDATE

Lisa Naughton, Brian Robinson, and Margaret Holland:
University of Wisconsin-Madison



Provided by the **Land Tenure Center**. Comments encouraged:
Land Tenure Center, Nelson Institute of Environmental Studies,
University of Wisconsin, Madison, WI 53706 USA
kdbrown@wisc.edu; tel: +608-262-8029; fax: +608-262-0014
<http://www.ies.wisc.edu/ltc>



Lisa Naughton, Brian Robinson and Margret Holland

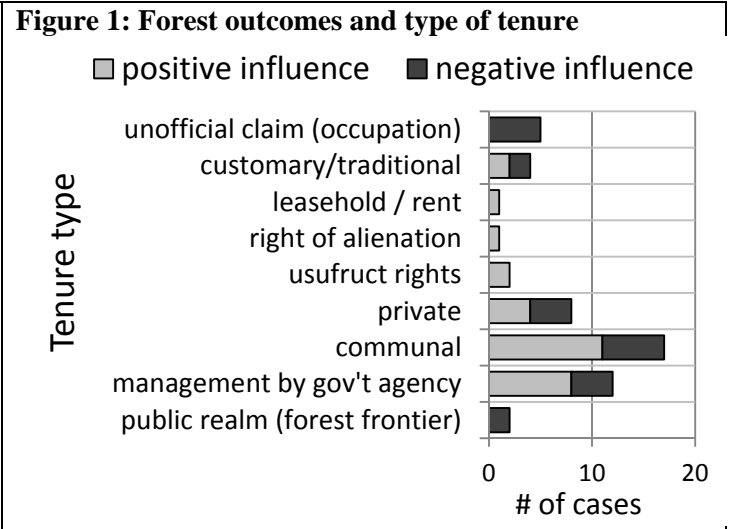
CONVENTIONAL WISDOM IN PAST DECADES suggested that tenure enables land users to value the future benefit streams of forests, which they would not do otherwise, and limits the desire to clear forest and stake a claim on land. Through our review of dozens of cases from studies linking changes in forest cover with land tenure (see Case Studies below), it is clear that well-defined tenure, while perhaps a necessary condition for policy to reduce deforestation rates, is far from sufficient.

There is not one type of tenure that is best for protecting forests.

Tenure security gives landholders assurance to the right to future benefits from the land. The highest value benefit stream could be from standing forests, but it is often from some other land use such as agriculture. Secure tenure does remove the need to clear land to signal ownership, but this is only one of many reasons forests are cleared.

Figure 1 shows that both positive and negative outcomes for forest cover occur on all the most common types of tenure. Positive outcomes refer to slowed deforestation rates and maintained or regenerated forest cover. Negative outcomes are increased deforestation rates or loss of forest. We found no evidence to suggest one specific tenure type is best for protecting forests.

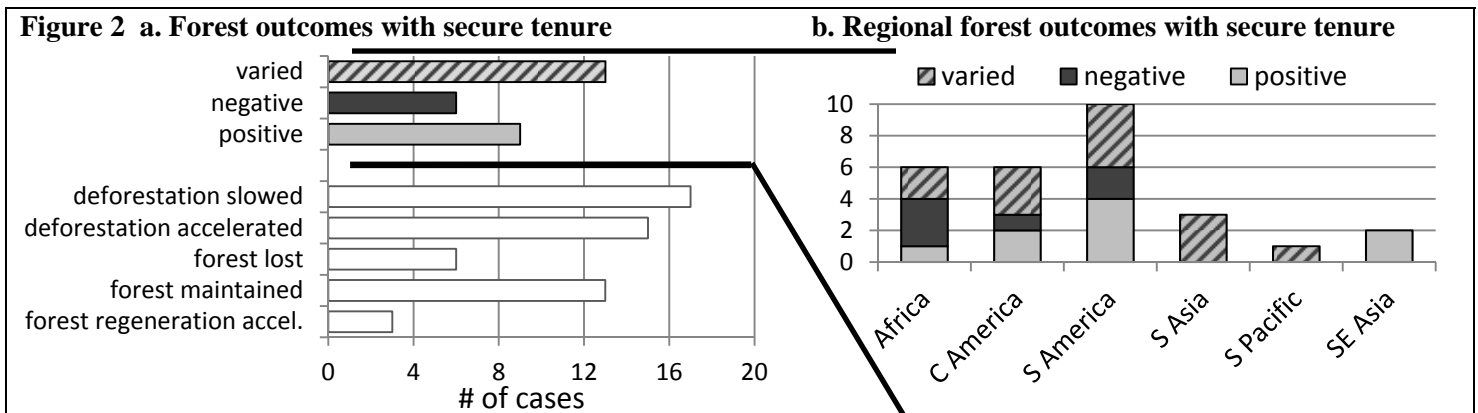
Further, we see that having secure tenure, regardless of the specific tenure type, does not guarantee the preservation of forest cover. Even with secure tenure, we found evidence of varied changes in forest cover in our



study cases. Figure 2a shows that while 9 cases had positive effects on forest cover, 6 were negative and 13 had varied outcomes. Regionally (Figure 2b) we found no evidence that secure tenure impacts forest cover in a consistently positive or negative direction.

Well-defined tenure, likely a necessary condition for policy to reduce deforestation, is far from sufficient.

Reducing deforestation through direct payments or other national policy will require that tenure be very clear. However, secure tenure is often not enough to preserve forest cover. Payments or policies must take into account conditions that determine the value of alternative land uses relative to forest for local landholders.



Case Studies

- C. Araujo, C. Bonjean, J. Combes, P. Combes Motel and E. Reis (2009), 'Property rights and deforestation in the Brazilian Amazon', *Ecological Economics* 68(8-9): 2461-2468.
- C. Arnot, M. K. Luckert and P. C. Boxall (in press), 'What is Tenure Security? Conceptual Implications for Empirical Analysis', *Land Economics*.
- M. Castillo-Santiago, A. Hellier, R. Tipper and B. de Jong (2007), 'Carbon emissions from land-use change: an analysis of causal factors in Chiapas, Mexico', *Mitigation and Adaptation Strategies for Global Change* 12(6): 1213-1235.
- E. Chidumayo (2002), 'Changes in miombo woodland structure under different land tenure and use systems in central Zambia', *Journal of biogeography* 29(12): 1619-1626.
- C. Fudemma and E. Brondizio (2003), 'Land reform and land-use changes in the lower Amazon: Implications for agricultural intensification', *Human Ecology* 31(3): 369-402.
- R. Godoy, M. Jacobson, J. De Castro, V. Aliaga, J. Romero and A. Davis (1998), 'The role of tenure security and private time preference in neotropical deforestation', *Land Economics* 74(2): 162-170.
- T. Hayes and F. Murtinho (2008), 'Are indigenous forest reserves sustainable? An analysis of present and future land-use trends in Bosawas, Nicaragua', *International Journal of Sustainable Development & World Ecology* 15(6): 497-511.
- J. Jakobsen, K. Rasmussen, S. Leisz, R. Folving and N. Quang (2007), 'The effects of land tenure policy on rural livelihoods and food sufficiency in the upland village of Que, North Central Vietnam', *Agricultural Systems* 94(2): 309-319.
- K. Johnson and K. Nelson (2004), 'Common property and conservation: The potential for effective communal forest management within a national park in Mexico', *Human Ecology* 32(6): 703-733.
- V. Kakembo (2001), 'Trends in vegetation degradation in relation to land tenure, rainfall, and population changes in Peddie district, Eastern Cape, South Africa', *Environmental Management* 28(1): 39-46.
- P. Kuri (2007), 'Extractions of Common Property Resources and its Implications to Environmental Degradation and Poverty in Arunachal Pradesh', *Environment and Ecology* 25(2): 265-269.
- M. Linkie, R. Smith, Y. Zhu, D. Martyr, B. Suedmeyer, J. Pramono and N. Leader-Williams (2008), 'Evaluating biodiversity conservation around a large Sumatran protected area', *Conservation Biology* 22(3): 683-690.
- T. Ludewigs, A. D'antona, E. Brondizio and S. Hetrick (2009), 'Agrarian Structure and Land-cover Change along the Lifespan of Three Colonization Areas in the Brazilian Amazon', *World Development*.
- E. Luoga, E. Witkowski and K. Balkwill (2005), 'Land cover and use changes in relation to the institutional framework and tenure of land and resources in eastern Tanzania miombo woodlands', *Environment, Development and Sustainability* 7(1): 71-93.
- J. Messina, S. Walsh, C. Mena and P. Delamater (2006), 'Land tenure and deforestation patterns in the Ecuadorian Amazon: Conflicts in land conservation in frontier settings', *Applied Geography* 26(2): 113-128.
- G. Nelson, V. Harris and S. Stone (2001), 'Deforestation, land use, and property rights: empirical evidence from Darien, Panama', *Land Economics* 77(2): 187.
- F. Pichón (1997), 'Colonist land-allocation decisions, land use, and deforestation in the Ecuadorian Amazon frontier', *Economic Development and Cultural Change* 45(4): 707-744.
- T. K. Rudel (2008), 'Meta-analyses of case studies: A method for studying regional and global environmental change', *Global Environmental Change* 18(1): 18-25.
- A. Sirén (2007), 'Population Growth and Land Use Intensification in a Subsistence-based Indigenous Community in the Amazon', *Human Ecology* 35(6): 669-680.
- N. Turyahabwe, C. Geldenhuys, S. Watts and M. Tweheyo (2008), 'Linking forest tenure and anthropogenic factors with institutions and the effectiveness of management in Mpigi forests, central Uganda', *Southern Forests: a Journal of Forest Science* 70(3): 255-267.
- H. van Gils and A. Ugon (2006), 'What Drives Conversion of Tropical Forest in Carrasco Province, Bolivia?', *AMBIO: A Journal of the Human Environment* 35(2): 81-85.
- N. Wannasai and R. Shrestha (2008), 'Role of land tenure security and farm household characteristics on land use change in the Prasae Watershed, Thailand', *Land Use Policy* 25(2): 214-224.