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# Uneven Urban Metabolisms: Toward an Integrative (Ex)urban Political Ecology of Sustainability in and Around the City

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Title: Uneven urban metabolisms: Toward an integrative (ex)urban political ecology of sustainability in and around the city

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Abstract: Expanding cities present a sustainability challenge, as the uneven proliferation of hybrid landscape types becomes a major feature of 21<sup>st</sup> century urbanization. To fully address this challenge, scholars must consider the broad range of land uses that being produced beyond the urban core and how land use patterns in one location may be tied to patterns in other locations. Diverse threads within political ecology provide useful insights into the dynamics that produce uneven urbanization. Specifically, urban political ecology (UPE) details how economic power influences the development decision-making that proliferate urban forms, patterns of uneven access, and modes of decision-making, frequently viewing resource extraction and development through the urban metabolism lens. The political ecology of exurbia, or, perhaps, an *exurban* political ecology (ExPE), examines the symbolic role nature and the rural have played in conservation and development efforts that produce social, economic, and environmental conflicts. While UPE approaches tend to privilege macroscale dynamics, ExPE emphasizes the role of landowners, managers, and other actors in struggles over the production of exurban space, including through decision-making institutions and within the context of broader political economic forces. Three case studies illustrate the strengths and weaknesses of these approaches, demonstrating the benefits for and giving suggestions on how to integrate their insights into urban sustainability research. Integrated political ecology approaches demonstrate

how political-economic processes at a variety of scales produce diverse local sustainability responses.

Keywords: urban sustainability, urban political ecology, exurb, exurbia, urbanization, global urbanization

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## **Introduction**

We live in an urban age. Yet despite the variety of social and environmental impacts of rapid urbanization around the globe (e.g., loss of agricultural lands, deforestation, increased threats to biodiversity), exactly what it means to live in an "urban age" remains unclear. Moreover, understanding exactly which spaces are urban and which "remain" rural is also unclear. Indeed, large percentages of the "urban" population live in spaces still often overlooked by urban geography: in sprawling suburbs, edge cities, exurbs, informal settlements, and small cities and towns. Individuals in these extra-urban places inhabit, are integrated into, and interact with urban places and networks. Yet often discussions of urban sustainability in both academic and popular literature focus on sustainability in the urban core and problematically ignore these spaces of extended urbanization (Brenner and Schmid 2014).

A focus on the city proper or urban core within studies of urban sustainability is problematic for both theoretical and empirical reasons. Lefebvre's theory of planetary urbanization predicts that over time the separation between urban and rural spaces will become less and less distinct. And indeed, this mixing of urban and rural has been noted by numerous

scholars (Dirksmeier 2012; Furuseth and Lapping 1999; Hiner 2014; Jansson 2013; Lacour and Puissant 2007; Olson and Munroe 2012; Sandoval and Maldonado 2012). On an empirical level it is impractical to create an artificial divide between the circulation of energy and materials within urban centers and their arrival and eventual disposal outside the city proper. Despite recent attention to urban agriculture, cities will never be materially self-sufficient, but rather will continue to rely on rural spaces at the source of basic necessities, including food, water, energy, and building materials. As such, research in urban sustainability which lacks attention to the exchange of material and energy between urban and rural spaces is sadly incomplete. In this article, we propose that work by political ecologists can contribute to an expanded focus for urban sustainability, enriching the field through a focus on sustainability politics broadly imagined, both formal and informal, local and regional.

Political ecology approaches offer several key insights to research on urban sustainability. First, political ecologists ask “sustainability for whom”? Whose visions and idea(l)s of sustainability are being enacted? As political ecologists, we are reticent to attempt to define sustainability, preferring to focus our research on issues related to access to land and other natural resources and the economic, political, and social power dynamics invoked by stakeholders as they enact their visions on the landscape. Second, as recent work in urban theory has pointed out, urbanization processes produce uneven results in particular places including rapid gentrification, deindustrialization, inadequate informal housing, suburbanization, exurbanization, and the restructuring of rural places and economies. Political ecology, with its careful attention to particular places and processes of power, combined with awareness of the broad, multiscalar processes at work, provides insights into how political and economic power enables or constrains a range of actors in enacting their visions of sustainability.

In order to examine how political ecology contributes to work on urban sustainability, we must acknowledge that the work on urbanization by political ecologists has tended to be divided into two somewhat separate literatures: urban political ecology and a political ecology of exurbia. Political ecology approaches emerged from international research on land tenure, rights, and management in the developing world. Because of that history, it took particular scholars turning our attention to similar issues and dilemmas “at home” for political ecologists to begin working in domestic contexts (Fortmann 1996). What developed after that, after a brief discussion of “first” versus “third” world political ecology, was a literature largely focused on how traditionally rural places were being impacted by the uneven processes of urbanization (P. Walker and Fortmann 2003; Reed 2007; Hurley and Taylor 2016). This “political ecology of exurbia” (hereafter exurban political ecology) is not an attempt to coin a new subfield, but rather a recognition of the need within political ecology more widely to acknowledge work already being done across various literatures. Urban political ecology emerges later with a call for urban studies to re-nature urban spaces, bringing the insights of political ecology to yet another space, the urban core (Heynen et al. 2006) – and only more recently turning its focus to spaces of what has been called “extended urbanization”.

We argue in this paper that these two political ecology approaches to urbanization provide valuable insights into the social, economic, and political processes at work. Moreover, we suggest that combining them strengthens our perspectives and analytical purchase of uneven spaces of urbanization. We note that while Brenner and Schmid 2013 have characterized spaces of “extended urbanization” as low density, sprawling settlement, others have argued that this growing phenomenon could also be characterized as extended ruralization (Mercer 2016; Krause 2013). Exurbia, or periurban spaces more broadly, in many ways represent a meeting or

overlapping of dynamics associated with the urban and the rural, a distinct and emergent landscape in-between (Taylor and Hurley 2016). We use the comparative approach suggested by Taylor and Hurley (2016) to briefly examine three case studies that endeavor to unravel how exurban and urban political ecology approaches might be productively integrated to produce a more complete picture of the socioecological changes taking place in extended megapolitan regions (Gottmann 1957; Gustafson et al. 2014). The paper begins by reviewing research in urban and exurban political ecology, outlining how these two literatures have tended engage with (ex)urbanization. Then we examine each case to illustrate how these two approaches might productively be combined. We conclude with a discussion of what political ecology approaches can offer discussions of urban sustainability. Extended Urbanization and Integrated (Ex)Urban Political Ecology

As has been noted elsewhere, political ecology has become a sprawling interdisciplinary literature encompassing a multitude of different approaches (see e.g., Robbins, 2012; Watts & Peet, 2004). Our intention here is not to give a comprehensive overview, but rather to focus on how political ecologists have approached the study of urbanization in the Global North. Political ecology in North America and the Global North more broadly has emerged from two separate moments of engagement with other literatures. This has led to the development of a split literature largely separated by geography but also tending to approach land use change with somewhat different foci. As Blaikie (2008) pointed out, sometimes disjunctures come about not so much because of unresolved debates, but rather because of non-engagement (see also McKinnon & Hiner, 2016). In this way, we find two threads of (ex)urban political ecology: urban political ecology and the political ecology of exurbia.

Urban political ecology has focused largely on socio-environmental issues *within cities proper*, largely framing the ecological impacts and power differentials driving them using the concept of the metabolism of nature (Keil 2005). Exurban political ecology has, in contrast, focused on the environmental changes, political conflicts, and management challenges that emerge from flows of people, materials, and representations between cities and other spaces (P. Walker and Fortmann 2003; Kirsten Valentine Cadieux and Hurley 2009; Kirsten Valentine Cadieux and Taylor 2013; Taylor and Hurley 2016). These exurban studies have tended to frame conflicts in terms of the persistent differences between rural and urban identities, ways of life, and cultures and the diverse economies that underpin them, often using cultural landscape studies to focus on the construction of discourses and ideologies of nature. Both approaches have examined institutional power dynamics and the ways that politics shape decision-making processes, revealing a key element of political ecology approaches: Namely, a commitment to understanding drivers of social-ecological change and the environmental governance dynamics that emerge to “manage” this change.

### ***Exurban Political Ecology and the Politics of Landscapes***

Political ecology arrived in North America in the 1980s, with a focus on urban expansion—or the influence of migrants from cities—into traditionally rural areas and conflicts over land and resources adopted from political ecology approaches to the developing world. For example, Fortmann (1996) called for using the tools of international property scholarship to help us understand conflicts over land and resources in the United States. Political ecologists focused on three themes or lenses in understanding urban expansion: ideologies of nature, production of protected places, and competing rural capitalisms.



Central to many of these political ecology studies of (ex)urbanization has been an examination of the attitudes and beliefs of individual landowners – in particular, their attitudes towards nature (Johnson 2008; Hiner 2014; Hiner 2016b; J. Abrams and Bliss 2013; Kirsten Valentine Cadieux 2009; Nesbitt and Weiner 2001). Urban expansion in many parts of the world has involved the arrival of new in-migrants, often from cities, in communities that for many decades had relatively stable, homogeneous populations (Theobald 2005; Hansen and Brown 2005). Political ecologists have hypothesized that these new arrivals bring with them new attitudes towards nature, which potentially shift how communities approach the regulation of land use and conservation (Hurley and Walker 2004; Beebe and Wheeler 2012; Esparza and Carruthers 2000; J. B. Abrams and Gosnell 2012; Hiner 2015). Yet some early research questioned the assumption that new arrivals are distinctively different in terms of their values and attitudes towards land use and land management (M. D. Smith and Krannich 2000), maintaining that attitudinal differences might more appropriately be attributed to economic marginality. Additionally, while political ecologists have tended to focus on the role of individual land owner attitudes, some have recently acknowledged that more attention should be paid to supply-side dynamics (i.e. the role of developers and the real estate industry) in the transformation of rural landscapes to exurban uses (Hurley 2013) as well as the (sometimes unexpected) ways that actors engage in formal and informal regulatory and planning activities (Robbins, Martin, and Gilbertz 2011).

Entwined with literature on exurban attitudes towards nature, a number of studies have examined the production of new protected places; e.g., political ecologists have pointed out paradoxes and how exurban migration to the urban fringe, often motivated by the desire for a greener lifestyle, necessarily changes the very landscapes that exurbanites seek (Kirsten

Valentine Cadieux and Taylor 2013). This means that exurban migrants, working together with some long-time locals, are often quick to advocate new conservation measures and seek to limit further growth and development in their newly adopted communities (Hurley and Walker 2004; Kirsten Valentine Cadieux 2009; Johnson 2008; Taylor and Hurley 2016).

Another theme political ecologists use to conceptualize landscape transitions is competing rural capitalisms (P. Walker and Fortmann 2003). Characteristically exurban migrants move into landscapes that have been traditionally dominated by resource extractive industries such as mining, logging, and ranching. In many cases, these industries have experienced declines due to global rural restructuring (Woods 2011). As a result, land values and opportunities for landowners to earn a living off the land are diminished. At the same time, accompanying the arrival of exurban migrants is often the rise of a new set rural industries tied directly to the visual consumption of natural amenities. Recreation, tourism, and rural real-estate development produce new landscape values, which can be conceptualized as a competing form of capital development, often viewed as incompatible with extractive industries (P. Walker and Fortmann 2003; Kirsten Valentine Cadieux and Hurley 2009; Hurley and Arı 2011; Taylor and Hurley 2016; Hiner 2016b; McKinnon 2016).

Within the political ecology literature, there is also a largely unacknowledged body of work on the ways urbanization disrupts and transforms previously "rural" subsistence activities, including activities such as gathering non-timber forest products (Brown 1995; Hurley et al. 2008; Grabbatin, Hurley, and Halfacre 2011; Hurley et al. 2013). These works by political ecologists have documented the ways in which ecological and social changes associated with land ownership can create new hardships for rural peoples on the economic margins (Hurley et al. 2008; Grabbatin, Hurley, and Halfacre 2011), and, contradictorily, how exurban property

transformations sometimes open new opportunities for the persistence of natural resource livelihoods (Hurley et al. 2013; Grabbatin, Hurley, and Halfacre 2011).

Today the main focus of political ecology in the developed world is exurbanization and amenity migration in the American West (Robbins et al. 2009). There are also an expanding number of case studies in other regions of the developed world, including other parts of the United States (Hurley and Carr 2010; Grabbatin, Hurley, and Halfacre 2011), Britain (Scott et al. 2009), Canada (Guimond and Simard 2010; Genevieve and Paradis 2013; Luka 2013), and New Zealand (Kirsten Valentine Cadieux 2008). Robbins (2002) has suggested that political ecology need to study up as well as down and to specifically examine the power of institutions and practices of officials while continuing a focus on what he calls the tools of political ecology, "ethnography and intense focus on micro-politics." Political ecology has tended to maintain this focus on ethnography and micro-politics while also examining the impacts of local dynamics on the politics of conservation. Yet this focus has perhaps obscured the need for work that examines the drivers of this global phenomenon and the social and environmental displacements these changes may cause (Gosnell, Abrams, and Abrams 2009; Newell and Cousins 2014).

#### *Urban political ecology and methodological cityism*

As political ecology turned its attention to urban spaces and engaged directly with urban studies in the mid 2000s, it became reframed as urban political ecology. In an effort, to engage with urban geography and efforts to re-nature urban processes, a seemingly new subfield or approach was created (Heynen, Kaika, and Swyngedouw 2006). Bringing the theoretical background and insights of political ecology to urban spaces, generally applied to places within the city, political ecologists have eagerly sought to dismantle the nature-culture divide by illuminating the myriad ways that cities are "natural" (Gandy 2002). A striking element of much

early work in urban political ecology was its use of Marxist theory, particularly the concept of (urban) metabolism(s), to highlight the fundamental material links between country and city. However, as Heynen notes in his reviews of the development of UPE as a subfield (N. Heynen 2014; N. Heynen 2015), these are not the only approaches now used, as feminist, post-colonial, post-humanist, and anti-racist approaches have challenged and enriched the field. (Grove 2009; Gandy 2012; Gabriel 2014). It is also important to note that use of Marxist theory has been a part of political ecology from its start (Piers Blaikie and Brookfield 1987; Peet and Watts 1996)

In UPE, urban nature is theorized through the concept of (urban) metabolism, which analyzes the flow of resources through the city and the mediations of such flows by economic, political, and social relationships (Cooke and Lewis 2010). Newell & Cousins (2014) identify three separate lines of research that use the term “urban metabolism,” including the one used in UPE. Urban metabolism, as used by urban political ecology, emerges directly from Marx’s use of the term “Stoffwechsel” which literally translates from German as “change of matter” (Heynen et.al. 2006). The term is used to describe the material processes that produce and reproduce urban spaces and ecologies. By drawing on this metaphor, urban political ecologists used the metabolism concept to trace the key ways and mechanisms through which urban space and its attendant biophysical dynamics were remade as cities grew, both through the constant turnover of land-uses. This approach helped to illuminate the ways that key actors, such as developers, and logics pervaded the creation of infrastructures and other elements needed to support city life while attending to the contradictions created by capitalism’s need for ongoing growth and resources. Since most work in urban studies in the 20<sup>th</sup> century lacked a connection to ecological processes, early work in UPE focused on cities proper, often global cities, to lay the basic framework for how we can understand cities as both social and ecological creations. As

Gandy (2015) points out, urban political ecology is only one of several lines of research into the historically contested character of urban ecologies.

Influenced by the work of David Harvey and Neil Smith, another central theme in many urban political ecology studies has been uneven development and the uneven production of green space. Uncovering the social and ecological processes that produce (access to) green space and other urban resources for some and not others fits well with UPE's focus on uncovering how nature is transformed in the city through social relations. UPE focuses on inequality in access to resources and spaces, taking on many of the same issues as environmental justice scholarship, but brings to the table a deep analysis of how the capitalist political-economic system is implicated in the production of such inequalities (N. Heynen, Kaika, and Swyngedouw 2006). Heynen (2006) for example, analyzed changes in urban forest cover in Indianapolis between 1962 and 1993 using aerial photography to quantitatively measure the changes and Marxist political economy to provide analysis and explanation of shifting historical and political factors influencing landcover change in the city. Heynen (2006) found that changes in household income could be tied to shifts in residential forest cover. One of the strengths of UPE work has been to provide alternative explanations to liberal interpretations that tend to place blame for lack of green space on marginalized populations, demonstrating how broader political economies contribute to the production of greenspace (J. P. Evans, 2007; Hagerman, 2007; Nik Heynen, Perkins, & Roy, 2006; Quastel, 2009).

However, perhaps the greatest strength of UPE has been its focus on *power*, primarily understood as economic power (Domene, Saurí, and Parés 2005). Urban political ecology studies have examined how particular interests have been able to gain control of necessary resources and harness them, both materially and symbolically, for their own political projects, tying, for

example, ecological processes to socio-political processes through commodification, privatization, and infrastructure building (Swyngedouw 1997; Swyngedouw 2004; Monstadt 2009). Work from feminist, post-colonial, indigenous, and anti-racist perspectives in connection to UPE continues to enrich the approach, and points to areas of critical intersection with work in both urban and rural spaces on indigenous materialities (Larsen 2016), food justice (K. Valentine Cadieux and Slocum 2015; K. Cadieux and Slocum 2015) and linked migration (Nelson and Nelson 2010). We now turn our attention to the ways a unified urban political ecology and exurban political ecology strengthens our understanding of urbanization processes and key questions of socio-economic processes produce particular forms of change and/or stability. We demonstrate how bringing insights from both these literatures together strengthens our understandings of urbanization and sustainability.

### **An integrated political ecology approach to urban rural interfaces**

Urban political ecology has been separated from work on ex-urbanization largely through differing scalar and spatial foci (Figure A). Yet some discernable methodological and theoretical tendencies can also be detected. Studies claiming the mantle of urban political ecology tend to take distinctly Marxist approach, focusing on cities to the exclusion of other urbanizing spaces and highlighting economic, political, and ecological processes taking place on the scale of urban regions. It is not uncommon now for scholars to call urban political ecology a paradigm, conceptual lens, sub-field, or approach (Karpouzoglou and Zimmer 2016; Cornea, Véron, and Zimmer 2017; Silver 2015; Holifield and Schuelke 2015), yet how this would differ from a “general” political ecology approach, is unclear. In contrast, literature on the ExPE has tended to borrow from cultural landscape studies, focusing on representations of nature and differing ideals at the local scale. In effect, the creation of UPE has, at least to some degree, reinforced the

nature-society divide it was attempting to dissolve by reinforcing its analog, the urban-rural divide. Only a few studies in the urban political ecology tradition have worked across this spatial divide--or as some social-ecological scientists might suggest, this gradient--by focusing outside the city proper, particularly Robbins' (2003) work on lawns, Keil & Young's (2009) work on "in between" urban landscapes in Canada, and Swyngedouw (1999) and Kaika's (2005) work on the urbanization of water.

However, as some urban studies scholars have been influenced by the resurgent interest in Lefebvre's concept of a global urban society (see Brenner, 2013), there have been calls for UPE to give up its "methodological cityism" in favor of a new focus on urbanization processes (Angelo and Wachsmuth 2015). Angelo & Wachsmuth (2015, p. 20) describe methodological cityism as "analytical privileging, isolation, and perhaps naturalization of the city in studies of urban processes where the non-city may also be significant." In this vein, it holds that, in order to be useful, the concept of planetary urbanization needs to pay attention to what is meant by "urban" and urbanization (R. Walker 2015) and acknowledge that "rural" is a category that continues to hold experiential and analytical power (Cloke 2006; Woods 2011; Hiner 2016c).

As part of the call to refocus on processes of urbanization beyond the city proper, a growing number of researchers have taken up work using a UPE framework to research sites outside of the city proper. Examples of this type of work include the work Gustafson (2015) on land use conflicts in exurban Appalachia, Kitchen's research on urban forests in South Wales (2013), and Parés, March, & Saurí (2013) study of the suburban landscapes of Barcelona. These new studies, which reach across this urban-exurban divide, have the potential to address the broader processes of globalization and uneven development. Gustafson et al. (2014) in particular proposes a new focus on megapolitan political ecologies, rightly highlighting the large ecological

and social impacts of amenity migration, exurbanization, and rural gentrification outside of the urban center. However, in Gustafson's conceptualization of megapolitan political ecologies, urbanization processes are given explanatory power for changing land use and settlement patterns across a broad region. We contend that such UPE approaches would be further improved by a more explicit engagement with the existing literature in ExPE – counter to the trend toward *disengagement* prevalent in the literature (McKinnon and Hiner 2016).

Specifically, work on ExPE has the advantage of long standing engagement with places with a variety of relationships to urbanization and urbanism. First, ExPE, like its urban cousin, long has attended to issues of power and its influence on specific institutional decision-making arenas that shape the use of land and shape landscape change (Hurley and Walker 2004; P. A. Walker and Hurley 2011; Sandberg 2014). Second, the ExPE also has continued political ecology's methodological focus on ethnography and micropolitics, focusing on the persistence of rural ecologies and livelihoods that get reworked, transformed, and conserved in highly uneven ways in particular places. We maintain that while it is necessary to examine the broad-scale ecological and social impacts of what has been called 'extended urbanization', it is not sufficient to stop there; rather it is key to examine how processes of extended urbanization, amenity migration, and rural gentrification *produce* uneven outcomes. These processes, occurring in places that are neither wholly rural nor urban, are particularly key because large areas of the Global North are being transformed into these low-density settlement and land use patterns. Once in place, exurban patterns appear to be highly resistant to further urbanization or densification as residents often maintain strong attachments to rural identities and regular invoke strategies of conservation management (Taylor and Hurley 2016).



In the section below, we present three case studies to demonstrate the contrasting and conflicting outcomes of the processes that shape exurbia—or extended urbanization—at the local level. We maintain that attention is needed to the specifics of local politics and ecologies if we are to understand whose vision of sustainability is being enacted in particular cases and what ecologies and cultures are being conserved. As the case studies below demonstrate, using insights and approaches from both lines of research strengthens studies in these contexts by bringing attention to processes occurring at multiple scales, effecting specific places, and uniting analysis that pay attention to material and cultural processes.

### **Three case studies of shifting dynamics on the urban-rural interface**

#### ***Case 1: Stone Hill area exurbanites reproduce rural landscape aesthetics, mirroring former productive uses.***

In southeastern Pennsylvania, the “Stone Hill” area is an exurban enclave within the Philadelphia Metropolitan area. This area has experienced increasing residential development and urban migrants, yet the land use patterns of these new arrivals have tended to re-inscribe earlier forested and pastoral ecologies. Stone Hill is a ridgeline located in the western part of Montgomery County that stretches across several local townships. As a county identified “conservation landscape”, a designation by the Montgomery County Planning Commission, Stone Hill has emerged as a conservation object where interventions by local municipalities are intended to protect open space through land acquisitions. Moreover, local municipalities have sought to maintain the area’s rural characteristics through minimum lot-size zoning efforts. These efforts have been constrained by state court precedents (Hurley and Taylor 2016), yet have contributed to the rise of an exurban pattern of residential development and associated advocacy efforts to formalize and expand the very conservation territories favored by county conservation

landscape designations (Hurley, Maccaroni, and Williams 2017). For example, urban in-migrants were instrumental in protecting nearly 100-acres of conserved open space through finding a conservation buyer, gaining commitments from two local townships for the purchase, and creating a public-private partnership to steward the forest. Besides social networking and political advocacy, one exurbanite has gone so far as to systematically purchase undeveloped lands for transfer into the conservation area. Yet these efforts also build on a history of expressed commitment to conservation by landowners with deep roots in the area, including landowners committed to rural recreational and natural resource uses. So in this case, rather than urban in-migrants conflicting with existing rural values, both groups have tended to work on conservation of traditional landscapes and uses, albeit unevenly.

Drawing on grounded visualization techniques (Knigge and Cope 2006; Hurley et al. 2008), qualitative interviews, and air photo analysis, this research reveals the corresponding emergence of uneven land-use and management patterns on individual parcels associated with the exurban shift in the area. These patterns reveal the extent to which the exurban development process and household commitments hold divergent ideologies of nature that simultaneously reinscribe rural aesthetics into the area. In doing so, they point to the ways that flows of capital associated with urban in-migrants and the real estate markets they create produce uneven outcomes across this exurban landscape.

An ongoing and uneven shift from emphasis on natural resource uses to residential development has shaped land use and associated landscape changes in the area. Much of the area had either been converted to farmland, particularly in portions of the landscape outside of the ridgeline's characteristic boulder fields, or logged for various timber-related purposes by the end of the 19<sup>th</sup> Century. Yet, by the early 1940s, many of the areas of the ridgeline with

extensive boulder fields had reforested and some smaller farms had been abandoned and begun reforesting. Beginning in the 1950s, early in-migrants to the area sought out historical homes associated with these small-scale farmsteads that had brought agriculture to the rocky slopes during the 18<sup>th</sup> Century. With the ability to commute by car to jobs in nearby towns, these individuals sought refuge from the expanding suburbs of eastern Montgomery County and access to lands to garden and harvest resources from the area's woodlands. In doing so, these individuals acted out early land-use practices that mirrored the rural practices of their neighbors at the time, including small-scale vegetable growing and some livestock tending. Moreover, these households maintained areas that would have otherwise returned to forest cover or reintroduced field openings to areas of the landscape that had recently reforested.

Continuing in-migration, however, eventually began to transform the landscape and more tightly link this exurban enclave to the city. Throughout the 1960s, 1970s, and 1980s, a small trickle of in-migrants arrived to build homes on smaller individual lots, introducing perforations into recovered forest through new openings for their homes and small yards. By the 1990s, larger parcels were becoming available for development, as various longstanding landowners passed away or decided to sell, and small, niche, large-lot subdivisions emerged in the area. In the process, parcels of cleared forest, semi-cleared forest, and fully forested areas became available for purchase to new in-migrants. Large-scale developers of traditional tract-style subdivisions had already leapfrogged the ridgeline for wider open and level land.

The increase in and shift toward a residential landscape introduced new ideas about land management to the area but in ways that continued to reflect past patterns of forest openings and pastoral aesthetics. By and large, households committed to forest stewardship have conserved and maintained areas of forest that have not been clear-cut since the end of the 19<sup>th</sup> Century

(although selective harvests in these areas have changed these forests), including many areas of woodlands that were used during the early 20<sup>th</sup> Century for firewood harvest and sale to nearby urban centers. Meanwhile, households with suburban lawn commitments (see Robbins, 2007) have, together with specific developer interventions, generally maintained or reintroduced pastoral patterns of forest openings and aesthetics reminiscent of the smallholder farms that once characterized the area. These landowners espouse commitments to design features that maximize the amount of forest opening on their parcel for lawn and land management activities that prioritize suburban lawn aesthetics (Figure B).

Instead of openings characterized by field crops or meadows, these non-forested areas are now maintained in turfgrasses and complimentary ornamental flower plantings. Further, some residents in the area demonstrate landscape ideologies that prioritize explicit sustainability practices or intensive biodiversity conservation efforts. Those landowners committed to sustainability practices generally maintain parcels with pastoral land use patterns, signifying a continued commitment to forms of natural resource production that have been described as “back to the land” or “homesteading” dynamics in other areas. Meanwhile, landowners who espouse strong commitments to local forest types seek to maximize the amount of forest and native species gardening intended to create floral and faunal protection in line with their commitment to open space conservation efforts.

In this case of changing land use and management, on conservation lands and private residential parcels, the complexity of what are considered appropriate land management approaches by exurbanites becomes clear. These differences in approaches transcend categories of rural/urban landowners. Longtime residents from rural areas support new conservation and planning efforts, including efforts to construct the ridgeline into a conservation object worthy of

recognition within county planning processes. Meanwhile, (predominantly) urban newcomers engage in the proliferation of urban vegetation dynamics, namely lawns, that recreate rural patterns of forest clearing and reimagine rural aesthetics in the process. So, too, both longtime rural residents and urban newcomers continue to turn to the land to find and extract natural resource values, including hunting, harvesting of non-timber forest products, and small-scale food production. Others incorporate classic rural animals, such as goats, into their lives as pets. These pets accompany their owners on hikes through the protected forest. Here the arrival of exurban migrants, rather than implementing a uniform pattern of urbanization, instead brings with it a complex of at least three different approaches to conservation and land management as well as a patchwork of settlement patterns, some of which reflect urban and suburban aesthetics. Meanwhile other landowners reenact longstanding rural livelihood and management strategies.

### ***Case 2: Emerging landscapes of wine production and consumption in the Sierra Nevada foothills***

The foothills of the Sierra Nevada Mountains in California has a history of resource extraction, ranging from the infamous mid-1800s Gold Rush to timber production to cattle ranching (Duane 2000; Momsen 1996). In the past several decades, economic development has shifted towards housing development and tourism, although “heritage” uses continue to contribute significantly to the economy and local identities (Beebe and Wheeler 2012; Hiner 2014; P. Walker and Fortmann 2003). Meanwhile, a long-standing, but increasingly prominent hybrid use has been developing; wine grape production, an active agricultural use, paired with wine making, in conjunction with associated wine tourism, has been spreading in the landscape. The wine industry, “from grape to glass”, is an increasingly visible, though largely un-quantified, economic force in the region. Ethnographic-style fieldwork was conducted in summer 2014

involving interviews with 60 wine grape growers, winemakers, winery owners, vineyard managers, agricultural advisors, wine retailers, and other people knowledgeable about the regional wine industry; participant observation; and a review of promotional and industry informational materials. This study of the area revealed that wine growers, wine makers, and wine buyers are engaged in an exchange that links rural and urban together in a mutual – if perhaps uneven – economic and cultural interchange, such that urban consumers and investors are set to gain more than their rural counterparts. However, that said, rural actors also actively engage in the changes taking place by producing a both wine and wine landscapes for the consumption of urban markets.

While it is largely urban tourists who visit the area for wine-related activities (and, indeed, new vineyard owners and wine makers are often urban transplants as well), wine-based activities are closely tied to the rural appeal of the place, capitalizing on the rolling hills, oak woodlands, and cattle-strewn landscape to both draw in visitors and in-migrants (Figure C). The success of an “emerging” wine region such as the Sierra Nevada foothills rests not just on the abilities of wine growers and wine makers to produce a quality product, but also on their ability to successfully market it, namely by luring urban consumers with the aesthetics of the wine landscape (vineyards, wineries, tasting rooms, etc.) as well as their place-soaked product. Direct sales are, of course, only part of the marketing strategies of many producers (producers who may also distribute their product at a variety of scales through stores, restaurants, and other markets), but direct sales to on-site consumers amounts to a significant portion of their appeal.

Wine is a product that reflects and produces local ecologies and environments in very specific ways (Sommers 2012). Terroir is an essential component of wine growing and making; the (micro)climactic, geologic, and environmental characteristics of a place are intimately tied to

which kinds of varieties can be produced where and at which quality (Trubek and Bowen 2008; Unwin 2012). Yet as landowners, land managers, and investors pursue wine as a land use and economic strategy, certain activities and actors are preferred over others, producing new ecologies and environments. Uses that may be long-standing but are no longer reliably profitable may be sidelined. Ranches or orchards turn to vineyards, barns turn to wineries and tasting rooms, and hillsides become caves or cellars (Hiner 2016a).

Moreover, wine tasting is an exercise in embodied place consumption. Wine enthusiasts visit vineyards and wineries to consume not just wine, but also the visual and aesthetic properties of the place. Wine tourists drink in the landscape as they travel from tasting room to tasting room and consume the product of that place directly through the wine. Wine sold in tasting rooms is not always locally-sourced, and the share of wine that is made from non-local grapes varies by region, but, in the Sierra Nevada, most of the wine grapes used to produce “Sierra” wine is (still) sourced from within the region. The ability of wine retailers to do well in their business is directly related to consumer experiences and perceptions of the place they are visiting. As such, maintaining (and building) such a place-to-be-consumed is an ongoing social process. In other words, the Sierra Nevada is a productive, active landscape, but it is also one which is (re)created for the pleasure of incoming visitors and/or migrants – even sometimes at the expense or displeasure of previous residents or stakeholders.

While the production of a wine landscape is undoubtedly a transformative process environmentally, economically, and socially, the industry also protects and produces coveted – and often idealized and/or imagined – rural landscapes and values. The influx of and deference to wine consumers encourages a certain kind of rural placemaking, wherein the functional, productive landscape is leveraged to build idealized landscapes that cater to urban environmental

imaginaries. The process whereby commodities are produced in rural places and are then sold and distributed to urban ones is altered such that urban consumers are further privileged; urbanites move beyond billing externalities to the rural communities that sustain them into an exchange whereby they consume not only rural products but rural place itself (Hurley 2013).

In this way, the Sierra wine region is a place where urban desires and imaginaries increasingly dominate, as (agri)cultural products are transformed into financial and symbolic capital (Sayre 2002; Hiner 2016a) and the idyllic/idealized rural landscape is commodified. Urban and rural, as such, are tied together and artificially separating them hinders rather than helps analysis of the processes occurring there.

In sum, while the urban is increasingly ‘everywhere’, we maintain that in rural areas along the urbanizing fringe rural imaginaries remain significant for cultural (re)production, political negotiations, and environmental management decisions – especially in those areas feeling pressure from proximate urban zones. The insights of ExPE related to contested politics and environments including discussions of competing rural capitalisms, the preservation and creation of conservation landscapes, and the ideological and material power of rural idylls, as well as the insights from urban political ecology related to power, privilege, and the metabolism of nature are both useful here. Emerging wine landscapes like those in the Sierra Nevada provide insights into the social, economic, and environmental processes that tie cities to other spaces in ever more complex ways.

### ***Case 3: Urbanization without urbanism: uneven urban metabolisms in Jackson County Oregon***

Jackson County, located in southern Oregon, is a small metropolitan area with a polycentric, sprawling development pattern. While Jackson County hardly constitutes an urban



area in the minds of most Oregonians, this small metropolitan region is part of what Luke (2003) calls 'global cities', where most of the world's urban population still lives. Population growth in Jackson County depends on a flow of migrants from large urban areas into the small cities and rural areas in the county. Yet growth in Jackson County cannot be conceptualized simply as a matter of counter-urbanization or de-urbanization. Neither can it be understood as a straightforward embrace of urbanization.

Neither the numbers nor the urban origins of migrants fully captures the role of the rural in promoting urbanization. What emerges from both written documentation of land use planning processes and interviews with local residents is how new arrivals value this place for its *rural characteristics* and desire the preservation of those qualities. It is this attachment to “ruralism” and rejection of urban values that limits how growth takes place and promotes policies that contradict traditional visions of urban sustainability such as density of urban form, transit oriented and mixed use development, and separation of urban and rural uses.

Traditionally, the economy of Jackson County relied on constantly varying levels of mining, forestry in the surrounding mountains, and pear growing on the valley floor along with longstanding low levels of tourism and rural residential development (McKinnon 2016). In the early 20<sup>th</sup> century hundreds of small orchard growers filled the valley with fruit trees, making the region one of the largest pear producing districts in North America. The region was filled with a fervor for the Jeffersonian ideal based on small farms, but starting in the 1930s farmland gradually consolidated into the hands of a few large growers, so that by the time of this study, only a handful of independent pear growers remained. Large growers made their money largely from packing and shipping, rather than growing. By the 1980s the few remaining small growers

faced increased competition from fruit growers in Asia and Latin America leading to stagnant prices and increasing conflict with urban and exurban neighbors.

By the early 200s significant patches of land in the valley continue to be farmed, but the expanding urban footprint of Medford in particular, has swallowed up significant portions of the rural landscape. Yet it is rapid urbanization in California beginning post-WWII fueled a distinctly rural and dispersed development pattern in Jackson County as back-to-the-landers and white flight increased the significance of the rural idyll – and, accordingly, the blossom-filled valley, surrounded by deep green slopes, appealed to increasing numbers of new arrivals. By the 1990s, these new arrivals along with many of the region’s remaining farmers begin a grassroots planning process out of concern over sprawling urbanization in the valley. Yet over the next two decades, as they worked through development of a regional conservation plan, they were largely unable to escape increasingly urbanized patterns of development. Large scale, master planned developments now predominate and, while there are efforts towards sustainability through higher density, new urbanism, and transit connections, these developments require large parcels of farmland. Oregon’s statewide planning regime mandates that urban expansion take in low density sprawl and preserve areas of intact farm and forest landcover. However, in actuality the types of large scale residential, commercial, or retail development in demand in the growing region would be prohibitively expensive if developers attempted to purchase the many small parcels required from individual land owners. In part due to the need to redevelop the physical infrastructure supporting water, sewage, and power to these exurban enclaves. Additionally, exurban residents resist any attempt to annex their lands by cities in the region whereas farmers, most of whom are now aging out of the profession, are often eager to sell.

In 2013, six municipalities in the region adopted the Greater Bear Creek Regional Problem Solving plan, which established urban reserves, designating lands for urban growth over the next 50 years, and successfully concluding over 20 years of collaborative plan development. The plan halts further urbanization of the most fertile farmlands in the valley, the areas along the riparian floodplain of the Bear Creek, which flows north from Ashland through the largest community, Medford and into the Rogue River in the northern portion of the valley. Yet this land is largely already covered in an exurban residential development pattern, with remaining commercial farm plots gradually giving way to a mix of residential uses and post-productivist agriculture (Holmes 2002; N. Evans, Morris, and Winter 2002), which relies of the proximity of urban consumers even as it trades on the desire for rural experiences.

New arrivals engage in small-scale production on their properties but often with a focus on the experience of farming or rural life instead of commodity production (Cadieux 2008). The growing number of new arrivals with urban tastes for wine and specialty gourmet foods in Medford and Ashland opens up new markets for specialized agricultural production and the consumption of rural experiences. This can be seen in the growth of direct marketing, farmers' markets, local food production, vineyards and wineries that provide food and wine for consumers willing to pay for not only the product but also for the experience of visiting the farm or the farmers market (see Figure D). In this way, pear farms are being replaced by a mix of luxury equestrian ranches, small vineyards, and suburban and exurban homesteaders keeping their own chickens.

This rise in new "hobby farms" produces a secondary transformation as farm suppliers and tractor dealers have been replaced by a growing secondary industry providing supplies and assistance designed specifically for recreational farming. For example, the many micro-vineyards

in the region are serviced by vineyard management companies, which allow would-be winemakers to enjoy the dream of living on a rural estate with its own vineyard while the work of growing the grapes and making the wine is taken care of by others. The finished wine, bottled and labeled, is brought back to the owners for sale or private distribution to friends and family. This trend toward postage-stamp wineries is mirrored in other emerging wine regions around the United States and beyond.

Yet for all their professed desire to escape urban life, exurbanites continue to demand urban levels of social provisioning and consumption. Medford has become the center for retail and medical services for an expansive rural region. The growing urban desires and tastes of the population can also be seen in the increasing sophistication and urban orientation of consumption in the valley, for example, the arrival of REI in the valley in 2012 (see Figure E).

The combination of increasingly urbanized metabolic processes in the economy and the marketing of rural idylls for urban consumption has created an urban form that is sprawling and a local political climate that resists attempts to impose urban planning solutions such as increased density, transit oriented development, and the separation of urban and rural uses. While understanding the power of urban capital and urban metabolisms in this situation is key, it is not sufficient to fully explain development patterns. Rural idylls continue to shape regional development and patterns of urbanization.

### **Urban Sustainability in an Urbanizing World**

Political ecology offers insights into how power functions to enable or constrain particular processes and outcomes. Understanding such economic and social processes is key to discussions of sustainability. Yet the focus on a limited subset of urban forms and processes within sustainability discussions limits our ability to understand how processes of urbanization

produce uneven impacts across the landscape, gentrification in one location and concentrated poverty in another, green spaces for some and environmental degradation for others.

However, a divided literature within political ecology tends to limit its usefulness for issues of urban sustainability. This division is, in some ways, to be expected; uneven development produces a world in which privilege and deprivation are often strongly spatially differentiated. Additionally, political ecology studies tend to be strongly tied to places and processes at the local scale, reflecting the field's strong reliance on case studies and commitment to grounding theory in particular locations.

A multiscale focus on the broader processes at work and how these intersect within particular places to produce the uneven outcomes is a key strength of political ecology approaches. While some urban political ecologists have taken an important step forward in moving away from methodological cityism, additional steps are needed to further develop a united political ecology of (ex)urbanization. In such a sprawling field, segregating research foci by geographic location or resource type may be seen both as easy and appropriate, but dialog and engagement across the divide is essential. This will mean that as UPE moves away from a focus on cities and towards a focus on urbanization processes, it will need to engage already existing bodies of literature on non-urban, ex-urban, and *zwischenstadt* landscapes (Sieverts 2003). These literatures include significant work by political ecologists on the cultural politics of amenity migration (Walker and Fortmann 2003; Cadieux and Taylor 2013) and exurbanization (Taylor and Hurley 2016). Additionally, as research on the persistence of rural activities in rapidly urbanizing areas reminds us, it is not only the symbolic dimensions of rural idyll aesthetics at play. Scholars of sustainability also need to pay better attention to the ways that changes in and/or changes created by urbanization continue to incorporate existing or enable new

productive dimensions of natural resource use, including among economically marginalized groups (Grabbatin, Hurley, and Halfacre 2011; Hurley and Taylor 2016).

To move away from an exclusive focus on cities and the concrete and clay dimensions of the built environment, UPE must better understand the ways rural ideals and ideologies of nature both continue to shape and reshape urbanization processes -- particularly as urbanization processes increasingly extend beyond what are widely recognized as urban landscapes. Moreover, as traditionally rural activities increasingly move into the city (Cantor, n.d.; Cloke 2006; Lacour and Puissant 2007) they become a focus for urban sustainability research. These activities include urban agriculture (Colasanti, Hamm, and Litjens 2012) and foraging in urban green-spaces (R. McLain et al. 2012; R. J. McLain et al. 2013; Poe et al. 2013; Poe et al. 2014).

At the same time, researchers steeped in the literature on exurban and rural resource conflicts would benefit from theoretical engagements with global urbanization. In particular, engagement with the literature in urban political ecology would shift the focus from the discourses used by exurbanites and locals by situating those discourses within flows of capital and materials. Abrams and Gosnell (2012) have suggested that while we now know a significant amount about amenity migrants themselves, we know less about the other actors involved in facilitating the "green sprawl" process such as real estate developers, local boosters, builders, landowners, and speculators.

Expanding conceptions of urban sustainability to 1) contemplate the broad range of settlement types that are being created across landscape gradients as part of urbanization and 2) examine how patterns in one place may or may not be related to patterns in another place (and the flows of people, ideas, and capital in-between) would be of advantage to both researchers and activists alike. Research on sustainability cannot afford to focus solely on the urban core because

measuring sustainability at one scale and location potentially misses the displacement of other impacts. Further, continuing to focus on a simplistic urban-rural dichotomy or focusing only on sustainability within the urban core constrains our capacity to consider potential solutions for resource-intensive land uses. Moreover, the creation of an integrated political ecology of (ex)urbanization would facilitate an increased understanding of socio-ecological processes and management approaches across scales, returning to the strengths of early political ecology studies (Robbins and Monroe Bishop 2008).

### **The Place of Political Ecology in Urban Sustainability**

Geographers long have examined human-environment interactions and their consequences for society, drawing on various schools of thought and theoretical framings (Turner and Robbins 2008; Harden 2012). Competing framings have considered the effect of humans on nature and the effect of nature on humans in various ways. But as Harden (2012, p. 742) notes, the overwhelming philosophical approach within geography has been one where humans are seen as “separate from nature” (see also Heynen, Kaika, & Swyngedouw, 2006; Smith, 2008). As a result, the seemingly obvious dichotomy has served to obscure the actual complexity of interactions and feedbacks between humans and nonhumans. In contrast, new theoretical approaches emerging within human-environment geography and allied fields seek to integrate the study of humans and nature (Turner and Robbins 2008). Land-change science analyses of the drivers of environmental change and their effects on Earth’s systems and ecosystem service provisions (Turner and Robbins 2008). Social-ecological systems’ focuses on coupled human natural systems and their resilience to perturbations (Cumming 2011). A common theme among these frameworks is exploration of the role that social and ecological dynamics play in creating bidirectional effects (Turner and Robbins 2008). A key analytical

advantage of these approaches to sustainability is understanding the ways that natural limits shape social responses, the role of complexity, and produce emergent responses in both human and natural systems adapting to changing conditions (Cumming 2011; Turner and Robbins 2008). Yet political ecologists (and other social scientists) have suggested these studies are insufficient to fully understand the complex ways that human institutions and human-environment interventions shape sustainability practices (Turner and Robbins 2008; Cumming 2011; Paul Robbins 2008; Isenhour, McDonogh, and Checker 2015). Rather they have sought to document the grounded human practices that create sustainable places and land uses.

Land-change science and other positivist approaches, including those of urban social ecological systems scholars, broadly construed, go a long way to addressing key questions of urban sustainability (Elmqvist et al. 2013; Turner and Robbins 2008). At the same time, in balancing the ecological with the social, political ecologists repeatedly have insisted that these approaches may miss key insights about the social factors that either enable or constrain actors within diverse institutional or decision-making contexts at various scales and their ability to draw on different degrees of political and economic power (Turner and Robbins 2008; Taylor and Hurley 2016). Still, as Turner and Robbins (2008: 300), speaking specifically about the relationship between lands change science and political ecology, suggest: both land-change science and political ecology “follow land management practices to their environmental consequences, although each expresses this concern differently.”

While acknowledging the critical work of land change science and other positivist approaches, we have endeavoured to demonstrate the ways that an integrated political ecology further illuminates the key social dynamics shaping (un)sustainable land change. In so doing, we center our efforts on the ways that (formerly) rural places are transformed by the interrelated



dynamics of capital flows and ideological interpretations of material nature that accompany the movement of people to these spaces (see also Taylor and Hurley 2016.) Political ecology helps us to better understand not only flows of material and energy but also who—or what environmental imaginaries—control nearby spaces, corresponding (de)legitimated land uses, and associated products.

Through this review and examination of case studies, we hope to encourage renewed engagement between political ecologists with differing locational and theoretical commitments and increased collaboration between political ecologists and other researchers working on urban sustainability issues (Turner and Robbins 2008). We acknowledge that there are many challenges to engaging across various theoretical and political differences (Blaikie 2012); however, our understandings of urban sustainability can only be deepened through cross disciplinary conversation and collaboration.

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## Figures

	<b>Urban Political Ecology</b>	<b>Political Ecology of Exurbia</b>
<b>Spatial focus</b>	Cities (i.e. methodological cityism)	Spaces in-between (cities, suburbs, exurban areas).
<b>Methods</b>	Analysis of social, political, and economic processes. Mix of archival, document analysis, interviews, and participatory methods.	The role of individual land owners, managers, and local politics. In-depth ethnographic case studies.
<b>Scalar focus</b>	City and megacity regions	Local case studies, imbedded in broader dynamics
<b>Theory</b>	Marxist metabolism, production of nature	Cultural landscape studies, representation of nature, competing rural capitalisms.
<b>Themes</b>	Environmental justice, uneven development, greenspace,	Impacts of urbanization, influence of urban on non-urban, production of protected places.
<b>Strengths</b>	Attention to power differences, justice, broad economic and political dynamics in development and conservation outcomes.	Attention to local knowledge, culture in development and conservation outcomes.

Figure A. Comparing urban political ecology and exurban political ecology approaches.





Figure B. Exurban Landscapes in Southeastern Pennsylvania. Back-to-the-Lander homestead (top) and cleared lawnscapes bordering protected and forested open space. Lower Frederick Township, Pennsylvania.



Figure C. Exurban Sierra Nevada foothill landscape with rolling hills dotted with trees, cattle, and, increasingly, vineyards. Calaveras County, California.





Figure D: Marketing rural space, Hillcrest Winery, Medford Oregon.



Figure E: New mall under construction in west Medford, anchored by REI and Trader Joes.