



Response to Downey. 2010. "Can Properties of Labor-Exchange Networks Explain the Resilience of Swidden Agriculture?"

Migrations Between Villages: Incidents or Significant Drivers of Swidden Agriculture Changes?

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Downey (2010) documents the dynamical properties of labor-exchange networks that would maintain resilience of swidden agriculture in Belize. A significant event revealing such resilience was a migration cascade between villages because an individual intended to privately run, rather than collectively, a diesel-powered corn mill. The village concerned, Graham Creek, was exposed to a large demographic shock because several families left. Graham Creek was resilient to a 50% decrease of its size, although these families were quickly replaced, but evolved toward higher reciprocity and lower hierarchy and efficiency. Such reorganization of the labor-exchange networks was interpreted as a mechanism favoring resilience of swidden agriculture (Downey 2010).

However, the determinism of migrations and their effects, hence of resilience of labor-exchange networks in response to conflicting representations of social activities run publicly or privately, have to be appreciated at a larger scale than Graham Creek alone, at least across all villages exchanging migrants. These migration events have to be considered in the light of selection among conflicting representations. Their determinism, their consequences on the dynamics of these representations should be questioned. Thus, social cohesion and mobility of individuals associated with these two representations are important criteria to determine their fate (i.e., Nowak 2006). For example, migrations in which individuals with similar social interactions coalesce together should favor the maintenance of labor reciprocity (i.e., Roca and Helbing 2011).

With this perspective, several traits of these migration events could significantly determine the fate of labor reciprocity, hence of resilience of labor exchange, concerning the village where the families went, as well as the village the replacing families came from. That concerns whether families chose to move to villages with different levels of reciprocity, hierarchy, and efficiency.

Related critical mechanisms concern the families that left Graham Creek, for example, whether there were possibilities for them to develop the private activities they intended when they left, and the presence of privately owned activities in that village. For the families that came to Graham Creek, resilience of these reciprocal interactions depends also on the reason why

the replacing families left their village, and the effects of their departure in that village.

Finally, beyond the effects of these migration events on labor-exchange networks and their levels of reciprocity, hierarchy, and efficiency, such exchanges might affect the dynamics and life-span of these three villages as well as neighboring ones. That could for example lead to further changes concerning land enclosures, hence land scarcity, which might lead to a poverty trap for some villages (i.e., Coomes et al. 2011).

Overall, migrations could significantly affect natural resources governance, especially when they are associated with conflicting representations of social interactions and of reciprocity. Depending on their determinism and consequences, these migrations between villages could be a sign of degradation rather than resilience of reciprocal interactions.

Responses to this article can be read online at:
<http://www.ecologyandsociety.org/vol17/iss1/resp1/responses/>

LITERATURE CITED

- Coomes, O. T., Y. Takasaki, and J. M. Rhemtulla. 2011. Land-use poverty traps identified in shifting cultivation systems shape long-term tropical forest cover. *Proceeding of the National Academy of Sciences* 108:13925-13930. <http://dx.doi.org/10.1073/pnas.1012973108>
- Downey, S. S. 2010. Can properties of labor-exchange networks explain the resilience of swidden agriculture? *Ecology and Society* 15(4): 15. [online] URL: <http://www.ecologyandsociety.org/vol15/iss4/art15/>
- Nowak, M. A. 2006. Five rules for the evolution of cooperation. *Science* 314:1560-1563. <http://dx.doi.org/10.1126/science.1133755>
- Roca, C. P., and D. Helbing. 2011. Emergence of social cohesion in a model society of greedy, mobile individuals. *Proceeding of the National Academy of Sciences* 108:11370-11374. <http://dx.doi.org/10.1073/pnas.1101044108>