

Extractive Conservation: Where Plants and People Collide

Anne Cristina de la Vega-Leinert
Peter Clausing

México vía Berlín e. V. | Working Paper No. 04 | January, 2016

Current land use transformations are central to scientific inquiry, policy frameworks and lobbying by non-governmental organizations. Driven by complex, interrelated processes and intricate actor constellations over nested scales, they include global trade in primary products, national development policies and changing livelihood strategies and lifestyles. Much of the debate on land use is centered on the initial question of how to secure future world population food and energy needs while respecting planetary boundaries. Thus for example, the 2010 Aichi Biodiversity targets within the UN Convention on biological Diversity aim to protect 17% of global terrestrial surface (ca. 23 million km²), while current agricultural land reserve is estimated at ca. 4 million km². Two contradictory land use concepts claim to resolve current worldwide land competition between Biodiversity and Food: land sparing and land sharing. Land sparing spatially segregates conservation from intensive land use claiming to maximize agricultural production, eradicate hunger and release ca. 1.5 million km² for ecological restoration. This large-scale conservation agenda can be associated to more traditional extractive activities in that it implies a reconfiguration of control on natural resources at the expenses of local populations. On the contrary, land sharing combines conservation and agriculture within integrated agroecological systems, inserted in a wider framework of social and redistributive justice. Sustainable intensification, central to the 2014 Year of Family Farming, has become a preferred avenue to solve the land sparing vs. land sharing dichotomy. Nevertheless, we argue that if sustainable intensification is embedded in a neoliberal framework, it risks becoming a buzzword that mainstreams land sharing ideas into a land sparing approach. We contend that the current trend towards what we call “extractive conservation” as well as toward sustainable intensification in its narrowest sense foster a top-down, macro-economic, technocentric approach. This forces conservation and peasant systems into competition—reconfigure rules of access to productive resources, and hampers distributive justice and democratic governance—within emergent global green markets and commodity chains.

Keywords: Agricultural Intensification, Agroecology, Extractivism, Commodification of nature, Food and Conservation corporate systems, Green capitalism Neo-extractivism, Neoliberal Conservation, Peasant Systems.

Title: Extractive Conservation: Where Plants and People Collide

Authors: Anne Cristina de la Vega-Leinert and Peter Clausing

Copyright: Anne Cristina de la Vega-Leinert and Peter Clausing

MvB Working Paper No. 4
Berlin, January 2016.

Series: MvB Working Papers
Internal classification: MVB-WP-2016-004

Suggested citation:

de la Vega-Leinert, A. C. and Peter Clausing (2016) "Extractive Conservation: Where Plants and People Collide" MvB Working Papers. Berlin: México vía Berlín e. V. No. 4, January: 43.

Edition: México vía Berlín e. V.

MvB Working Papers aims the dissemination of preliminary versions of theoretical essays and of research results in order to encourage the discussion of work in progress within the academic community and all interested audiences. The inclusion of a paper in this series do not constitutes publication and should not prevent or limit its possibilities for scientific publication. The copyright remain with the autor(s). The content and the opinions expressed in this paper are of responsibility of the author(s) and do not represent a stands of MvB as organization.

For the free flow of knowledge, all MvB papers are to be found at <http://mexicoviaberlin.org> and the Social Science Open Access Repository <http://www.ssoar.info/>

Think green, print this document only if it is strictly necessary.

México vía Berlín e. V.
Theory, research and political action
<http://mexicoviaberlin.org>
Register: VR 33078 B; Municipal court of Charlottenburg, Berlin, Germany.

Donations:
Mexico via Berlin e. V.
GLS Bank Bochum
BLZ: 43060967
IBAN: DE87 4306 0967 1160 7676 00
BIC: GENODEM1GLS

Zusammenfassung

Extraktiver Naturschutz: Wo Pflanzen und Menschen kollidieren

Die derzeitigen Landnutzungstransformationen sind für wissenschaftliche Untersuchungen, politische Rahmenbedingungen und die Lobbyarbeit von Nichtregierungsorganisationen ein zentrales Thema. Angetrieben durch komplexe, miteinander verbundene Prozesse und komplizierte Beziehungen zwischen Akteuren unterschiedlichster Ebenen, schließen diese Transformationen den globalen Handel mit Primärprodukten, nationale Entwicklungspolitiken sowie sich ändernde Überlebensstrategien und Lebensstile mit ein. Ein Großteil der Diskussion über den Landnutzung befasst sich mit der initialen Frage, wie der Nahrungs- und Energiebedarf der künftigen Weltbevölkerung bei gleichzeitiger Respektierung der Planeten Grenzen gesichert werden kann. So zielen zum Beispiel die 2010 formulierten Aichi-Ziele der UN Konvention zur biologischen Vielfalt darauf ab, 17 % der globalen Landfläche (ca. 23 Millionen km²) unter Schutz zu stellen, während die derzeitige landwirtschaftliche Reserveflächen auf 4 Millionen km² geschätzt wird. Zwei gegensätzliche Konzepte der Landnutzung nehmen für sich in Anspruch, die derzeitige weltweite Landnutzungskonkurrenz zwischen Biodiversität und Nahrungsmittelproduktion beizulegen: *Land Sparing* und *Land Sharing*. *Land Sparing* nimmt eine räumliche Trennung von Naturschutz und intensiver Landnutzung vor und behauptet mit einer Maximierung landwirtschaftlicher Produktivität den Hunger zu beseitigen und etwa 1,5 Millionen km² zur ökologischen Restaurierung freizusetzen. Diese Agenda eines großflächigen Naturschutzes entspricht den traditionelleren Aktivitäten des Extraktivismus, verbunden mit einer Neubestimmung der Kontrolle von natürlichen Ressourcen auf Kosten lokaler Bevölkerungsgruppen. Im Gegensatz dazu kombiniert *Land Sharing* Naturschutz und Landwirtschaft innerhalb integrierter agrarökologischer Systeme, die in den größeren Rahmen sozialer und umverteilender Gerechtigkeit eingebettet sind. *Nachhaltige Intensivierung*, ein zentraler Begriff in 2014, dem Jahr des „*Family Farming*“, ist zum bevorzugten Ansatz geworden, um die Gegensätzlichkeit zwischen *Land Sparing* und *Land Sharing* (scheinbar) aufzulösen. Wir argumentieren, dass, wenn *Nachhaltige Intensivierung* in einen neoliberalen Rahmen eingepasst wird, das Risiko besteht, dass dies zu einer Phrase wird, mit der die Ideen des *Land Sharing* diskursiv vom *Land Sparing* Konzept vereinnahmt werden. Wir behaupten, dass der derzeitige Trend in Richtung eines Phänomens, das wir als „extraktiven Naturschutz“ bezeichnen, einschließlich eines eng gefassten Begriffs von nachhaltiger Intensivierung, eine makroökonomisch-technozentrischen Herangehensweise „von oben“ unterstützt. Ein solches Herangehen zwingt Naturschutz und bäuerliche Produktionssysteme zur Wettbewerbsfähigkeit in aufstrebenden „grünen“ Weltmärkten und Warenketten, wodurch die Regeln für den Zugang zu produktiven Ressourcen neu bestimmt und umverteilende Gerechtigkeit und eine demokratische Regierungsführung behindert werden.

Schlusswörter: Agrarökologie, Bäuerliche Landwirtschaft, Extraktivismus, *Food and Conservation corporate systems*, Grüner Kapitalismus, Kommodifizierung von Natur, Landwirtschaftliche Intensivierung, Neoextraktivismus, Neoliberaler Naturschutz.

Resumen

Conservación extractiva: cuando las plantas y las personas colisionan

Las transformaciones actuales en el uso la tierra son centrales para la investigación científica, para los marcos de política pública y para las organizaciones no-gubernamentales. Impulsados por complejos procesos interrelacionados y por constelaciones intrincadas de actores anidados en varias escalas, éstos incluyen comercio global de productos primarios, políticas de desarrollo nacional y estrategias cambiantes de subsistencia y estilos de vida. Gran parte del debate en uso de la tierra está centrado en la pregunta inicial sobre cómo asegurar la alimentación futura de la población mundial así como las necesidades energéticas respetando las fronteras planetarias. Así, por ejemplo, los Objetivos Aichi de Biodiversidad dentro de la Convención de la ONU en materia de diversidad biológica pretenden proteger el 17%de la superficie global terrestre (cerca de 23 millones de Km²), mientras que las reservas de tierra agrícola esta estimadas en cerca de 4 millones de Km². Dos conceptos contradictorios afirman resolver la actual competencia mundial entre biodiversidad y comida: preservación de la tierra (*land sparing*) y repartición de la tierra (*land sharing*). El concepto de *Land sparing* segrega la conservación de la concesión intensiva dl uso de la tierra para maximizar la producción agrónoma. Esta agenda de conservación de gran escala puede estar asociada a actividades extractivas más tradicionales que implican una reconfiguración del control de los recursos naturales a costa de las poblaciones locales. Por el contrario, *land sharing* combina la conservación y la agricultura dentro de un sistema agroecológico integrado inserto dentro de un marco más amplio de justicia social redistributiva. La intensificación sustentable, central para el 2014 Año de la Familia Agrícola, se ha convertido en la vía principal para solucionar la dicotomía *land sparing* vs. *Land sharing*. Sin embargo, nosotros argumentamos que si la intensificación sustentable está enraizada en un marco neoliberal, se corre el riesgo de que ésta se convierta en una “expresión de moda” que torne convencionales las ideas *de land sharing* dentro de la aproximación de *land sparing*. Nosotros sostenemos que la tendencia actual a la que nosotros llamados “conservación extractiva” así como aquella hacia una intensificación sustentable, en su acepción más estrecha, fomenta una aproximación vertical, macro económica y tecnocrática. Esto fuerza a los sistemas agrícolas y de conservación a entrar en competencia –reconfigurando las reglas de acceso a los recursos productivos, y obstaculiza la justicia redistributiva y la gobernanza democrática— dentro de los mercados globales verdes y las cadenas de mercancías.

Palabras clave: intensificación agrícola, agroecología, extractivismo, comodificación de la naturaleza, sistema corporativo de comida y conservación, capitalismo verde, nuevo extractivismo, conservación neoliberal, sistemas agrícolas.

About the authors

Anne Cristina de la Vega-Leinert

Corresponding author: Geography and Geology Institute, Ernst-Moritz-Arndt University Greifswald, Germany & México vía Berlin. Email: ac.delavega@uni-greifswald.de

de la Vega-Leinert is physical geographer by training and completed her PhD on Quaternary Sciences at Coventry University (UK). She worked as a scientific coordinator in a number of European Research Framework on modeling of vulnerability and adaptation to climate impacts first at the Flood Hazard Research Centre (UK) then the Potsdam Institute for Climate Impact Research (Germany). She is a senior researcher and lecturer at the Geography and Geology Institute of the Ernst-Moritz-Arndt University since 2008. Her current research focuses are: synergies and conflicts between conservation and land use, peasant agriculture and livelihood and food sovereignty. Since 2015 she works in the agriculture research group of México vía Berlín e. V.

Peter Clausing

México vía Berlín e. V. Email: pcl@jpberlin.de

Clausing received his Ph.D. in agriculture from the University of Leipzig, Germany, and a postgraduate degree in toxicology from the German Society for Experimental and Clinical Pharmacology and Toxicology. Since 2014 he works in the research group on agriculture of México vía Berlín e.V. and is a board member of the Pesticide Action Network, Germany. He has published two books (titles translated) – *Nature Conservation and Profit* (2008) and *The Green Matrix. Conservation and World Nutrition at a Crossroads* (2013). His writings are archived on www.welt-ernaehrung.de

Acknowledgments

The authors are grateful for the input and reflections from colleagues from scientific circles (Global Land Project - Open Science Meeting, March 2014, Berlin and 4th International Conference on Degrowth, September 2014, Leipzig, Germany; 55th International Congress of Americanists, July 2015, San Salvador, El Salvador; from the Red de Estudios Socio-Ambientales and Ecosur, Mexico; the discussion group on agroecology on the international agenda led by Prof. Jahi Chappell and México via Berlin e.V, especially Dr. Miriam Boyer) as well as food activist movements (in particular from Nyéléni and Vía Campesina).

Editorial note

This paper was originally submitted for the Special Issue Volume 6: Plants and Peoples of *Environment and Society: Advances in Research* edited by Paige West and Dan Brockington (September 2015) and is in the process of peer review.

Content

1.	Introduction	9
2.	Agricultural intensification and the expansion of frontiers	11
3.	Land Sparing: a technological fix for biodiversity conservation	16
4.	Sustainable intensification in the era of green capitalism	19
5.	Conclusions	22
6.	References	25

Extractive Conservation: Where Plants and People Collide

Anne Cristina de la Vega-Leinert
Peter Clausing

1. Introducción

Our title sounds provocative. How can conservation, the purpose of which is to protect nature from degradation, be synonymous with extraction, i.e. the exploitation of natural resources? This question is legitimate for two reasons. First, there is a need to protect what is left of nature, because of the continuous expansion of extractive frontiers and unsustainable land use (LU). Accordingly, conservation and extraction may be viewed as two sides of the same coin. Second, focusing on the Biodiversity-Food nexus, we ask to which extent conservation has become an integrative part of on-going policy and development pathways based on extractivism¹. Svampa (2013:34) defines neo-extractivism as a “*pattern of accumulation based on the over-exploitation of natural resources that are mostly non-renewable as well as the expansion of frontiers into territories, which were once considered ‘unproductive’*”². It occurs over large scales, is associated with dramatic environmental degradation, embedded in a wider process of commodification of Nature (Gudynas 2010;

¹ We do not analyze (neo)extractivism *per se* since there is a growing body of literature on this topic.

² Our translation from the original text in Spanish

FDCL and RLS 2012) and driven by top-down, often undemocratic, decision making, which stirs territorial conflicts (Svampa 2010).

Current LU transformations are central to scientific inquiry, policy frameworks and lobbying by non-governmental organizations. Driven by complex, interrelated processes and intricate actor constellations over nested scales, they include global trade in primary products, national development policies and changing livelihood strategies and lifestyles (Anderson 2010; Lambin et al. 2001; Lambin and Meyfroidt 2010). Salient trends include the continuous decline of natural forests, especially in the tropics, down to 26% of Earth's terrestrial area (ca. 40 million km²), and the associated expansion of crop and pasture land up to 33% (ca. 49 million km²)³. Productive land is becoming scarce (Lambin and Meyfroidt 2011) and large-scale land acquisitions are increasing (Zoomers 2008). Efforts to regulate LU often lead to relocation of unsustainable practice (Meyfroidt et al. 2013), particularly deforestation and environmentally damaging intensive agriculture through land grabbing and virtual imports of land and water (Hoekstra and Hung 2005; Wuertenberger et al. 2006; Borrás et al. 2011; Qiang et al. 2013). Though LU intensification has improved the well-being of some, it has exacerbated poverty worldwide, is threatening livelihoods, increasing public health costs and endangering Earth's resilience (MA 2005).

Much discussion on LU transformations revolves around the issue of how to secure food for a growing population without further biodiversity loss (Godfray et al. 2010). We analyze key lines of arguments guided by the Land Sparing vs. Land Sharing debate and argue that the Forest Transition Theory and the Land Sparing concept legitimize the rapid expansion of conservation areas observed in recent decades without adequately addressing related socio-ecological implications. We believe with others (Chappell et al. 2013; Fischer et al. 2014) that a critical re-evaluation of this debate needs to move beyond the disciplinary realms within which it has so far been discussed to address explicitly issues of access to productive resources, distributive justice and local demands for democratic governance of LU and conservation.

³ FAOSTAT (<http://faostat3.fao.org>), 2012 data. This and all following URLs were consulted in July 2015

2. Land Sparing: a technological fix for biodiversity conservation

One way to resolve the conundrum of land scarcity and multiple, competing LU is through a macro-level resource optimization and environmental accounting approach. A core concept is “Land Sparing” coined by Paul E. Waggoner (1995:17), which through spatial segregation between intensive agriculture and strict conservation, promises to reconcile competing interests by maximizing agricultural yields and minimizing the amount of agricultural land needed to quench worldwide food and energy demand (Grau and Aide 2008; Green et al. 2005a; Phalan et al. 2011a; Ewert et al. 2009). Key questions are whether Land Sparing is really effective in conserving biodiversity and what its social implications are.

Land Sparing is partly founded on the Forest Transition Theory, which hypothesizes that with intensification, agriculture concentrates on the most fertile lands, releasing the more marginal, non-profitable lands for forest regeneration (Mather and Needle 1998). Developed from observations in temperate regions, this theory has since been transferred to the tropics and condoned policies towards the abandonment of extensively used land (Aide and Grau 2004). Grau et al. (2013:480) argue that this “*can be considered an endogenous process of change in land use configuration which follows a sparing fashion*”. This causal chain has been criticized from different perspectives. For example, in a simplified view into the past, argument for forest transition in 19th century France omit the associated forced displacement of rural populations, who joined the urban poor, and the 60,000 soldiers that had to be deployed to protect the newly privatized forests (Mather et al. 1999). Further, Ramankutty et al. (2010) pointed out that forest transition in the eastern part of the USA was afforded by deforestation in the west. For Aide and Grau (2004:1915) “*conservation policies should focus on preparing rural migrants for an urban environment*”, where better paid, non-agricultural employment should compensate lost rural livelihoods. Such a promise remains wishful thinking (Jayne et al., 2014) as recent decades have witnessed a trend towards the opposite, i.e. dismantling of domestic industry (e.g. Stein 1992 for Africa), and a rise of informal urban jobs (Charmes 2011). China is an exception in forest policy (Mayer et al. 2005) and poverty reduction (Kennedy and Stiglitz 2013),

though sustained double digit economic growth have not translated into a proportionate growth of urban employment (Ge 2011). Despite an active policy to return farmland to forest (Robinson and Harrell, 2014), a substantial part of Chinese celebrated reforestation was enabled by massive imports of timber and other wood products (Mayer et al. 2005). Meyfroidt and Lambin (2011) mention seven further countries⁴, where such imports enabled altogether 22% of observed reforested area. Mills Busa (2013:197) concluded in her empirical analysis of global timber trade and national wood production of 176 countries between 1972 and 2009 that: *“high-income countries that substitute external forest resources for internal ones create the illusion of conservation within their borders while simultaneously contributing to the drawdown of natural capital worldwide”*.

This displacement of resource exploitation is not the only process that questions the expected conservation effects of Land Sparing. Urbanization can be a strong driver of deforestation. Thus De Fries et al. (2010) invalidate arguments that rural-urban migration alleviates deforestation based on an analysis of 41 countries in the humid tropics between 2000 and 2005. The complexity of the contexts, drivers and processes leading to deforestation and forest regeneration significantly limit the relevance of the forest transition theory. This is well-illustrated by detailed studies on the interrelations between rural exodus, migration (including the economic weight of remittances) and industrialization and their implications on land concentration, LU intensification, diversification or abandonment and biodiversity loss (e.g. Garcia Barrios et al. 2009; Bray and Klepeis 2005; Sloan 2007; Lambin and Meyfroidt 2011; Robson et al. 2011).

Land Sparing proponents advocate a “nature-people-dichotomy”, which has strong historical roots. Formal protected areas (PAs), which explicitly exclude people and LU, exist since the late 19th century, have become a globally accepted conservation model (IUCN 1980; Brandon et al. 1998) and expanded continuously over time (Watson 2014). In 2014, an estimated 209,000 PAs covered 15.4% of Earth’s terrestrial surface (Juffe-Bignoli et al. 2014), and the Aichi Targets of the UN Convention on Biological Diversity⁵ have raised the stake to 17% by 2020. Large-scale set-asides have become a clear indicator for conservation policy success. Grau and Aide

⁴ Bhutan, Chile, China, Costa, Rica, El Salvador, India, and Vietnam

⁵ <https://www.cbd.int/sp/targets/#GoalC>

(2008:7) conclude that “[t]o meet the rising global demand for food and conserve Latin American ecosystems, modern high-yield agriculture and agriculture adjustment coupled with rural–urban migration need to be incorporated into large-scale conservation planning”. Before addressing the implications of this statement from an agricultural perspective we consider the socio-ecological dimensions of strict protection.

In recent decades, great efforts have been made to monitor changes in biodiversity and identify their causes (Buchart et al. 2010). These are meanwhile well-known⁶, though efficient counter-strategies are often lacking (WWF 2004). The primary assumption behind strict protection is that this will help to eliminate or reduce impacts on biodiversity: a rationale that underscores the expansion of PAs. Whether PAs succeed in abating these threats depends largely on management efficiency, which has prompted the development of multiple assessment frameworks, methodologies and indicators to monitor success and failure in PA management effectiveness (PAME) (Hockins et al. 2006; Stoll-Kleemann 2010). In a major study to assess those efforts, Leverington et al. (2010) concluded that despite important improvements in the process of designing, establishing and consolidating PA boundaries, and tackling deforestation, major deficiencies remained, especially related to persisting lack of adequate resources and skills to improve management planning, law enforcement, monitoring socio-ecological impact, communication with and involvement of local people. Although there is a general consensus, that (strict) PAs do contribute to slow down deforestation and protect biodiversity (Juffe-Bignoli et al. 2014; Gaston 2008; Nolte et al., 2013), the actual ecological effectiveness of strict conservation remains a matter of debate (e.g. Brunner et al. 2001; Vanclay 2001). Further, existing global data on PA coverage and distribution point at an important bias in the representation of habitats “*towards higher elevations, steeper slopes, and lands of lower productivity, lower economic worth and low human density*” (Watson et al. 2014:69). PAs have multiplied and expanded, but not uniformly, so that certain ecoregions and key biodiversity areas remain underrepresented while 85% of all threatened species are not adequately protected (Di Minin and Toivonen 2015). The

⁶ Drivers of biodiversity loss include: climate change, alien species, LU and environmental degradation, in turn driven by societal factors such as wealth, lifestyles and consumption patterns, governance, institutional frameworks, policies and enforcement, environmental awareness (MA 2005).

protection of “charismatic” species as a path towards self-financing through ecotourism may thereby influence the selection of areas to be protected (Holmes 2013). Further, PA size, cohesion, isolation and the fragmentation of the surrounding landscape affect its resilience and capacity to sustain and restore biodiversity (Joppa et al. 2008; Bengston et al. 2003; Perfecto and Vandermeer 2010). Also, if biodiversity richness is dependent on cultural practice, LU discontinuation may endanger specific valuable habitats and species (Nabhan 1997). Some of these limits have recently been addressed in international biodiversity policy frameworks, as illustrated by efforts to establish biological corridors (IEG 2011; EU 2011; G7 2015), though it remains unclear, how such corridors should be established and function.

The establishment and gazetting of PAs has frequently been associated with the eviction or forced resettlement of local populations in the past (Brockington and Igoe, 2006; Geisler and de Sousa 2001; Chapin 2004) and present (Taylor and Griffiths 2007; Clausing 2014). Forced displacement is a phenomenon that conservation shares with extractive projects, e.g. mining, hydroelectric dams, and agricultural restructuration. Typically, this is made palatable with buzzwords such as poverty reduction through job creation and economic development, which frame a discourse centered on promises (of wealth, modernization etc), and – by generalization – create virtual realities (Holmes and Brockington 2013; Ndaskoi 2002). The establishment of PAs creates winners and losers (West et al. 2006) and reinforces or even widens existing social inequalities (Brockington and Igoe 2006; Adams and Hutton 2007). Moreover, economic losses, e.g. due to crop raiding by wildlife (Vedeld et al. 2012) or restricted access to resources (Sigalla 2013), outcompete by far the expected benefits of PAs in terms of local job creation and new income opportunities. Critical voices as those cited above “*are either denied or put in a particular light*” (Büscher et al. 2012:22) or are reframed and reinterpreted through a “purification strategy” to be reincorporated in a dominant conservation discourse (cf. Schouten and Glasbergen 2011).

World bank sociologist Michael Cernea (1997) identified eight risks of impoverishment that affect people as a result of eviction or (forced) relocation (i.e. loss of land as a productive resource, work, homes, and of access to common property and services, economic marginalization, food insecurity, increased morbidity, mortality, and social disarticulation). These apply to victims of “traditional” extractive economic activities and to

“conservation refugees”⁷: a striking parallel which guided us to choose the term “extractive conservation”.

With continuing increase in global demand for land and natural resources, the expansion of ecological set asides will have important socio-ecological implications. When PAs are set against a backdrop of poverty and structural deficiencies in development, conservation efforts that simply aim at keeping out “intruders”, are doomed to fail (Adams and Hutton 2007). Despite calls for change (Agrawal and Redford 2009), PAs are all too often designed by centralized, technocentric decisions (Gbadegesin and Ayileka 2000; Wilshusen et al. 2002), which are explicitly informed by “objective”, quantifiable indicators (Buchart et al., 2010). PA designation often implies two discursive steps, which have important implications (Robbins 2004). Areas to be gazetted are often constructed as devoid of humans, effectively denying local populations' historical claim on their territories, while human occupation and resource use within or around PA are constructed as threats for ecological integrity, and can be made illegal. Armed with these arguments, the first National Parks were designed to preserve areas of outstanding natural beauty: a continuation of the enclosures the nobility and colonial elites designated to secure exclusive hunting grounds (Adams 2003).

Nevertheless, worldwide biodiversity hotspots are far from being empty of humans. These often remote areas became refuges for both cultural diversity and biodiversity-rich farmland (Harvey et al. 2008; Pretty et al. 2009). Their populations have often been displaced from their customary territories to make room for intensive LU, and later, conservation (Chatty and Colchester 2002; Agrawal and Redford 2009; Patel 2013) and may have therefore undergone multiple forced displacements. Striking examples include: the Massai, who were forcibly relocated from the Serengeti Savannah to the Ngorongoro crater in 1959 and then evicted from there in 1974 (Neumann 2000). Other examples include the Benet Resettlement Area at Mount Elgon National Park, Uganda (Himmelfarb 2006), and the Monte Azules Biosphere Reserve in Chiapas, Mexico (Legorreta Diaz et al. 2014). We contend that the observed bias in the location and ecological representativeness of existing PAs has much to do with considerations

⁷ Dowie (2006) coined this term to distinguish people, who were forcefully removed from their lands to make room for PAs from “ecological refugees”, i.e. people displaced from their homelands as a result of drought, desertification, flooding etc.

related to the political feasibility of imposing a LU prohibition and the (in)capacity of specific local populations to defend their right and access to land. In recent decades the need for a paradigm shift towards a conservation model that is more participatory has been emphasized and experimented with in new PAs frameworks (Stoll-Kleemann et al. 2010), while the traditional biology-dominated management agenda has expanded to include wider socio-ecological issues (Watson et al., 2014; Lele 2010). Nevertheless, more radical and democratic approaches remain marginal, especially those which re-interpret conservation as the maintenance of basic natural resources towards subsistence (Martinez-Alier et al. 2014; Kothari, 2014).

3. Agricultural intensification and the expansion of frontiers

Land, especially fertile land, has always been a bone of contention, while access to it has been all but fair. The FAO (2014) estimates that globally 85% of farmers are smallholders working on plots of less than 2 ha. One mechanism to tackle conflicts related to unequal access to land, especially in Latin America, has been to allocate public forested land and regularize informal land invasion (Pacheco 2009). Thus, in Mexico, agrarian reform until the 1980s was closely associated with the expansion of the agricultural frontier through the reclamation of so-called “unproductive land” driven by the National Commission for Deforestation and the National Program for Cattle Raising (Bravo Peña 2010). In the 1970s this led to the deforestation of over 1 million ha of native forest in South Mexico and the loss of over 80% of rainforest (Merino and Segura 2007). Despite major ecological losses, the juxtaposed trends of land concentration in large agricultural and forestry holdings (primarily responsible for deforestation) and land scarcity among the poor have not changed much (Pacheco 2009; Chappell et al. 2013).

This conquest of natural areas has taken a new turn in the current wave of extractivism, with the discovery of new resources (e.g. Lithium – Wanger 2011), the expansion of the grain - oil seed – livestock complex (Weis 2013), and the emergence of new technologies and profitable markets (e.g. agrofuels: Selfa et al. 2015). These new frontiers are redefining processes of

governance, control of natural resources, and capital accumulation (Peluso and Lund 2011). As such, PAs can be viewed as new forms of enclosures and green grabbing through the reconfiguration of rules of land access, use, and management (Fairhead et al. 2012). This is embedded in a wider process of neoliberalization of nature, characterized by the redefinition of biodiversity as tradable commodity on emerging markets, new processes of territorialization, and the reshaping of role of states as regulators of access to resources, territories and markets (Castree 2008; Kelly 2011; Svampa 2013). This transforms conservation approaches as “natural capital” open financing avenues for specific activities (e.g. targeted extraction - McAfee 1999). Thus, ecotourism, constructed as environmentally non-consumptive, and by extension non-destructive, has been legitimized within PAs: a discursive strategy that reregulates access to Nature in favor of international visitors at the expenses of local populations (Campbell 2002). Selective non-timber forest extraction, hailed in the 1990s a synergy to reconcile forest protection and local development, has since been seriously questioned (Arnold and Ruiz Pérez 2001), particularly in relation to biopiracy, i.e. the patenting of genetic resources from biodiverse regions for the benefit of pharmaceutical and food-processing corporations (Mgbeoji 2006).

Meanwhile, the conservation sector has become an important recipient of international monies, well-illustrated in payment for ecosystem services (PES) programs. This has spurred new public-private alliances to develop policy and financing frameworks of action, REDD and REDD+ currently being the most discussed (Angelsen et al. 2012). Whether PES projects are contributing to long-term conservation targets, while at least doing no harm to local people remains a matter of debate (Caplow et al. 2011:164). This massive financial influx indeed reconfigures local actor constellations, politics, and governance, encourages political clientelism and corruption, while land scarcity, and land access conflicts are exacerbated by placing more and more land under strict conservation status (Fairhead et al. 2012; Legorreta Díaz et al. 2014).

Beyond its implications for conservation, the Land Sparing concept relies on critical premises on how to satisfy the growing global food demand in a resource-efficient way. Business-as-usual-projections routinely assume that agricultural production needs to increase substantially. Alexandratos and Bruinsma (2012) thus predicted a 60% overall increase in global

consumption of agricultural products by 2050 compared to a 2005/2007 baseline. In contrast, the world population is expected to grow by only 45% according to UN statistics⁸. This discrepancy arguably allows for two important phenomena. First changes in food habits, characterized by a move from a starch-based nutrition to increasing consumption of meat, dairy, and horticultural products constitute an important driver of LU and deforestation (Lambin and Meyfroidt 2011; Stoll-Kleemann and O’Riordan 2015). Thus, meat-based diets require substantially more natural resources than meat-free diets (Pimentel and Pimentel 2003). According to Wirsenius et al. (2010) a 25% decrease in per capita meat consumption in high income regions could release 3-4% of agricultural land (170 million hectares). Second, despite variations, mid-range projections suggest that by 2020 around 500 million hectares will be used for agrofuels, with a possible increase up to 20 % of all arable land by 2050 (Fritz et al. 2013). Agrofuels (in particular palm oil) also advance on areas under extensive agriculture at the expenses of subsistence agriculture (Alonso-Fradejas 2013) and native forest (Gutiérrez-Vélez et al. 2011), thereby causing substantial socio-ecological impacts (Selfa et al., 2015).

Although agricultural production has more than tripled since 1961, while world population increased by a factor of 2.26 in the same period, an estimated 795 million people remain chronically undernourished (FAO, IFAD and WFP 2015). Hunger today is therefore not related to insufficient global supplies, but to poverty (De Schutter 2010), so that for the IAASTD (2009:3) *“business as usual is no longer an option”*. Large-scale intensive agriculture simply does not feed the hungry: it feeds livestock and produces raw material (starch, sugars, oils, fiber) for industrial and energy use, and processed foods that are rich in calories, but low in nutritional qualities and drive increases in obesity and diseases such as diabetes (Friedman, 2005; Seidell 2000).

Land Sparing contenders argue that commercial seeds, chemical inputs, irrigation and genetically modified crops, are necessary to achieve high yields (Grau and Aide 2008), despite much published evidence on how intensive agriculture⁹ drives the overflow of nitrogen sinks, the exhaustion of fresh water supplies and global greenhouse gas emissions (Rockström et al.

⁸ <http://www.un.org/en/development/desa/index.html>

⁹ with its more pronounced form in the grain - oil seed - livestock complex according to Weis 2013 and embedded in corporate food regimes as defined by McMichael 2009.

2009; Tscharrntke et al. 2012; Phelps et al. 2013; Smith et al. 2007; Gerber et al. 2013). Agricultural intensification stress planetary boundaries and could generate the Jevons paradox, whereby gains in technological efficiency further drive the extension of agricultural frontiers (Ceddia et al. 2014). This is reinforced by the pervasive financialization of the food sector (Clapp 2014, Fairbairn, 2012), the expansion so-called flexcrops¹⁰ (Borras et al. 2014) and speculation on food staples¹¹ despite recurrent food crises worldwide (Holt-Gimenez and Shattuck 2011). Concerns are growing, though this dominant agricultural system is rarely seriously challenged by official politics (De Schutter 2010).

4. Sustainable intensification in the era of green capitalism

To counter Land Sparing, the Land Sharing narrative emphasizes how productive and resilient agroecological systems can shape coherent, well connected, and diverse landscape matrix of high conservation value (Harvey et al. 2008; Perfecto and Vandermeer 2010; Altieri and Toledo 2011). This fosters a framework of decentralized governance, participation and community-based management, particularly through forms of conservation that explicitly integrate LU through zoning and regulation of activities, e.g. UNESCO Biosphere Reserves (de la Vega-Leinert, 2014). Land Sharing proposes a revalorization of traditional peasant LU and landscapes and emphasizes the importance of local food systems and short food circuits. While intensive systems have shown their dependence on high inputs and vulnerability to climate change, traditional peasant systems, which have proved long-term resilience and adaptability, can be combined with modern agronomy and ecological engineering to increase productivity and upscale successful local experiments (Altieri et al. 2015). The latter nevertheless requires capacity building and social networks that foster the sharing of experience, political literacy, and lobbyism (Holt-Gimenez 2006; Rosset and

¹⁰ i.e. crops that can be used for human and animal food and agrofuels

¹¹ UN Special Rapporteur on the human right to food, Jean Ziegler, denounced agrofuels as a crime against humanity (McMichael, 2012)

Martínez Torres 2012; Parmentier 2014). Agroecology is thus much more than a specific agricultural practice, but also a science and a political movement (Wezel et al. 2009). It has strong affinities with the ideological foundation and political demands of the food sovereignty movement (Wittman 2009), which clearly positions itself in favor of the defense of peasant agriculture, its territories and rights (to autonomy and self determination). Critiques have primarily highlighted that Land Sharing may further promote conversion of natural ecosystems, while biodiversity in extensive, multiple LU system may not be quantitatively and qualitatively equivalent to biodiversity under strict conservation (Green et al., 2005a). Also, verifiable, quantitative data supporting the contention that Land Sharing is effective are for some authors insufficient (Phalan et al. 2011b; Green et al. 2005b). Skeptics fundamentally question the capacity of peasant systems to address the future food needs of a growing population of non farmers, especially urban (Bernstein 2014). Nevertheless, two major reviews have compared conventional with agroecological production systems, with a focus on global South farming conditions. Pretty et al. (2006) identified an average crop yield increase of 79 % based on the comparison of a total of 286 agroecological projects covering 37 million hectares and twelve different crops (including maize, potato, rice, wheat, vegetables). Likewise, based on 293 examples (160 in the global North; 133 in the global South), Badgley et al. (2007) analyzed the yield proportion for conventional vs. organic farming for ten different food categories (including meat, eggs and milk). While the overall output in the North was 9% lower, they found a 74% higher output in the South, where increase is most needed. For Latin America, numerous individual examples illustrate the potential of agroecological farming systems (Altieri and Toledo 2011).

It is not our intention to detail further the arguments in the Land Sparing vs. Land Sharing debate, particularly since a synthesis already exists (Kremen 2015). Instead, we draw attention to recent efforts to resolve the debate by refocusing on strategies to foster “sustainable intensification” (Grau et al. 2013). This concept was originally coined by Pretty in 1997, who contended that low-input agriculture could be highly productive provided farmers participated fully in all stages of technology development and extension. Some authors recently highlighted the risk of this term becoming

an empty buzzword in view of its multiple and widely differing interpretations (Scoones and Thompson 2011; Loos et al. 2014).

Sustainable intensification theoretically can address the short-comings of intensive LU under Land Sparing (i.e. limiting its ecological impacts) and extensive LU under Land Sharing (i.e. increasing productivity). It is being mainstreamed in international policy frameworks as a win-win solution, though it may be viewed as simple green washing of intensive agriculture systems (Cook et al. 2015). We argue that a shallow interpretation of this term, i.e. one devoid of more radical political implications, is being embedded in a framework of green capitalism, and mainstreams Land Sharing ideas into a Land Sparing approach. This is best seen in the controversy surrounding Climate Smart Agriculture (CSA), which aims at increasing agricultural efficiency, reducing environmental externalities and adapting existing agricultural systems (FAO 2013). For Vía Campesina, CSA indiscriminately lumps together all forms of agriculture and fails to emphasize the responsibility of industrial agriculture in driving climate change and to demand real transformations in this sector¹².

A narrow interpretation of sustainable intensification does not recognize the important political and equity issues related to distribution and access to land and resources, which jeopardizes the capacity of peasant farmers to feed themselves and others (Cook et al. 2015). Despite the 2014 International Year on Family Farming, peasant farmers are portrayed as deficient, and in need of external help to climb up the idealized pyramid from subsistence to commercial farming and successful integration into global commodity chains (FAO, 2014:25). This ignores that peasant systems, though rapidly transforming, consistently play a key role in global agricultural and food markets, despite chronic underfunding and constant assaults from trade policies that privilege large-scale, export farming (ETC 2009; van der Ploeg 2014). Further, peasant agroecological systems are being repackaged as providers of multiple goods, such as subsistence staples (e.g. quinoa), typical colonial crops (e.g. coffee), non-timber forest products from shaded polyculture, and emerging ecosystems services (Laguna et al. 2006; Carletto et al. 2011; Tscharnkte et al. 2015). A precursor for this development was the

¹² Vía Campesina. *UN-masking Climate Smart Agriculture*. Press release published on Tuesday, 23 September 2014 - <http://viacampesina.org/en/index.php/main-issues-mainmenu-27/sustainable-peasants-agriculture-mainmenu-42/1670-un-masking-climate-smart-agriculture>

Fair Trade movement, which intended to escape conventional market rules by creating solidarity networks between consumers and producers¹³ (Ruben and Fort 2011). Certified fair trade products have since the 1990s benefited from market niches and brought significant improvements in the living standards of marginalized producers (Calo and Wise 2005). Nevertheless, rapidly increasing offer has led to market saturation driving producers to costly multiple certification schemes to compete for new market niches (Renard 2005; Gómez Tovar et al. 2005). Despite promises, many farmers are facing mounting debts, fluctuating prices, and, when subsistence crops were abandoned for cash crops, precariousness and hunger (Wilson 2010). Bob St Peter (Vía Campesina)¹⁴ in this respect believes that peasant farmers are becoming a captive labor forced to satisfy urban food preferences, which strongly affects their capacity to determine and satisfy their own needs.

5. Conclusions

Proposals to overcome the Land Sparing vs Land Sharing dichotomy lead to a consensus that both models are needed to solve the Biodiversity-Food-Conundrum, though how to reconcile them in practice remains a matter of discussion. Fischer et al. (2014) identified major points of contention in the debate and recommended to: 1) refocus the debate on land scarcity and commodity instead of (food) production, 2) recognize the limits of scientific frameworks, (particularly trade off analyses), and 3) refine scale issues. Kremen (2015) emphasized the need to move beyond simplistic frameworks and assumptions, and proposed a conceptual model that explicitly considers critical dimensions all too often forgotten in the Land Sparing vs. Land Sharing debate, i.e. market dynamics, governance, land tenure systems, and agricultural, conservation and development policies.

We argue that the conceptual debate on Land Sparing vs. Land Sharing as well as on sustainable intensification remains all too often embedded in a

¹³ What follows is based on the case of coffee, but is applicable for a number of high value export crops.

¹⁴

<https://www.youtube.com/watch?v=N4RBs39MV8o&index=9&list=PL6JrfdlcGYWw1ME003KzhRi9jXvernty>

paradigm of capitalistic growth, top-down driven extractivism and neoliberalization of Nature. Rather than fundamentally challenging the structural causes and implications of global resource exploitation, the core question of the Biodiversity-Food-Nexus is articulated based on the assumption that land is scarce and needs to be carefully managed to accommodate increasing and unavoidable resource needs. A big part of this policy-relevant intellectual debate, though explicitly aiming at controlling the expansion of extractive frontiers over natural forests, remains nonetheless articulated in a discursive framework that promises to resolve crises of scarcity through an optimization approach, gains in efficiency (in agriculture and conservation), and technological progress at macro scale. At best this seeks to neutralize social conflict through technocentric, solution-oriented decision making, which does not address explicitly the issue of rights and equity in land and resource access; while at worst it justifies the expropriation and displacement of people for the “common good” (i.e. conservation / food for all). This reminds of the “old” Green Revolution, where redistributive land reform was avoided with the promise of prosperity for all through development and growth (Patel 2013). Despite its seductive narrative (feeding the world, saving the forest), looking through the lense of local populations, many of the assumptions underscoring Land Sparing and mainstreamed “sustainable intensification” are ethically, socially, and politically questionable. The critical role of biodiversity diverse, smallholder agricultural systems and of short circuits for food security and local economies is deliberately ignored, while thorny political issues of access to land and rights to autonomy are bypassed.

We propose to view recent changes in the international conservation sector as a process of emergence of a corporate conservation system, which paradoxically drives new forms of resource predation and dispossession despite its explicit goal of protecting key ecological commons (e.g. the climate, the Amazon). Based on McMichael’s concept of “corporate food system”, Peluso and Lund’s new frontiers of land control, Svampa’s “consensus of commodities” and Fairhead et al.’s analysis of green grabbing, we argue that, corporate conservation systems are characterized by:

- A macro-scale approach, which pushes the continuous expansion of PAs, at the expense of local populations;

- New actor constellations, in which public and private (NGOs and corporate) actors reconfigure territories and access to natural resources;
- Conservation approaches that fosters new forms of territorial exclusion and inclusion (e.g. in PES schemes) and interfere in local governance;
- New forms of commodification of Nature and financialization of conservation, especially associated with the revalorization of “emblematic species and landscapes” and specific ecosystem services (i.e. regulatory, supporting, recreation and aesthetic for emergent green markets) over others (i.e. productive for subsistence).

To push transformations away from this trend, we agree with Holt Gimenez and Shattuck (2011), who believe that forging broad political alliances and social movements are key. An interesting development in this respect is the convergence of new demands to the FAO stemming from farmers, food sovereignty activists and concerned scientists to explicitly endorse agroecology, as opposed to a technologically-oriented version of sustainable intensification as one key path towards food sovereignty¹⁵.

¹⁵ Nyéléni Declaration of the international forum on agroecology: <http://www.foodsovereignty.org/forum-agroecology-nyeleni-2015/>; Scientists' Open Letter to FAO Director General Graziano da Silva, in Support of the February 2015 Declaration of the International Forum for Agroecology: <http://www.iatp.org/documents/scientists%E2%80%99-open-letter-to-fao-director-general-graziano-da-silva-in-support-of-the-februa#sthash.MQoKZ8yF.dpuf>

6. References

- Adams, William M. 2003. "Nature and the Colonial Mind". Pp. 16-51 in *Decolonizing Nature – Strategies for Conservation in a Postcolonial Era*, eds. A.M. Adams and M. Mulligan (eds.). London: Earthscan.
- Adams, William M., and Jon Hutton. 2007. "People, Parks and Poverty: Political Ecology and Biodiversity Conservation". *Conservation and Society* 5, no. 2: 147–183.
- Agrawal, Arun N. and Kent Redford. 2009. "Conservation and Displacement: An Overview". *Conservation and Society* 7, no. 1: 1-10, doi: 10.4103/0972-4923.54790
- Aide, T. Mitchell, and H. Ricardo Grau. 2004. "Globalization, Migration and Latin American Ecosystems". *Science* 305: 1915-1916, doi: 10.1126/science.1103179
- Alexandratos, Nikos and Jelle Bruinsma. 2012. "World Agriculture Towards 2030/2050: the 2012 Revision. ESA Working paper No. 12-03. Rome: FAO.
- Alonso-Fradejas, Alberto. 2013. "Sons and daughters of the Earth: Indigenous communities and land grabs in Guatemala." *Land & Sovereignty in the Americas Series* 1. Oakland, CA, USA: Food First/Institute for Food and Development Policy and Transnational Institute. http://foodfirst.org/wp-content/uploads/2013/12/LS1-Land-Sovereignty-Series-Brief-No1_Fradejas.pdf
- Altieri, Miguel A. and Victor M. Toledo. 2011. "The Agroecological Revolution in Latin America: Rescuing Nature, Ensuring Food Sovereignty and Empowering Peasants". *Journal of Peasant Studies* 38, no. 3: 587-612, doi: 10.1080/03066150.2011.582947
- Altieri, Miguel A., Clara I. Nicholls, Alejandro Henao and Marcos A. Lana. 2015. "Agroecology and the Design of Climate Change-Resilient Farming Systems". *Agronomy for Sustainable Development* 35, no. 3: 869-890, doi 10.1007/s13593-015-0285-2

- Anderson, Kym. 2010. "Globalization's Effect on World Agricultural Trade, 1960 – 2050", *Phil. Trans. R. Soc. B* 365, no. 1554: 3007-3021, doi: 10.1098/rstb.2010.0131
- Angelsen, Arild, Maria Brockhaus, William D. Sunderlin, and Verchot, Louis V. (eds) 2012. „*Analysing REDD+: Challenges and choices*“. Bogor, Indonesia: CIFOR, http://www.cifor.org/publications/pdf_files/Books/BAngelsen1201.pdf
- Arnold, J.E. Michael and M. Ruiz Pérez. 2001. "Can Non-Timber Forest Products Match Tropical Forest Conservation and Development Objectives?" *Ecological Economics* 39: 437-447, doi:10.1016/S0921-8009(01)00236-1
- Badgley, Catherine, Jeremy Moghtader, Eileen Quintero, Emily Zakem, M. Jahi Chappell, Katia Avilés-Vazquez, Andrea Samulon and Ivette Perfecto. 2007. "Organic Agriculture and the Global Food Supply". *Renewable Agriculture and Food Systems* 22, no. 2: 86-108, doi:10.1017/S1742170507001640
- Bengtsson, Jane, Per Angelstam, Thomas Elmqvist, Urban Emanuelsson, Carl Folke, Margareta Ihse, Fredrik Moberg, and Magnus Nystrom. 2003. "Reserves, Resilience and Dynamic Landscapes". *AMBIO* 32, no. 6: 389–396
- Bernstein, Henry. 2014. "Food Sovereignty via the 'Peasant Way': A Skeptical View". *Journal of Peasant Studies* 41, no.6: 1031-1063, doi: 10.1080/03066150.2013.852082
- Borras, Saturnino, David Fig, and Sofía Monsalve Suarez. 2011. "The Politics of Agrofuels and Mega-Land and Water Deals: Insights from the ProCana Case, Mozambique". *Review of African Political Economy* 38, no. 128: 215–234, doi: 10.1080/03056244.2011.582758
- Borras Jr., Saturnino M, Jennifer C. Franco, Ryan Isakson, Les Levidow, and Pietje Vervest. 2014. *Towards Understanding the Politics of Flexcrops and Commodities: Implications for Research and Policy Advocacy*. Transnational Institute (TNI) Agrarian Justice Program. Think Piece Series on Flexcrops and commodities No. 1.

- Brandon, Katrina, Kent Redford, Steven E. Sanderson. 1998. *Parks in Peril – People, Politics, and Protected Areas*. The Nature Conservancy. Washington DC: USA. Island Press.
- Bravo Peña, Luis C., Olga S. Doode Matsumoto, Alejandro E. Castellanos Villegas, and Ileana Espejel Carbajal. 2010. “Políticas Rurales y Pérdida de Cobertura Vegetal. Elementos para Reformular Instrumentos de Fomento Agropecuario Relacionados con la Apertura de Praderas Ganaderas en el Noroeste de México”. *Región y Sociedad* 22, no. 48: 3-35. <http://www.scielo.org.mx/pdf/regsoc/v22n48/v22n48a1.pdf>
- Bray, David B. and Peter Klepeis. 2005. “Deforestation, Forest Transitions, and Institutions for Sustainability in Southeastern Mexico, 1900–2000”. *Environment and History* 11: 195–223, doi:10.3197/096734005774434584
- Brockington Dan and Jim Igoe. 2006. “Eviction for Conservation. A Global Overview”. *Conservation and Society* 4, no. 3: 424-470
- Bruner, Aaron G, Raymond E. Gullison, Richard E. Rice, and Gustavo A.B. da Fonseca. 2001. “Effectiveness of Parks in Protecting Tropical Biodiversity”. *Science* 291: 125–128, doi:10.1126/science.291.5501.125
- Buchart, Stuart H.M. 2010. “Global Biodiversity: Indicators of Recent Declines”. *Science* 328, no. 5982: 1164-1168, doi:10.1126/science.1187512
- Büscher, Bram, Sian Sullivan, Katja Neves, Jim Igoe and Dan Brockington. 2012. “Towards a Synthesized Critique of Neoliberal Biodiversity Conservation”. *Capitalism Nature Socialism* 23, no. 2: 4-30, doi:10.1080/10455752.2012.674149
- Calo, Muriel and Timothy A. Wise. 2005. *Revaluing Peasant Coffee Production: Organic and Fair Trade Markets in Mexico*. Medford, USA: Global Development and Environment Institute, Tufts University.
- Campbell, Lisa M. 2002. “Conservation Narratives in Costa Rica: Conflict and Co-existence”. *Development and Change* 33: 29-56, doi: 10.1111/1467-7660.00239
- Caplow, Susan, Kathleen Lawlor, and Erin Sills. 2011. “Evaluating Land Use and Livelihood Impacts of Early Forest Carbon Projects: Lessons for

- Learning about REDD+“. *Environmental Science and Policy* 14: 152-167, doi:10.1016/j.envsci.2010.10.003
- Carletto, Calogero, Talip Kilic, and Angeli Kirk. 2011. “Non-Traditional Crops, Traditional Constraints: The Long-Term Welfare Impacts of Export Crop Adoption among Guatemalan Smallholders”. *Agr Econ* 42: Supplement 61–75, doi: 10.1111/j.1574-0862.2011.00552.x
- Castree, Noel. 2008. “Neoliberalising Nature: The Logics of Deregulation and Reregulation”. *Environment and Planning A* 40: 131-153, doi:10.1068/a3999
- Ceddia, Michele Graziano, Nicholas Oliver Bardsley, Sergio Gomez-y-Paloma, and Sabine Sedlacek. 2014. “Governance, agricultural intensification, and land sparing in tropical South America”. *PNAS* 111, no.20: 7242-7247, doi:10.1073/pnas.1317967111
- Cernea, Michael. 1997. “The Risks and Reconstruction Model for Resettling Displaced Populations”. *World Development* 25, no. 10: 1596-1587, doi:10.1016/S0305-750X(97)00054-5
- Chapell, M. Jahi, Wittman Hannah, Christopher M. Bacon, Bruce G. Ferguson, Luis García Barrios, Raúl García Barrios, Daniel Jaffee, Jefferson Lima, V. Ernesto Méndez, Helda Morales, Lorena Soto-Pinto, Johan Vandermeer and Ivette Perfecto. 2013. “Food Sovereignty: An Alternative Paradigm for Poverty Reduction and Biodiversity Conservation in Latin America”. *F1000 Research* 2: 235, doi: 10.12688/f1000research.2-235.v1
- Chapin, Mac. 2004. “A Challenge to Conservationists.” *World Watch Magazine*, November/December 2004: 17-31.
- Charmes, Jacques. 2012. “The Informal Economy Worldwide: Trends and Characteristics”. *Margin: The Journal of Applied Economic Research* 6, no. 2: 103-132, doi: 10.1177/097380101200600202
- Chatty, Dawn and Markus Colchester. 2002. *Conservation and Mobile Indigenous Peoples: Displacement, Forced Settlement and Sustainable Development*. Berghahn Books.
- Clapp, Jennifer. 2014. “Financialization, distance and global food politics“. *Journal of Peasant Studies* 41, no. 5: 797-814, doi: 10.1080/03066150.2013.875536

- Clausing, Peter. 2014. *Die Grüne Matrix. Naturschutz und Welternährung am Scheideweg*. Münster: Unrast.
- Cook, Seth, Laura Silici, Barbara Adolph, and Sarah Walker. 2015. *Sustainable Intensification Revisited*. IIED Issue Paper. London: IIED.
- DeFries, Ruth S. Thomas K., Rudel, Maria Uriarte, and Matthew Hansen. 2010. "Deforestation Driven by Urban Population Growth and Agricultural Trade in the Twenty-First Century". *Nature Geoscience* 3: 178–181, doi:10.1038/ngeo756
- de la Vega-Leinert, A. Cristina. 2014. "Can UNESCO Biosphere Reserves bridge the apparent gap between land sharing and land sparing?" *Global Land Project NEWS*. Issue 10: 21-24. http://www.globallandproject.org/arquivos/GLPNews_Jun2014v3.pdf
- De Schutter, Olivier. 2010. "Report submitted by the Special Rapporteur on the right to food". *United Nations General Assembly. Human Rights Council, 16th Session. A/HRC/16/49*. <http://www2.ohchr.org/english/issues/food/docs/A-HRC-16-49.pdf>
- Di Minin, Enrico and Tuuli Toivonen. 2015. "Global Protected Area Expansion: Creating More Than Paper Parks". *BioScience* 65, no. 7: 637-638, doi:10.1093/biosci/biv064
- Dowie, Mark. 2006. "Conservation refugees. When protecting nature means kicking people out." *Seedling*, January 2006: 6-12. <https://www.grain.org/article/entries/545-conservation-refugees-when-conservation-means-kicking-people-out.pdf>
- ETC. 2009. *Who Will Feed Us? Questions for the Food and Climate Crises*. ETC Group. <http://www.etcgroup.org/content/who-will-feed-us>
- EU. 2011. *The EU Biodiversity Strategy to 2020*. European Union. <http://ec.europa.eu/environment/nature/info/pubs/docs/brochures/2020%20Biod%20brochure%20final%20lowres.pdf>
- Ewert, Robert M., Jörn P.W. Scharlemann, Andrew Balmford, and Rhys E. Green. 2009. "Do increases in agriculture yield spare land for nature?" *Global Change Biology* 15: 1716-1728, doi: 10.1111/j.1365-2486.2009.01849.x

- Fairbairn, Madeleine. 2014. "Like gold with yield': evolving intersections between farmland and finance." *The Journal of Peasant Studies* 41, no. 5. doi: 10.1080/03066150.2013.873977
- Fairhead, James, Melissa Leach, and Ian Scoones,. 2012. "Green Grabbing: A New Appropriation of Nature?" *Journal of Peasant Studies* 39, no. 2: 237-261, doi: 10.1080/03066150.2012.671770
- FAO. 2013. *Climate Smart Agriculture – Sourcebook*. Rome: Food and Agricultural Organization. <http://www.fao.org/docrep/018/i3325e/i3325e.pdf>
- FAO. 2014. *The State of Food and Agriculture – 2014*. Rome: Food and Agriculture Organization. <http://www.fao.org/publications/sofa/2014/en/>
- FAO, IFAD and WFP. 2015. "The State of Food Insecurity in the World. Meeting the 2015 International Hunger Targets: Taking Stock of Uneven Progress". Rome. FAO. <http://www.fao.org/3/a4ef2d16-70a7-460a-a9ac-2a65a533269a/i4646e.pdf>
- FDCL and RLS. 2012. *Der Neue Extraktivismus - Eine Debatte über die Grenzen des Rohstoff-Modells in Lateinamerika*. FDCL e.V., Rosa-Luxemburg-Stiftung, Berlin. http://www.rosalux.de/fileadmin/rls_uploads/pdfs/sonst_publicationen/Der_Neue_Extraktivismus.pdf
- Fischer, Joern, David J. Abson, Van Butsic, M. Jahi Chappell, Johan Ekroos, Jan Hanspach, Tobias Kuemmerle, Henrik G. Smith, and Henrik von Wehrden. 2014. "Land Sparing Versus Land Sharing: Moving Forward". *Conservation Letters* 7, no. 3: 149-157, doi: 10.1111/conl.12084
- Friedmann, Harriet. 2005. "Feeding the Empire: The Pathologies of Globalized Agriculture". *Socialist Register* 41. <http://socialistregister.com/index.php/srv/issue/view/442#.Vdj4hn0vxmE>
- Fritz, Steffen, Linda See, Marijn van der Velde, Rachel Nalepa, Christoph Perger, Christian Schill, Ian McCallum, Dmitry Schepaschenko, Florian Kraxner, Ximing Cai, Xiao Zhang, Simone Ortner, Rubul Hazarika, Anna Cipriani, Carlos Di Bella, Ahmed H. Rabia, Alfredo Garcia, Maryana Vakolyuk, Kuleswar Singha, Maria E. Beget, Stefan Erasmi, Franziska Albrecht, Brian Shaw and Michael Obersteiner. 2013. "Downgrading

Recent Estimates of Land Available for Biofuel Production". *Environmental Science and Technology* 47, no.3: 1688-1694, doi:10.1021/es303141h

G7. 2015. *G7 Elmau Progress Report - Biodiversity – A Vital Foundation for Sustainable Development*.
<http://www.bmz.de/g7/includes/Downloadarchiv/G7-Elmau-Progress-Report-2015-Biodiversity-A-vital-foundation-for-sustainable-development.pdf>

Garcia Barrios, Luis, Yankuic M., Galván-Miyoshi, Ingrid A. Valdivieso-pßerze, Omar R. Masera, Gerardo Bocco, and John Vandermeer. 2009. "Neotropical Forest Conservation, Agricultural Intensification, and Rural Out-migration: The Mexican Experience". *BioScience* 59, no. 10: 863-873, doi:10.1525/bio.2009.59.10.8

Gaston, Kevin J., Sarah F. Jackson, Lisette Cantú-Salazar L, and Gabriela Cruz Piñon. 2009. "The Ecological Performance of Protected Areas". *Annu. Rev. Ecol. Evol. Syst.* 39: 93–113, doi: 10.1146/annurev.ecolsys.39.110707.173529

Gbadegesin, Adeniyi and Olatubosum Ayileka. 2000. "Avoiding the Mistakes of the Past: Towards A Community Oriented Management Strategy for the Proposed National Park in Abuja-Nigeria". *Land Use Policy* 17, no. 2: 89–100, doi:10.1016/S0264-8377(00)00005-3

Ge, Wei. 2011. "China's Urban Unemployment Challenge". *International Journal of Business and Social Sciences*, 2, no. 4: 16-31. http://ijbssnet.com/journals/Vol.2_No.4;_March_2011/3.pdf

Geisler, Charles and Ragendra de Sousa. 2001. "From Refuge to Refugee. The African Case". *Public Administration and Development* 21, no. 2: 159-170, doi:10.1002/pad.158

Gerber, P.J., H. Steinfeld, B. Henderson, A. Mottet, C. Opio, J. Dijkman, A. Falcucci, and G. Tempio. 2013. *Tackling Climate Change Through Livestock – A Global Assessment of Emissions and Mitigation Opportunities*. Rome: Food and Agriculture Organization of the United Nations

Godfray, H. Charles J., John R. Beddington, Ian R. Crute, Lawrence Haddad, David Lawrence D, James F. Muir, Jules Pretty, Sherman Robinson, Sandy T. Thomas, and Camilla Toulmin C. 2010. "Food Security: The

- Challenge of Feeding 9 Billion People”, *Science* 327: 812-818, doi: 10.1126/science.1185383
- Gómez Tovar, Laura, Laura Martin, Manuel A. Gómez Cruz, and Tad Mutersbaugh. 2005. “Certified Organic Agriculture in Mexico: Market Connections and Certification Practices in Large and Small Producers”. *Journal of Rural Studies* 21: 461-74, doi:10.1016/j.jrurstud.2005.10.002
- Grau, H. Ricardo and T. Mitchell Aide M. 2008. “Globalization and Land-Use Transitions in Latin America”. *Ecology & Society* 13, no. 2: 16
- Grau, Ricardo, Tobias Kuemmerle, and Leandro Macchi. 2013. “Beyond ‘Land Sparing Versus Land Sharing’: Environmental Heterogeneity, Globalization and the Balance Between Agricultural Production and Nature Conservation”. *Current Opinion in Environmental Sustainability* 5: 477–483, doi:10.1016/j.cosust.2013.06.001
- Green, Rhys E., Stephen J. Cornell, Jörn P.W. Scharlemann, and Andrew Balmford. 2005a. “Farming and the Fate of Wild Nature”. *Science* 307, no. 5709: 550–555, doi: 10.1126/science.1106049
- Green, Rhys E., Stephen J. Cornell, Jörn P.W. Scharlemann, and Andrew Balmford. 2005b. “Response to Vandermeer and Perfecto”. *Science* 308:1257.
- Gudynas, Eduardo. 2010. Diez Tesis Urgentes Sobre el Nuevo Extractivismo - Contextos y Demandas bajo el Progresismo Sudamericano Actual. Pp. 187-225 in *Extractivismo, política y sociedad*. Quito: Ecuador: CAAP, CLAES. <http://www.extractivismo.com/extractivismoquito09.html>
- Gutiérrez-Vélez, Victor H., Ruth DeFries, Miguel Pinedo-Vásquez, María Uriarte, Christine Padoch, Walter Baethgen, Katia Fernandes, and Yili Lim. 2011. “High-Yield Oil Palm expansion Spares Land at the Expense of Forests in the Peruvian Amazon”. *Environ. Res. Lett.* 6, no. 4, doi:10.1088/1748-9326/6/4/044029
- Harvey, Celia, Oliver Komar, Robin Chazdon, Bruce Ferguson, Bryan Finegal, Daniel M. Griffith, Miguel Martínez-Ramos, Helda Morales, Ronald Nigh, Lorena Soto-Pinto, Michel Van Breugel, and Mark Wishnie. 2008. “Integrating Agricultural Landscapes with Biodiversity Conservation in the Mesoamerican Hotspot”. *Conservation Biology* 22, no. 1: 8-15, doi: 10.1111/j.1523-1739.2007.00863.x

- Himmelfarb, David. 2006. Moving People, Moving Boundaries: The Socio-Economic Effects of Protectionist Conservation, Involuntary Resettlement and Tenure Insecurity on the Edge of Mt. Elgon National Park, Uganda. Agroforestry in Landscape Mosaics Working Paper Series. World Agroforestry Centre, Tropical Resources Institute, Yale University New Haven, Connecticut. <http://outputs.worldagroforestry.org/record/3759/files/WP06233.pdf>
- Hockings, Marc, Sue Stolton, Fiona Leverington, Nigel Dudley, and José Courrau. 2006. *Evaluating Effectiveness: A Framework for Assessing Management Effectiveness of Protected Areas*. 2nd edition. IUCN, Gland, Switzerland and Cambridge, UK.
- Hoekstra, AY, Hung PQ. 2005. "Globalisation of Water Resources: International Virtual Water Flows in Relation to Crop Trade". *Global Environmental Change* 15: 45–56, doi:10.1016/j.gloenvcha.2004.06.004
- Holmes, George. 2013. What Role Do Private protected Areas Have in Conserving Global Biodiversity? Working Paper no. 46, Sustainability Research Institute, University of Leeds, UK. <http://www.see.leeds.ac.uk/fileadmin/Documents/research/sri/workingpapers/SRIPs-46.pdf>
- Holmes, George and Dan Brockington. 2013. "Protected Areas – What People Say about Well-Being". Pp. 160-172 in: *Biodiversity Conservation and Poverty Alleviation. Exploring the Evidence for a Link*, eds. Roe, Dilys, Chris Sandbrook and Matt Sandpole Wiley & Sons, Chichester, UK
- Holt-Gimenez, Eric. 2006. "Movimiento Campesino a Campesino – Linking Sustainable Agriculture and Social Change". *Backgrounder* 12, no. 1: 1-4. Food First Institute for Food and Development Policy.
- Holt-Gimenez, Eric and Annie Shattuck. 2011. "Food Crises, Food Regimes and Food Movements: Rumbblings of Reform or Tides of Transformation?" *Journal of Peasant Studies* 38, no. 1: 109-144, doi: 10.1080/03066150.2010.538578
- IAASTD. 2009. Synthesis Report. Washington, D.C., USA. <http://www.weltagrarbericht.de/fileadmin/files/weltagrarbericht/IAASTDBerichte/SynthesisReport.pdf>

- IEG. 2011. "The Mesoamerican Biological Corridor". *Regional Program Review* 5, no. 2. http://ieg.worldbankgroup.org/Data/reports/mbc_rpr.pdf
- IUCN. 1980. *World Conservation Strategy: Living Resource Conservation for Sustainable Development* (International Union for Conservation of Nature – United Nations Environment Programm – WWF. <https://portals.iucn.org/library/efiles/documents/WCS-004.pdf>
- Jayne, T.S., Jordan Camberlain, and Derek Heady. 2014. "Land Pressures, the Evolution of Farming Systems, and Development strategies in Africa: A Synthesis". *Food Policy* 48: 1-17, doi: 10.1016/j.foodpol.2014.05.014
- Joppa, Lucas N., Scott R. Loarie, and Stuart L., Pimm. 2008. "On the Protection of "Protected Areas"". *PNAS* 105, no. 18: 6673–6678, doi: 10.1073/pnas.0802471105
- Juffe-Bignoli, D., N.D. Burgess, H. Bingham, E.M.S. Belle, M.G. de Lima, M. Deguignet, B. Bertzky, A.N. Milam, J. Martinez-Lopez, E. Lewis, A. Eassom, S. Wicander, J. Geldmann, A. van Soesbergen, A.P. Arnell, B. O'Connor, S. Park, Y.N. Shi, F.S. Danks, B. MacSharry, and N. Kingston. 2014. *Protected Planet Report 2014*. United Nations Environmental Program. <http://www.unep-wcmc.org/resources-and-data/protected-planet-report-2014>
- Kelly, Alice B. 2011. "Conservation Practice as Primitive Accumulation". *Journal of Peasant Studies* 38, no. 4: 683–701, doi:10.1080/03066150.2014.953490
- Kennedy, David and Joseph E. Stiglitz (eds.). 2013. *Law and Economics with Chinese characteristics. Institutions for promoting development in the twentyfirst century*. Oxford, UK: Oxford University Press.
- Kothari, Ashish. 2014. "Radical Ecological Democracy: A Path Forward for India and Beyond". *Development* 57, no. 1: 36-45, doi:10.1057/dev.2014.43
- Kremen, Claire. 2015. „Reframing the Land-Sparing/Land-Sharing Debate for Biodiversity Conservation“. *Annals of the New York Academy of Sciences*, doi: 10.1111/nyas.12845
- Laguna, Pablo, Zina Cáceres, and Aurélie Carimentrand. 2006. "Del Altiplano Sur Boliviano hasta el Mercado Global: Coordinación y Estructuras de

Gobernancia en la Cadena de Valor de la Quinoa Orgánica y del Comercio Justo”. *Agroalimentaria* 22: 65-76.

- Lambin, Eric F., B.L. Turner, Helmut J. Geist, Samuel B. Agbola SB, Arild Angelsen, John W. Bruce, Oliver T. Coomes, Rodolfo Dirzo, Günther Fischer, Carl Folke, P.S. George, Katherine Homewood, Jacques Imbernon, Rik Leemans, Xiubin Li, Emilio F. Moran, Michael Mortimore, P.S. Ramakrishnan, John F. Richards, Helle Skånes, Will Steffen, Glen D. Stone, Uno Svedin, Tom A. Veldkamp, Coleen Vogel, and Jianchu Xu. 2001. “The Causes of Land-Use and Land-Cover Change: Moving Beyond the Myths”. *Global Environmental Change* 11: 261–269.
- Lambin, Eric F. and Patrick Meyfroidt. 2010. “Land Use Transitions: Socio-Ecological Feedback Versus Socio-Economic Change”. *Land Use Policy* 27: 108-118, doi:10.1016/j.landusepol.2009.09.003
- Lambin, Eric F. and Patrick Meyfroidt. 2011. “Global Land Use Change, Economic Globalization and the Looming Land Scarcity”. *PNAS* 108, no. 9: 3465-3472, doi/10.1073/pnas.1100480108
- Legorreta Díaz, Carmen, Conrado Márquez Rosano, and Tim Trench, eds. 2014. *Paradojas de las Tierras Protegidas – Democracia y Política Ambiental en Reservas de Biosfera en Chiapas*. Centro de Investigaciones Interdisciplinarias en Ciencias y Humanidades. México: UNAM
- Lele, Sharachchandra, Peter Wilshusen, Dan Brockington, Reinmar Seidler and Kamaljit Bawa. 2010. „Beyond Exclusion: Alternative Approaches to Biodiversity Conservation in the Developing Tropics“. *Current Opinion in Environmental Sustainability* 2:94–100, doi 10.1016/j.cosust.2010.03.006
- Leverington, Fiona, Katia Lemos Costa, Helena Pavese, Allan Lisle and Marc Hockings. 2010. „A Global Analysis of Protected Area Management Effectiveness“. *Environmental Management* 46:685–698, doi 10.1007/s00267-010-9564-5
- Loos, Jacqueline, Davis J. Abson, M. Jahi Chappell, Jan Hanspach, Friederike Mikulcak, Muriel Tichit, and Joern Fischer. 2014. “Putting Meaning Back into “Sustainable Intensification””. *Frontiers in Ecology and the Environment* 12: 356–361, doi:10.1890/130157
- MA. 2005. *Ecosystems and Human Well-being: Biodiversity Synthesis*. Washington, USA: World Resources Institute.

- Martinez-Alier, Joan. 2002. *The Environmentalism of the Poor: A Study of Ecological Conflicts and Valuation*. Cheltenham: Edward Elgar.
- Mather, A.S., and C.L. Needle CL. 1998. "The Forest Transition: a Theoretical Basis". *Area* 30, no. 2: 117–124.
- Mather, A.S., J. Fairbairn and C.L. Needle. 1999. "The Course and Drivers of the Forest Transition: the Case of France". *Journal of Rural Studies* 15, no. 1: 65-90, 10.1016/S0743-0167(98)00023-0
- Mayer, Audrey L., Pekka E. Kauppi, Per K Angelstam, Yu Zhang, and Päivi M. Tikka. 2005. "Importing Timber, Exporting Ecological Impact". *Science* 308: 359-360, doi: 10.1126/science.1109476
- McAfee, Kathleen. 1999. „Selling Nature to Save It? Biodiversity and the Rise of Green Developmentalism“. *Environment and Planning D: Society and Space* 17, no. 2: 133 -154
- McMichael, Philip. 2009. "A food Regime Genealogy". *Journal of Peasant Studies* 36, no. 1: 139-169, doi: 10.1080/03066150902820354
- McMichael, Philip. 2012. "The Land Grab and Corporate Food Regime Restructuring". *Journal of Peasant Studies* 39, no. 3-4: 681-701, doi: 10.1080/03066150.2012.661369
- Merino Pérez, Leticia and Gerardo Segura Warnholtz. 2007. "Las Políticas Forestales y de Conservación y sus Impactos en las Comunidades Forestales Mexicanas." Pp. 77-98 in *Los Bosques Comunitarios de México – Manejo Sustentable de Paisajes Forestales, México*, eds. David Bray, D. Barry and L. Merino Pérez. Instituto Nacional de Ecología.
- Meyfroidt, Patrick and Eric Lambin. 2011. "Global Forest Transition: Prospects for an End to Deforestation". *Annual Review of Environment and Resources* 36: 343-371, doi: 10.1146/annurev-environ-090710-143732
- Meyfroidt, Patrick, Eric Lambin, Karl-Heinz Erb, and Thomas W. Hertel. 2013. "Globalization of Land Use: Distant Drivers of Land Change and Geographic Displacement of Land Use". *Current Opinion in Environmental Sustainability* 5: 438–444, doi.org/10.1016/j.cosust.2013.04.003

- Mgboeji, Ikechi. 2006. *Global Biopiracy. Patents, Plants, and Indigenous Knowledge.*: Ithaca New York, USA: Cornell University Press
- Mills Busa, Julianne H. 2013. "Deforestation Beyond Borders: Addressing the Disparity Between Production and Consumption of Global Resources". *Conservation Letters* 6, no. 3: 192–199, doi: 10.1111/j.1755-263X.2012.00304.x
- Nabhan, Gary P. 1997. *Cultures of Habitat: on Nature, Culture, and Story.* Washington, USA: Counterpoint.
- Ndaskoi, Navaya ole. 2002. "Maasai Wildlife Conservation and Human Need. The Myth of Community Based Wildlife Management". *Fourth World Journal* 5, no. 1: 150-191, <http://cwis.org/download/?f=FWJ5.8.Maasai.Wildlife.Conservation.and.Human.Need.pdf>
- Neumann, Roderick P. 2000. "Land, Justice, and the Politics of Conservation in Tanzania". Pp. 117-133 in *People, Plants, and Justice: The Politics of Nature*, ed. Charles Zerner: Columbia University Press, New York, USA
- Nolte, Christoph, Arun Agrawal, Kirsten M. Silviusb, and Britaldo S. Soares-Filho. 2013. „Governance Regime and Location Influence Avoided Deforestation Success of Protected Areas in the Brazilian Amazon“. *PNAS* 110, no. 13: 4956–4961, doi: 10.1073/pnas.1214786110
- Pacheco, Pablo. 2009. "Agrarian Reform in the Brazilian Amazon: Its Implications for Land Distribution and Deforestation". *World Development* 37, no. 8: 1337–1347, doi:10.1016/j.worlddev.2008.08.019
- Parmentier, Stéphane. 2014. *Scaling-up Agroecological Approaches: What, Why and How?* Discussion Paper. Oxfam Solidarity. <http://www.oxfam.de/publikationen/scaling-agroecological-approaches-what-why-and-how>
- Patel, Raj. 2013. "The Long Green Revolution". *Journal of Peasant Studies* 40, no. 1: 1-63 doi:10.1080/03066150.2012.719224
- Peluso, Nancy L. and Christian Lund. 2011. "New Frontiers of Land Control: Introduction". *Journal of Peasant Studies* 38, no. 4: 667-681, doi: 10.1080/03066150.2011.607692

- Perfecto, Ivette and John Vandermeer. 2010. "The Agroecological Matrix as Alternative to the Land Sparing/Agriculture Intensification Model". *PNAS USA* 197: 5786–5791, doi: 10.1073/pnas.0905455107
- Phalan, Ben, Malvika Onial, Andrew Balmford, and Rhys E. Green. 2011a. "Reconciling Food Production and Biodiversity Conservation: Land Sharing and Land Sparing Compared". *Science* 333: 1289–1291, doi: 10.1126/science.1208742
- Phalan, Ben, Malvika Onial, Andrew Balmford, and Rhys E. Green. 2011b. "Response to Fischer et al.". *Science* 334: 594-595.
- Phelps, Jacob, Luis Roman Carrasco, Edward L. Webba, Lian Pin Koha and Unai Pascual. 2013. "Agricultural intensification escalates future conservation costs". *PNAS USA* 110, no. 19: 7601-7606, doi:10.1073/pnas.1220070110
- Pimentel, David and Marcia Pimentel. 2003. "Sustainability of Meat-Based and Plant-Based Diets and the Environment". *American Journal of Clinical Nutrition* 7, no. 8: 660S-663S
- Pretty, Jules. 1997. "The sustainable intensification of agriculture". *Natural Resources Forum* 21, no. 4: 247–256.
- Pretty, J.N., A.D. Noble, D. Bossio, J. Dixon, R.E. Hine, F.W.T. Penning de Vries and J.I.L. Morison. 2006. "Resource-Conserving Agriculture Increases Yields in Developing Countries". *Environmental Science and Technology* 40, no. 4: 1114-1119.
- Pretty, Jules, Bill Adams, Fikret Berkes, Simone Ferreira de Athayde, Nigel Dudley, Eugene Hunn, Luisa Maffi, Kay Milton, David Rapport, Paul Robbins, Eleanor Sterling, Sue Stolton, Anna Tsing, Erin Vintinner and Sarah Pilgrim. 2009. "The Intersection of Biological Diversity and Cultural Diversity: Towards Integration". *Conservation and Society* 7, no. 2: 100-112, doi:10.4103/0972-4923.58642
- Qiang, Weinli, Aimin Liu, Shengkui Cheng, Thomas Kastner and Gaodi Xie. 2013. "Agricultural Trade and Virtual Land Use: The Case of China's Crop Trade". *Land Use Policy* 33: 141-150, doi.org/10.1016/j.landusepol.2012.12.017
- Ramankutty, Navin, Elizabeth Heller and Jeanine Rhemtulla. 2010. "Prevailing Myths About Agricultural Abandonment and Forest Regrowth in the

- United States". *Annals of the Association of American Geographers* 100, no. 3: 505-512 doi: 10.1080/00045601003788876
- Renard, Marie-Christine. 2003. "Quality Certification, Regulation and Power in Fair Trade", *Journal of Rural Studies* 21: 419-431, doi: 10.1016/j.jrurstud.2005.09.002
- Robbins, Paul. 2004. *Political Ecology*. Critical Introductions to Geography. Wiley-Blackwell.
- Robinson, Alicia S.T. and Stevan Harrell. 2014. "Paradoxes and Challenges for China's Forests in the Reform Era". *The China Quarterly* 218: 381-403, doi:10.1017/S0305741014000344
- Robson, James P. and Fikret Berkes. 2011. "Exploring Some of the Myths of Land Use Change: Can Rural to Urban Migration Drive Declines in Biodiversity?" *Global Environmental Change* 21: 844-854, doi:10.1016/j.gloenvcha.2011.04.009
- Rockström, Johan, Will Steffen, Kevin Noone, Åsa Persson, F. Stuart III Chapin, Eric Lambin, Timothy M. Lenton, Marten Scheffer, Carl Folke, Hans Joachim Schellnhuber, Björn Nykvist, Cynthia A. de Wit, Terry Hughes, Sander van der Leeuw, Henning Rodhe, Sverker Sörlin, Peter K. Snyder, Robert Costanza, Uno Svedin, Malin Falkenmark, Louise Karlberg, Robert W. Corell, Victoria J. Fabry, James Hansen, Brian Walker, Diana Liverman, Katherine Richardson, Paul Crutzen and Jonathan Foley. 2009. "Planetary Boundaries: Exploring the Safe Operating Space for Humanity". *Ecology and Society* 14, no. 2: 32, <http://www.ecologyandsociety.org/vol14/iss2/art32/>
- Rosset, Peter M. and Maria E. Martínez Torres ME. 2012. "Rural Social Movements and Agroecology: Context, Theory, and Process". *Ecology and Society* 17, no. 3: 17, doi: 10.5751/ES-05000-170317
- Ruben, Ruerd and Ricardo Fort. 2011. "The Impact of Fair Trade Certification for Coffee Farmers in Peru". *World Dev* 40, no. 3: 570-582, doi: 10.1016/j.worlddev.2011.07.030
- Schouten, Greetje and Pieter Glasbergen. 2011. "Creating Legitimacy in Global Private Governance. The Case of the Roundtable on Sustainable Palm Oil". *Paper prepared for the 2009 Amsterdam Conference on the Human*

Dimensions of Global Environmental Change.
<http://www.earthsystemgovernance.org/ac2009/papers/AC2009-0056.pdf>

- Scoones, Ian and John Thompson. 2011. "The Politics of Seed in Africa's Green Revolution: Alternative Narratives and Competing Pathways". *IDS Bulletin* 42, no. 4: 1-23, doi: 10.1111/j.1759-5436.2011.00232.x
- Seidll, Jacob C. 2000. "Obesity, Insulin Resistance and Diabetes – A Worldwide Epidemic". *British Journal of Nutrition* 83, Suppl. 1, S5–S8 Sloan, Sean. 2007. "Fewer People May Not Mean More Forest for Latin American Forest Frontiers". *Biotropica* 39, no. 4: 443–446 2007, doi 10.1111/j.1744-7429.2007.00288.x
- Selfa, Theresa, Carmen Bain, Renata Moreno, Amarella Eastmond, Sam Sweitz, Conner Bailey, Gustavo Simas Pereira, Tatiana Souza, and Rodrigo Medeiros. 2015. „Interrogating Social Sustainability in the Biofuels Sector in Latin America: Tensions Between Global Standards and Local Experiences in Mexico, Brazil, and Colombia“, *Environmental Management*, doi: 10.1007/s00267-015-0535-8
- Sigalla, Huruma. 2013. "Trade-Offs between Wildlife Conservation and Local Livelihood: Evidence from Tanzania", *African Review* 40, no. 1: 155-178.
- Sloan, Sean. 2007. "Fewer People May Not Mean More Forest for Latin American Forest Frontiers". *Biotropica* 39, no. 4: 443–446 2007, doi 10.1111/j.1744-7429.2007.00288.x
- Smith, Pete, Daniel Martino, Zuong Cai, Daniel Gwary, Henry Janzen, Pushpam Kumar, Bruce McCarl, Stephen Ogle, Frank O'Mara, Charles Rice, Bob Scholes, and Oleg Sirotenko. 2007. „Agriculture“ in *Climate Change 2007: Mitigation*. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)], Cambridge University Press: Cambridge, UK and New York: USA.
- Stein, Howard. 1992. "Deindustrialization, adjustment, the World Bank and the IMF in Africa". *World Development* 20, no. 1: 83-95, doi:10.1016/0305-750X(92)90138-L
- Stoll-Kleemann, Susanne, de la Vega-Leinert A. Cristina, and Schultz Lisen. 2010. "The Role of Community Participation in the Effectiveness of UNESCO Biosphere Reserve Management: Evidence and Reflections

- from two Parallel Global Surveys". *Environmental Conservation* 37, no. 3: 227-238, doi:10.1017/S037689291000038X
- Stoll-Kleemann, Susanne. 2010. „Evaluation of Management Effectiveness in Protected Areas: Methodologies and Results.“ *Basic and Applied Ecology* 11, no. 5: 377-382, doi:10.1016/j.baae.2010.06.004
- Stoll-Kleemann, Susanne, and Tim O’Riordan. 2015. “The Sustainability Challenges of Our Meat and Dairy Diets”. *Environment* 57, no. 3: 34-48, doi: 10.1080/00139157.2015.1025644
- Svampa, Maristella. 2010. *Movimientos Sociales, Matrices Socio-Políticas y Nuevos Escenarios en América Latina*. Working Paper 01. One World Perspectives Universität Kassel. https://kobra.bibliothek.uni-kassel.de/bitstream/urn:nbn:de:hebis:34-2010110334865/1/OWP_Working_Paper_2010_01.pdf
- Svampa, Maristella. 2013. “‘Consenso de los Commodities’ y Lenguajes de Valoración en América Latina”. *Nueva Sociedad* 244: 30-46
- Taylor, Liam and Tom Griffiths. 2007. *A desk-based review of the treatment of indigenous peoples’ and social issues in large and medium-sized GEF biodiversity projects (2005-2006)*. Forest Peoples Programme, Moreton-in-Marsh, UK, <http://www.forestpeoples.org/sites/fpp/files/publication/2010/08/gefbiodivprojreviewfeb07eng.pdf>
- Tscharntke, Teja, Yann Clough, Thomas C. Wanger T, Louise Jackson, Iris Motzke, Ivette Perfecto, John Vandermeer, and Anthony Whitbread. 2012. “Global Food Security, Biodiversity Conservation and the Future of Agricultural Intensification”. *Biological Conservation* 151: 53-59, doi:10.1016/j.biocon.2012.01.068
- Tscharntke, Taje, Jeffrey C. Milder, Götz Schroth, Yann Clough, Fabrice DeClerck, Anthony Waldron, Robert Rice, and Jaboury Ghazoul. 2015. „Conserving Biodiversity Through Certification of Tropical Agroforestry Crops at Local and Landscape Scales“. *Conservation Letters* 8, no. 1: 14–23, doi: 10.1111/conl.12110
- van der Ploeg, Jan D. 2014. “Peasant-Driven Agricultural Growth and Food Sovereignty”, *Journal of Peasant Studies* 41, no. 6: 999-1030, doi: 10.1080/03066150.2013.876997

- Vanclay, Jerome K. 2002. "The Effectiveness of Parks". *Science* 293: 1007
- Vedeld, Paul, Abdallah Jumane, Gloria Wapalila and Alexander Songorwa. 2012. "Protected areas, poverty and conflicts. A livelihood case study of Mikumi National Park, Tanzania". *Forest Policy and Economics* 21: 20-31, doi: 10.1016/j.forpol.2012.01.008
- Waggoner, Paul E. 1995. "How Much Land Can Ten Billion People Spare for Nature? Does Technology Make a Difference?". *Technology in Society* 17, no. 1: 17-34, doi: 10.1016/0160-791X(94)00024-8
- Wanger, Thomas C. 2011. "The Lithium Future — Resources, Recycling, and the Environment". *Conservation Letters* 4: 202–206, doi: 10.1111/j.1755-263X.2011.00166.x
- Watson, James E, Nigel Dudley, Daniel B. Segan, and Mark Hockings. 2014. "The Performance and Potential of Protected Areas". *Nature* 515: 67-73, doi:10.1038/nature13947
- Weis, Tonny. 2013. "The Meat of the Global Food Crisis". *Journal of Peasant Studies* 40, no. 1: 65-85, doi: 10.1080/03066150.2012.752357
- West, Paige, James Igoe, and Dan Brockington. 2006. "Parks and Peoples: The Social Impact of Protected Areas". *Annual Reviews of Anthropology* 35: 251-277, doi:10.1146/annurev.anthro.35.081705.123308
- Wezel, A, S. Bellon, C. Doré, D. Francia, D. Vallod, and C. David. 2009. "Agroecology as a Science, a Movement and a Practice. A Review". *Agronomy for Sustainable Development* 29, no.4: 503–515, doi: 10.1051/agro/2009004
- Wilshusen, Peter R., Steven R. Brechin, Crystal L. Fortwangler, and Patrick C. West. 2002. "Reinventing a Square Wheel: Critique of a Resurgent 'Protection Paradigm' in International Biodiversity Conservation". *Society and Natural Resources* 15: 17–40.
- Wilson, Bradley R. 2010. "Indebted to Fair Trade - Coffee and Crisis in Nicaragua", *Geoforum* 41: 84-92, doi: 10.1016/j.geoforum.2009.06.008
- Wirsenius, Stefan, Christian Azar and Göran Berndes. 2010. "How much land is needed for global food production under scenarios of dietary changes

and livestock productivity increases in 2030?”. *Agricultural Systems* 103: 621-638, doi: 10.1016/j.agsy.2010.07.005

Witmann, Hannah. 2009. “Reworking the Metabolic Rift: La Vía Campesina, Agrarian Citizenship, and Food Sovereignty”. *Journal of Peasant Studies* 36, no. 4: 805–826, doi: 10.1080/03066150903353991

Wuertenberger, Laura, Thomas Koellner, and Claudia R. Binder. 2006. “Virtual Land Use and Agricultural Trade: Estimating Environmental and Socio-Economic Impacts”. *Ecol Econ* 57: 679–697, doi:10.1016/j.ecolecon.2005.06.004

WWF. 2004. *How Effective are Protected Areas?* A preliminary analysis of forest protected areas by WWF – The largest ever global assessment of protected area management effectiveness. A report prepared for the Seventh Conference of Parties of the Convention on Biological Diversity, February 2004

Zoomers, Annelies. 2008. “Globalisation and the Foreignisation of Space: Seven Processes Driving the Current Global Land Grab”. *Journal of Peasant Studies* 37, no. 2: 429-447, doi: 10.1080/03066151003595325

Other online publications of MvB



MvB Agenda | Research and journalist essay

- 2013 | #1 | Armas alemanas en México: El caso de la exportación a México de los fusiles Heckler & Koch G36 | Carlos. A. Pérez Ricart
- 2014 | #2 | Deutsche Waffen in Mexiko: Der Fall des Exports von Heckler & Koch G36 Gewehren nach Mexiko | Carlos A. Pérez Ricart
- 2014 | #3 | German arms in Mexico: The case of the exportation of Heckler & Koch G-36 rifles to Mexico | Carlos A. Pérez Ricart
- 2014 | #4 | Bill Gates en África | Peter Clausing
- 2014 | #5 | Armas entre sombras y tutelas: Gerhard Mertins en México (1979-1984) | Carlos A. Pérez Ricart
- 2015 | #6 | Ayotzinapa / Mexiko: Dokumentation und Analyse eines Menschenrechtsverbrechens | Christiane Schulz
- 2015 | #7 | Ayotzinapa / México: Documentación y análisis de un crimen a la luz del marco jurídico internacional sobre desaparición forzada | Christiane Schulz

MvB Working Papers | Work in progress of academic research

- 2014 | No. 1 | Más allá del gasto militar: en búsqueda de un concepto para entender la militarización en México | Sabina Morales Rosas y Carlos A. Pérez Ricart
- 2014 | No. 2 | Militarización: Una propuesta conceptual basada en el caso mexicano (1995-2012) | Sabina Morales Rosas y Carlos A. Pérez Ricart
- 2014 | No. 3 | MEREX AG: o la frontera de lo (i)legal en la política alemana de exportación de armamento | Carlos A. Pérez Ricart

MvB Policy Papers | Critical analysis of public policies

- 2014 | No 1. | Razones, datos y fundamentos contra un “acuerdo de seguridad policial” entre México y Alemania | Carlos A. Pérez Ricart



México vía Berlín e. V. is an association devoted to theoretical and empirical trans-disciplinary research on the political, social and economic interrelations and interdependencies between Mexico and Germany, in the first place, and between Europe and Latin America, in the second. Derived from its academic work, the association develops projects of political action and education under an internationalist left perspective.

México vía Berlín e. V. ist ein Verein, der sich der theoretischen sowie der transdisziplinären Forschung politischer, sozialer und ökonomischer Verhältnisse und Interdependenzen zwischen Mexiko und Deutschland zum einen und zwischen Europa und Lateinamerika zum zweiten widmet. Von seiner akademischen Arbeit ausgehend entwickelt der Verein Projekte politischer Handlung und Bildung unter einer internationalistischen links-gerichteten Perspektive.

México vía Berlín e. V. es una asociación dedicada a la investigación trans-disciplinaria teórica y empírica de las interrelaciones e interdependencias políticas, sociales y económicas entre México y Alemania, en un primer momento, y entre Europa y América Latina, en un segundo. Como derivación de su tarea académica, la asociación desarrolla proyectos de acción y formación política bajo una perspectiva de izquierda internacionalista.