


[Home](#) > [Journal](#) > [Earth & Environmental Sciences](#) > [AS](#)
[Indexing](#) | [View Papers](#) | [Aims & Scope](#) | [Editorial Board](#) | [Guideline](#) | [Article Processing Charges](#)
[AS](#) > Vol.2 No.2, May 2011



## Diversity of shifting cultivation cycles among small-scale farmers in Peruvian Amazon

PDF (Size: 539KB) PP. 68-77 DOI : 10.4236/as.2011.22011

### Author(s)

Bohdan Lojka, Jan Banout, Lucie Banoutova, Vladimir Verner, Patrick Van Damme

### ABSTRACT

Although shifting cultivation is practiced by millions of farmers, it is often blamed for causing deforestation and keeping farmers in poverty. Our study focused on the Amazon basin, where small-scale farmers widely practice shifting cultivation. The objective was to identify the diversity in land use after initial slash-and-burn land clearing among migrant peasants. Our research aimed at documenting typical crop sequences, plant species composition and specific lengths of particular phases of shifting cultivation cycles on the basis of farmers related field histories. Land use was examined in two settlements: Antonio Raimondi and Pimental in Ucayali region, Peru. Data was gathered via semi-structured questionnaires that focused on the socio-demographic characterization of agriculture-dependent households and their land use characteristics. More in-depth assessments of crop occurrence, cropping sequence and length of the different shifting cultivation cycles were conducted on 114 fields in Pimental and 44 fields in Antonio Raimondi. Interview analysis showed that in both villages, forest cover has substantially decreased over the last 10 years. Results also indicate considerable variation in swidden-fallow systems. Whereas settlers in Antonio Raimondi plant annual crops after slashing and burning the forest, settlers in Pimental gave more importance to perennial crops. Progress in deforestation and land degradation is relatively more pronounced in the younger settlement (Antonio Raimondi). These differences are likely caused by the different social backgrounds of settlers and histories of each site. Small-scale farmers in the study area are now facing a problem with the transition from shifting cultivation to sedentary farming. Farmers in areas with a prevalence of annual cropping use a significantly shorter fallow period, which causes a higher rate of forest degradation. As annual cropping seems to be unsustainable in relation with forest degradation, farmers should either use a longer natural fallow to sustain longer cropping cycles, or shift to tree-based land use systems.

### KEYWORDS

Agroforestry; Deforestation; Land Degradation, Slash-And-Burn, Swidden-Fallow

### Cite this paper

 Lojka, B., Banout, J., Banoutova, L., Verner, V. and Damme, P. (2011) Diversity of shifting cultivation cycles among small-scale farmers in Peruvian Amazon. *Agricultural Sciences*, 2, 68-77. doi: 10.4236/as.2011.22011.

### References

- [1] Mertz, O., Wadley, R.L., Nielsen, U., Bruun, B.T., Colfer, C.J.P., de Neergaard, A., Jepsen, M.R., Martinussen, T., Zhao, Q., Noweg, G.T. and Magid, J. (2008) A fresh look at shifting cultivation: Fallow length and uncertain indicator of productivity. *Agric. Syst.*, 96, 75-84.
- [2] Mertz, O. (2009) Trends in shifting cultivation and the REDD mechanism. *Current Opinion in Environmental Sustainability*, 1, 156-160.
- [3] FAO. (2005) State of the World's Forest. Food and Agriculture Organization of the United Nations, Rome, Italy.
- [4] Warner, K. (1991) Shifting cultivators – Local technical knowledge and natural resource management in the humid tropics. *FAO Community Forestry Note*, 8, Rome, Italy.
- [5] Russell, WMS (1988) Population, swidden farming and the tropical environment. *Population and*

- [Open Special Issues](#)
- [Published Special Issues](#)
- [Special Issues Guideline](#)

[AS Subscription](#)
[Most popular papers in AS](#)
[About AS News](#)
[Frequently Asked Questions](#)
[Recommend to Peers](#)
[Recommend to Library](#)
[Contact Us](#)

Downloads:	138,730
Visits:	298,430

### Sponsors, Associates, and Links >>

[2013 Spring International Conference on Agriculture and Food Engineering\(AFE-S\)](#)

- [6] Kleinman P.J.A., Pimentel D. and Bryant R.B. (1996) Assessing the ecological sustainability of slash-and-burn agri-culture through soil fertility indicators, *Agronomic Journal*, 88, 122-127.
- [7] Sanchez P.A., Palm C.A., Vosti S.A., Tomich T. and Kasyoki J. (2005) Alternatives to slash and burn. Challenges and approaches of an international consortium. In: Palm C.A., Vosti S.A., Sanchez P.A. and Ericksen P.J. (Eds.), *Slash-and-Burn Agriculture. The Search for Alternatives*, Co-lumbia University Press, New York, 3-37.
- [8] Nair, P.K.R. (1993) *An Introduction to Agroforestry*. Kluwer Academic Publishers, Dordrecht, The Netherlands.
- [9] Serrao, E.A.S., Nepstad, D. and Walker, R. (1996) Upland agricultural and forestry development in the Amazon: sustainability, criticality and resilience. *Ecol. Econ.*, 18, 3-13.
- [10] Fujisaka, S. and White, D. (1998) Pasture or permanent crops after slash-and-burn cultivation? Land use choice in three Amazon colonies. *Agroforest. Syst.*, 42, 45-59.
- [11] Olivera, P.J.C., Asner, G.P., Knapp, D.E., Almeyda, A., Galván-Gildemeister, R., Keene, S., Raybin, R.F. and Smith, R.C. (2007) Land use Allocation Protects the Peruvian Amazon. *Science*, 317, 1233-1237.
- [12] Holm, L. G., Plucknett, D. L., Pancho, J. V. and Herberger, J. P. (1997) *The World' s Worst Weeds: Distribution and Biology*. University Press of Hawaii. Honolulu, Hawaii, USA.
- [13] Garrity D. P., Soekardi M., De La Cruz R., Pathak P.S., Gunasena H.P.M., Van So N., Huijin G. and Majid N.M. (1997) The Imperata grasslands of tropical Asia: area, distribution, and typology. *Agroforest. Syst.*, 36, 3-29.
- [14] Hartemink, A.E. (2001) Biomass and nutrient ac-cumulation of *Piper aduncum* and *Imperata cylindrica* fal-lows in the humid lowlands of Papua New Guinea. *For. Ecol. Manage.*, 144, 19-32.
- [15] Albers, H.J. and Goldbach, M.J. (2000). Irreversible ecosystem change, species competition, and shifting cultivation. *Resource and Energy Economics*, 22, 261-280.
- [16] Coomes, O.T. and Burt, G.J. (1997). Indigenous market-oriented agroforestry: dissecting local diversity in western Amazonia. *Agroforest. Syst.*, 37, 27-44.
- [17] Fujisaka, S., Escobar, G. and Veneklaas, E. (1999) Plant community diversity relative to human land uses in an Amazon forest col-ony. *Biodivers. Conserv.*, 7, 41-57.
- [18] de Jong, W. (1995) *Diversity, Variation and Change in Ribereno Agriculture and Agroforestry*. Doctoral thesis, Wageningen University for Life Sciences, The Netherlands.
- [19] Boserup, E. (1965) *The Con-ditions of Agricultural Growth: The Economics of Agrarian Change Under Population Pressure*. Earthscan Publication Ltd., London.
- [20] Pollini, J. (2009) Agroforestry and the search for alternatives to slash-and-burn cultivation: From technological optimism to a political economy of deforestation. *Agriculture, Ecosystems and Environment*, 133, 48-60.