

E555 Urban Ecology – Topics/Readings, Sp 2014, B.C. Fischer

All papers are located in Oncourse Resources Weekly Folders

Week #1 January 14 – Course introduction and all that stuff

Topics – What is Urban; Urban Ecology “In, Of and For” the City; The Anthropocene

Read Chapter 1 of Textbook – An introduction to urban ecology and urban ecosystems

Pickett et. al. 2008. Beyond Urban Legends: An Emerging Framework of Urban Ecology, as Illustrated by the Baltimore Ecosystem Study. *Bioscience* 58(2): 139-150.

Read the following article from Atlantic Cities “The Rise of Urban Ecology (see Resources Week 1 for article and the many citations to other articles this is really the good stuff. <http://www.theatlanticcities.com/arts-and-lifestyle/2012/11/rise-urban-ecology/4032/#.UODujZ8wKg8.email>

The Economist. 2011 (May 26). Welcome to the Anthropocene: Humans have changed the way the world works. now they have to change the way they think about it, too. 11p

Week #2 January 21 – Clean up lingering course format questions, discuss book reviews and research papers

Topics - Finalizing class definitions of urban, urban ecology, etc.; First class discussion of assigned articles; See model briefing paper; Assignments of teams (3 students/team) for Weeks 3-14

Read Chapter 2 of Textbook – Urban form, structure and dynamics

Pickett, S.T.A. and J.M. Grove. 2009. Urban Ecosystems: What would Tansley Do? *Urban Ecosystems* 12: 1-8.

Alberti et al. 2003. Integrating Humans into Ecology: Opportunities and Challenges for Studying Urban Ecosystems. *Bioscience* 53(12): 1169-1179.

Grove, J.M. 2009. Cities: Managing Densely Settled Social-Ecological Systems, p281-294. In Chapin, F.S, et.al. *Principles of Ecosystem Stewardship: Resilience-Based Natural Resource Management in a Changing World*. Springer. 402p. ISBN 978-0-387-73032-5 – see model briefing paper by S.K. Mincey

Week #3 January 28

Chapter 3 – The urban ecosystem: an overview

Lorenz, K., & Lal, R. 2009. Biogeochemical C and N cycles in urban soils. *Environment international* 35(1): 1-8.

Golubiewski, N. 2012. *Is there a metabolism of an urban ecosystem? An ecological critique*. *AMBIO* 41:751-764.

Lundy, L. and R. Wade. 2011. Integrating sciences to sustain urban ecosystem services. *Progress in Physical Geography* 35(5): 653-669.

Ernstson et al. 2010. Urban Transitions: On Urban Resilience and Human-Dominated Ecosystems. *AMBIO* 39(8): 531-545.

Week #4 February 4

Chapter 4 Ecosystems with urban regions: green space

Byrne, Loren B. 2005 Of Looks, Laws and Lawns: How human aesthetic preferences influence landscape management, public policies, and urban ecosystems. Pp. 42-46 in D. Laband ed., *Emerging Issues Along Urban Rural Interfaces: Linking Science and Society Conference Proceedings*. Auburn University, Auburn, AL.

Stottlemeyer, Jeff. 2011. *Towards a Vision of Metropolitan Agriculture*. Published online. University College London and REOS Partners Ltd.

Harrison, Carolyn and Gail Davies, “Conserving biodiversity that matters: practitioners' perspectives on brownfield development and urban nature conservation in London,” *Journal of Environmental Management* (2002) 65, 95-108

Flores et al. 1998. Adopting a modern ecological view of the metropolitan landscape: the case of a greenspace system for the New York City region. *Landscape and Urban Planning* 39: 295-308.

Week #5 February 11

Chapter 5 Ecosystems within urban regions: the built environment

Lundholm, J.T. and Richardson, P.J. 2010. Habitat analogues for reconciliation ecology in urban and industrial environments. *Journal of Applied Ecology* 47: 966-975.

Oberndorfer, E., Lundholm, J., Bass, B., Coffman, R. R., Doshi, H., Dunnett, N., ... Rowe, B. (2007). Green roofs as urban ecosystems: Ecological structures, functions, and services. *Bioscience*, 57(10), 823-833.

Tikka P.M., Hogmander H., and Koski P.S. 2001. Road and Railway Verges Serve as Dispersal Corridors for Grassland Plants. *Landscape Ecology*. 16. 659-666.

Pincetl, S. 2013. Urban Ecology and Nature's Services Infrastructure: Policy Implications of the Million Trees Initiative of the City of Los Angeles. Chapter 5, p 61-74., C.G. Boone and M. Fragkias (eds.), *Urbanization and Sustainability: Linking Urban Ecology, Environmental Justice and Global Climate Change, Human-Environmental Interactions* 3. Springer.

Week #6 February 18

Chapter 6 Urban species

Hunter, P.. 2007. The human impact on biological diversity: How species adapt to urban challenges sheds light on evolution and provides clues about conservation. *EMBO Reports*: 8(4): 316-318.

Jaffee, E. "Animals May Evolve Bigger Brains to Handle City Life." *The Atlantic Cities*. 28 August 2013. Web.

Davis, M.A. et al. "Don't Judge Species on Their Origins." *Nature* 474: 7350 (2011): 153-154.

Shadek, U., Strauss, B., Biedermann, R., Kleyer, M. 2009. Plant species richness, vegetation structure and soil resources of urban brownfield sites linked to successional age. *Urban Ecosyst.* Vol. 12, pp. 115-126.

L.R. Walker, D.A. Wardle, R.D. Bardgett, B.D. Clarkson. 2010. The use of chronosequences in studies of ecological succession and soil development. *Journal of Ecology* 98, 725–736, doi: 10.1111/j.1365-2745.2010.01664.x

Yadav, P., Foster, W. A., Mitsch, W. J., & Grewal, P. S. (2012). Factors affecting mosquito populations in created wetlands in urban landscapes. *Urban Ecosystems*, 15(2), 499-511.

Week #7 February 25

Chapter 7 Nature conservation in urban regions

Holt, A., P. Moug and D. Lerner, 2012, "The Network Governance of Urban River Corridors," *Ecology and Society*, 17(4): 25

Alvey. 2006. Promoting and Preserving Biodiversity in the Urban Forest. *Urban Forestry & Urban Greening* 5 (2006) 195-201.

Toomey, D. 2013. "How Rise of Citizen Science is Democratizing Research," from Yale 360, 4p, <http://e360.yale.edu/content/print.msp?id=2733>

Aronson, J. and S. Alexander. 2013. Ecosystem Restoration is Now a Global Priority: Time to Roll up our Sleeves (Editorial Opinion). *Restoration Ecology* 21(3): 293-296.

Dinetti, M. 2010. Attracting Interest in Urban Biodiversity with Bird Studies in Italy. Pp 454-462 (Chapter 24) from Muller, N. et. al. *Urban Biodiversity and Design*, Blackwell Publishing. ISBN: 978-1-444-332667.

Week #8 March 4

Chapter 8 Incorporating ecology in urban planning and design

Browne, Mark A., and M. Gee Chapman. "Ecologically Informed Engineering Reduces Loss of Intertidal Biodiversity on Artificial Shorelines." *Environmental Science & Technology* 45.19 (2011): 8204-207.

Eichblatt, S. 2014. "Green building 'not going far enough'." *The New Zealand Herald*.

Laforteza, Raffaele et alia. Green Infrastructure as a tool to support spatial planning in European urban regions. 2012. *iForest – Biological Sciences and Forestry*, Vol. 6, pg 102-108.

Millard, A. (2008). Semi-natural vegetation and its relationship to designed urban green space at the landscape scale in Leeds, UK. *Landscape Ecology*. 23, 1231-1241.

Gardner, Andrew S., Howarth, Brigitte. Urbanisation in the United Arab Emirates: The challenges for ecological mitigation in a rapidly developing country. 2009. *BioRisk*, Vol. 3, pp. 27-38

Week #9 March 11
Book review presentations

March 16-20 Spring Break

Week #10 March 25 – Visit with Graduate Students in the Alberti Urban Ecology Lab, University of Washington, Seattle

- Matt Patterson <http://urbaneco.washington.edu/wp/team-2/matt-patterson/>.
- Karis Tenneson <http://urbaneco.washington.edu/wp/team-2/karis-tenneson/>.
- Karen Dyson <http://urbaneco.washington.edu/wp/team-2/karen-dyson/>.

Week #11 April 1 – Visit with Jens Lachmund, PhD Sociology of Science, Maastricht University in the Netherlands

Lachmund, Jens. (2013). *Greening Berlin: The co-production of science, politics, and urban nature*. MIT Press.

Visit with Coleen Murphy Dunning, Yale University

Jackson, L. The relationship of urban design to human health and condition, *Landscape & Urban Planning* 64 (2003), 191-200.

Jack-Scott, Emily, Piana, M., Troxel, B., Murphy-Dunning, C. and Ashton, M., Stewardship Success: How Community Group Dynamics Affect Urban Street Tree Survival Growth, *Arboriculture & Urban Forestry* 2013, 39(4): 189-196

Week #12 April 8 – Visit with Mirella Gallardo, Discussing Payments for Environmental Service in Watersheds, Lima, Peru.

Quintero, Wunder, Estrada. 2009. For services rendered? Modeling hydrology and livelihoods in Andean payments for environmental services schemes. *Forest Ecology and Management* 258: 1871-1880.

Douglas-Mankin, K. R., Srinivasan, R., Arnold, J. G. 2010. Soil and water assessment tool (SWAT) model: current developments and applications. *Transactions of the ASABE*, Vol. 53, No. 5, pp. 1423-1431

Week #13 April 15 – Butler University Urban Ecology Center Visit by Tim Carter and Becky Dolan – Readings provided:

Felson, A. J., Pavao-Zuckerman, M., Carter, T., Montalto, F., Shuster, B., Springer, N., Stander, E. K., Starry, O. 2013. Mapping the design process for urban ecology researchers. *BioScience*. 63(11): 854-865.

Carter, T. 2014. Translational ecology in cities. *Ecology and Society*. (In Review).

Aronson, M.F.J., La Sorte, F.A., Nilon, C.H., Katti, M., Goddard, M.A., Lepczyk, C.A., ... Winter, M. (2014). A global analysis of the impacts of urbanization on bird and plant diversity reveals key anthropogenic drivers. *Proceedings of the Royal Society: Biological Sciences*.

Dolan, R.W., Stephens, J.D., & Moore, M.E. (n.d.) A decade of change in plant species composition and structure in tow pre-urban nature preserves.

Week #14 April 22 Research paper presentations

Week #15 April 29 Research paper presentations

May 2 – Final research papers due date – earlier is better!