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Amy K. Hahs

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# Urban megaregions and the continuum of urbanity—embracing new frameworks or extending the old?

Amy K. Hahs<sup>1,2</sup>

<sup>1</sup>Australian Research Centre for Urban Ecology (ARCUE), Royal Botanic Gardens Victoria, Birdwood Ave, South Yarra, Victoria 3141, Australia

<sup>2</sup>School of BioSciences, The University of Melbourne, Parkville, Victoria 3010, Australia

Urban areas are now highly interconnected with each other and with other landscapes through the global exchange of materials, resources, and people. These urban land teleconnections mean that the interrelationships between urbanization and land-cover change are no longer tightly linked in geographic space (Seto et al. 2012). Actions at one or multiple urban centers can have concentrated or dispersed impacts on more distant landscapes; and these impacts are likely to increase over time. By 2030, Fragkias et al. (2013) predict that two thirds of the urban landscapes will have been built in the preceding 30 years. Accommodating the rise in human urban populations in the face of global climate change without compromising ecosystem sustainability and resilience presents an enormous challenge. Finding solutions requires a concerted shift in our thinking, not the least of which is the frameworks we use to conceptualize an urban world.

In the inaugural issue of *Ecosystem Health and Sustainability*, Pickett and Zhou (2015) propose two frameworks to help in meeting this challenge. The first relates to urban megaregions where groups of cities share multiple, diffuse connections and the boundaries between urban and rural land-cover types become blurred (Pickett and Zhou 2015, Fig. 1, p. 3). The second framework extends the continuum of urbanity initially proposed by Seto and Reenberg (2014). The continuum is expressed using four interrelated dimensions of livelihood, lifestyle, connectivity, and place which can be used in the most relevant combinations to place specific geographic landscapes into a broader global context.

The continuum of urbanity is a process-based definition, thus sharing a similar foundation with urban land teleconnections (Seto et al. 2012, Liu et al. 2015). In contrast, the established concept of “urbanization” is itself a process tightly associated with the physical transformation of specific geographic locations. Pickett and Zhou present a compelling narrative outlining why existing models of city dynamics are unrepresentative of cities in the Global East, South, and even the Global North. The continuum of urbanity offers an opportunity to extend our understanding and develop more inclusive and diverse models around the development and operation of cities. The continuum of urbanity also requires us to begin conceiving landscapes as boundary objects, where “place” is a negotiated concept rather than something defined by physical features (Nassauer 2013). The subtle shift in the framing of landscapes links urban land teleconnections at the global scale with finer scale processes within and between discrete boundary objects. This is a critical conceptual advance that allows local place-based interventions to be developed and applied, while explicitly acknowledging the role of the object within a larger system reliant on global solutions.

While the frameworks and arguments presented by Pickett and Zhou (2015) are convincing, two key areas need to be tested. The first is to determine whether these frameworks are distinct concepts in themselves, or special cases and sophisticated extensions of existing frameworks. Urban regions, a framework proposed by Forman (2008), emphasizes connections between physically delimited urban landscapes and surrounding regions. Do urban megaregions represent a specific type of urban region, or are they a new framework applicable to all cities, towns, and connected regions? The urban–rural (or urbanization) gradient framework has also been widely adopted in urban ecology research (McDonnell and Hahs 2008). While the gradient approach terminology is tied in with physical features of the landscape, there are numerous examples where gradients were defined using social measures included within dimensions of the continuum of urbanity (Kinzig et al. 2005, Boone et al. 2010). Testing and hindsight will reveal whether urban–rural gradients and the continuum of urbanity are complementary or competing frameworks.

Addressing the first line of enquiry is relatively straightforward. The second is more philosophical in nature. In some respects, the continuum of urbanity suggests that urbanity can be related to human behavior. A person living in a remote location can join a virtual workplace, undertake education, or purchase goods via the Internet, intrinsically linking them to urban landscapes elsewhere on the planet. If the proposed frameworks prove to be new and distinct ways of representing the world, this poses a new question: *What does it mean to be “urban”?* If “urban” has historically been tightly linked with cities and towns, what does it mean when we start defining it by the lifestyles or livelihoods of people instead? Does it then become less a question of *What does it mean to be “urban”?* and more *What does it mean*

*to be a human in the anthropocene?* Addressing these questions will require a broader dialog extending beyond the science or research community and including all members of wider society. The answers will shape our understanding of social-ecological systems, and determine the approaches we take toward negotiating global sustainability outcomes. The discussion may be difficult, but the rewards will be worth the effort.

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