UNIVERSIDADE ESTADUAL DE CAMPINAS INSTITUTO DE FILOSOFIA E CIENCIAS HUMANAS NÚCLEO DE ESTUDOS E PESQUISAS AMBIENTAIS PROGRAMA DE PÓS-GRADUAÇÃO EM AMBIENTE E SOCIEDADE

AS104 - Uso e Cobertura da Terra e Sustentabilidade – (2022/2º)

Professores: Mateus Batistella, David Lapola, Jurandir Zullo e Ramon Bicudo da Silva

Carga Horária: 60 h em sala

Dia/Horário: 4as feiras, 8h – 12h

Carga Horária: 4 créditos

Aluno Especial: Sim

Número de vagas: 15 regulares

Programa:

O programa será ministrado em 15 aulas. Estão previstas aulas práticas e um dia de campo.

Aula 1. Contexto geral da disciplina e literatura recomendada

Mateus, David

W. C. Clark, A. G. Harley, Sustainability science: Toward a synthesis. Annu. Rev. Environ. Resour. 45, 331–386 (2020).

A. Martin et al., Environmental justice and transformations to sustainability. Environ. Sci. Policy Sustain. Dev. 62, 19–30 (2020).

Meyfroidt et al. https://doi.org/10.1073/pnas.2109217118 Ten facts about land systems for sustainability Downloaded from https://www.pnas.org by 179.159.172.66 on March 4, 2022 from IP address 179.159.172.66.

P. Meyfroidt et al., Middle-range theories of land system change. Glob. Environ. Change 53, 52–67 (2018).

P. H. Verburg et al., Land system science and sustainable development of the earth system: A global land project perspective. Anthropocene 12, 29–41 (2015).

B. L. Turner, II, E. F. Lambin, A. Reenberg, The emergence of land change science for global environmental change and sustainability. Proc. Natl. Acad. Sci. U.S.A. 104, 20666–20671 (2007).

R. R. Rindfuss, S. J. Walsh, B. L. Turner, II, J. Fox, V. Mishra, Developing a science of land change: Challenges and methodological issues. Proc. Natl. Acad. Sci. U.S.A. 101, 13976–13981 (2004).

Aula 2. Análises espaciais e dinâmicas territoriais: definições, escalas, sensoriamento remoto e geotecnologias;

Jurandir, Ramon

Meyfroidt et al., Focus on leakage and spillovers: Informing land-use governance in a telecoupled world. Environ. Res. Lett. 15, 090202 (2020).

Aula 3. Mudanças de uso e cobertura da terra no planeta e no Brasil;

Ramon, Mateus

J. van Vliet, Direct and indirect loss of natural area from urban expansion. Nat. Sustain. 2, 755–763 (2019).

H. K. Gibbs, J. M. Salmon, Mapping the world's degraded lands. Appl. Geogr. 57, 12–21 (2015).

E. F. Lambin et al., Estimating the world's potentially available cropland using a bottom-up approach. Glob. Environ. Change 23, 892–901 (2013).

F. Schierhorn et al., Post-Soviet cropland abandonment and carbon sequestration in European Russia, Ukraine, and Belarus. Global Biogeochem. Cycles 27, 1175–1185 (2013).

E. F. Lambin, P. Meyfroidt, Global land use change, economic globalization, and the looming land scarcity. Proc. Natl. Acad. Sci. U.S.A. 108, 3465–3472 (2011).

E. F. Lambin, H. J. Geist, Land-Use and Land-Cover Change: Local Processes and Global Impacts (Springer Science & Business Media, 2006).

J. A. Foley et al., Global consequences of land use. Science 309, 570–574 (2005).

D. M. A. Rozendaal et al., Biodiversity recovery of Neotropical secondary forests. Sci. Adv. 5, eaau3114 (2019).

L. J. Sonter et al., Mining drives extensive deforestation in the Brazilian Amazon. Nat. Commun. 8, 1013 (2017)

H. J. Geist, E. F. Lambin, Proximate Causes and Underlying Driving Forces of Tropical Deforestation: Tropical forests are disappearing as the result of many pressures, both local and regional, acting in various combinations in different geographical locations. BioScience. 52, 143–150 (2002).

Aula 4. Desmatamento e fragmentação: causas imediatas e subjacentes de mudanças de uso e cobertura da terra em regiões tropicais;

Jurandir, David

R. DeFries, C. Rosenzweig, Toward a whole-landscape approach for sustainable land use in the tropics. Proc. Natl. Acad. Sci. U.S.A. 107, 19627–19632 (2010).

Aula 5. Dimensões ecológicas e humanas do uso e cobertura da terra;

Ramon, David

H. Nagendra, X. Bai, E. S. Brondizio, S. Lwasa, The urban south and the predicament of global sustainability. Nat. Sustain. 1, 341–349 (2018).

E. C. Ellis, N. Ramankutty, Putting people in the map: Anthropogenic biomes of the world. Front. Ecol. Environ. 6, 439–447 (2008).

Lambin, E. F. & H. Geist. 2006. Land-use and land-cover change – local processes and global impacts. Berlin: Springer.

Aula 6. Atividade de campo: visita ao Inpe e Cemaden (São José dos Campos)

Mateus, Jurandir

Aula 7. Segurança alimentar e dos alimentos;

Mateus, Jurandir

L. Kehoe et al., Inclusion, transparency, and enforcement: How the EU-mercosur trade agreement fails the sustainability test. One Earth 3, 268–272 (2020).

N. Villoria, Consequences of agricultural total factor productivity growth for the sustainability of global farming: Accounting for direct and indirect land use effects. Environ. Res. Lett. 14, 125002 (2019).

N. B. Villoria, Technology spillovers and land use change: Empirical evidence from global agriculture. Am. J. Agric. Econ. 101, 870–893 (2019).

C. Folke et al., Transnational corporations and the challenge of biosphere stewardship. Nat. Ecol. Evol. 3, 1396–1403 (2019).

D. K. Munroe et al., Governing flows in telecoupled land systems. Curr. Opin. Environ. Sustain. 38, 53–59 (2019).

T. A. Gardner et al., Transparency and sustainability in global commodity supply chains. World Dev. 121, 163–177 (2019).

E. F. Lambin et al., The role of supply-chain initiatives in reducing deforestation. Nat. Clim. Chang. 8, 109–116 (2018).

T. K. Rudel, P. Meyfroidt, Organizing anarchy: The food security–biodiversity–climate crisis and the genesis of rural land use planning in the developing world. Land Use Policy 36, 239–247 (2014).

Aula 8. Biodiversidade e mudanças globais;

David, Mateus

Pörtner, H.O., et al. 2021. Scientific outcome of the IPBES-IPCC co-sponsored workshop on biodiversity and climate change; IPBES secretariat, Bonn, Germany, DOI:10.5281/zenodo.4659158.

S. M. Dıaz et al., "The Global Assessment Report on Biodiversity and Ecosystem Services: Summary for policy makers" (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, 2019).

IPBES, "Global assessment report on biodiversity and ecosystem services" (IPBES Secretariat, 2019).

K.-H. Erb et al., Unexpectedly large impact of forest management and grazing on global vegetation biomass. Nature 553, 73–76 (2018).

86 R. de Groot et al., Global estimates of the value of ecosystems and their services in monetary units. Ecosyst. Serv. 1, 50–61 (2012).

Aula 9. Caminhos de intensificação do uso da terra;

Mateus, Ramon

V. Rodrıguez Garcıa, F. Gaspart, T. Kastner, P. Meyfroidt, Agricultural intensification and land use change: Assessing country-level induced intensification, land sparing and rebound effect. Environ. Res. Lett. 15, 085007 (2020).

J. C. dos Reis et al., Integrated crop-livestock systems: A sustainable land-use alternative for food production in the Brazilian Cerrado and Amazon. J. Clean. Prod. 283, 124580 (2020).

G. Tamburini et al., Agricultural diversification promotes multiple ecosystem services without compromising yield. Sci. Adv. 6, eaba1715 (2020).

L. V. Rasmussen et al., Social-ecological outcomes of agricultural intensification. Nat. Sustain. 1, 275–282 (2018).

J. D. B. Gil et al., Tradeoffs in the quest for climate smart agricultural intensification in Mato Grosso, Brazil. Environ. Res. Lett. 13, 064025 (2018).

Aula 10. Modelagem de mudanças de uso e cobertura da terra;

David, Jurandir

K. Huang, X. Li, X. Liu, K. C. Seto, Projecting global urban land expansion and heat island intensification through 2050. Environ. Res. Lett. 14, 114037 (2019).

HEAVENS, N. G. et al. 2013. Studying and projecting climate change with Earth System Models. Nature Education Knowledge, 4:4.

Verburg, P. H., et al. 2006. Modeling land-use and land-cover change. In: Lambin, E. F. & H. Geist. Land-use and land-cover change – local processes and global impacts. Berlin: Springer, pp. 117-135.

Aula 11. Aula prática: processamento de imagens e sistema de informações geográficas

Jurandir, Ramon

Aula 12. Aula prática: estrutura e métricas de paisagem

Ramon, Jurandir

Aula 13. Políticas e ações relacionadas às mudanças de uso e cobertura da terra no Brasil.

David, Mateus

C. Oberlack et al., Archetype analysis in sustainability research: Meanings, motivations, and evidence-based policy making. Ecol. Soc. 24, 26 (2019).

T. Wiedmann, M. Lenzen, Environmental and social footprints of international trade. Nat. Geosci. 11, 314–321 (2018).

A. Arneth et al., "Framing and context" in Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems, P. R. Schukla et al., Eds. (Intergovernmental Panel on Climate

Change, 2019), pp. 1–98.

A. C. Soterroni et al., Future environmental and agricultural impacts of Brazil's Forest Code. Environ. Res. Lett. 13, 074021 (2018).

J. Ferreira et al., Carbon-focused conservation may fail to protect the most biodiverse tropical forests. Nat. Clim. Chang. 8, 744–749 (2018).

G. Sparovek et al., Who owns Brazilian lands? Land Use Policy 87, 104062 (2019).

E. Ostrom, Beyond markets and states: Polycentric governance of complex economic systems. Am. Econ. Rev. 100, 641–672 (2010).

Aula 14. Apresentação de trabalhos individuais.

Mateus, David, Jurandir, Ramon

Aula 15. Apresentação de trabalhos individuais.

Mateus, David, Jurandir, Ramon