Reading list for Ph.D. qualifying examination

Amber Kerr

Energy and Resources Group

Final draft pending feedback: November 5, 2007

Committee members:

Professor Dan Kammen, ERG (committee chair)
Professor Margaret Torn, LBNL (primary research advisor)
Professor Lynn Huntsinger, ESPM (outside member)
Professor Todd Dawson, IB / ESPM
Professor Carol Shennan, EnvS, UCSC

Additional advice from:

Professor John Harte, ERG (academic advisor)
Professor Louise Fortmann, ESPM
Professor Isha Ray, ERG

Notes:

- Initials at the end of a reading indicate the professor (if any) who suggested the reading.
- Some chapter titles are truncated. In edited volumes, chapter authors may not be listed.

Dissertation prospectus abstract:

Can agroforestry practices enhance the reliability of subsistence agriculture under future climatic conditions in southern Africa?

Agroforestry has been promoted throughout the developing world as a solution to many environmental and socioeconomic challenges. Now, with the advent of global climate change, agroforestry is being touted as a carbon sink for climate mitigation. But it is still unknown how climate change might alter the effectiveness of agroforestry systems. Some agroforestry practices may help farmers adapt to a warmer, increasingly variable climate. Other agroforestry practices may become a liability, as trees compete with crops for limited water. In my dissertation, I will use data from previous and ongoing agroforestry field experiments in Zambia and Malawi to determine how the yield of three different system designs – improved fallows, relay intercropping, and hedgerow intercropping – is likely to change under future climate. I will use a combination of direct manipulation (rainout shelters) and interannual variability to deduce responses to longer-term climate change, and will measure the physiological parameters of the plant/soil system to clarify underlying mechanisms. I will use these data in conjunction with the WaNuLCAS model to develop a long-term framework for predicting the performance of these agroforestry systems under future climates. My goal is to provide recommendations that will be useful to smallholders, land-use planners, and policymakers in southern Africa and throughout agricultural regions in the tropics.

1. Terrestrial ecosystem ecology and global change

Committee members for this topic: MT and TD, with advice from JH

Scope, motivation, and relevance: I wish to understand the interactions between biological communities and their non-living environment (soil, water, atmosphere, and temperature), and how these interactions may be affected by global change. I will focus on plants and, to a lesser extent, soil microbes. With respect to global change, my main focus will be anthropogenic climate change, but I will also consider changes to land-use and biogeochemical cycles.

General

Chapin, F. S.; Pamela A. Matson; and Harold A. Mooney (2002). *Principles of Terrestrial Ecosystem Ecology*. New York: Springer-Verlag. 436 pp.

All chapters (16).

Schlesinger, W. H. (1997). *Biogeochemistry: An Analysis of Global Change* (2nd ed.). San Diego: Academic Press. 588 pp. [MT]

Ch. 5: The Biosphere: The Carbon Cycle of Terrestrial Ecosystems.
Ch. 6: The Biosphere: Biogeochemical Cycling on Land.
Ch. 10: The Global Water Cycle.
Ch. 11: The Global Carbon Cycle.
Ch. 12: The Global Cycles of Nitrogen and Phosphorus.

Brady, Nyle C., and Ray R. Weil (2002). *The Nature and Properties of Soils* (13th ed.). Upper Saddle River, NJ: Prentice Hall. 960 pp.

Ch. 1: The Soils Around Us
Ch. 4: Soil Architecture and Physical Properties
Ch. 5: Soil Water: Characteristics and Behavior
Ch. 6: Soil and the Hydrologic Cycle
Ch. 7: Soil Aeration and Temperature
Ch. 11: Organisms and Ecology of the Soil
Ch. 12: Soil Organic Matter
Ch. 13: Nitrogen and Sulfur Economy of Soils
Ch. 14: Soil Phosphorus and Potassium
Ch. 16: Practical Nutrient Management
Ch. 17: Soil Erosion and its Control
Ch. 19: Geographic Soils Information
Ch. 20: Global Soil Quality as Affected by Human Activities

Taiz, Lincoln; and Eduardo Zeiger (1998). *Plant Physiology* (2nd ed.). Sunderland, MA: Sinauer Associates. 792 pp.

Ch. 3: Water and Plant Cells
Ch. 4: Water Balance of the Plant
Ch. 7: Photosynthesis: The Light Reactions

Ch. 8: Photosynthesis: Carbon Reactions
Ch. 25: Stress Physiology

Barbour, M. G.; J. H. Burk; W. D. Pitts; F. S. Gilliam and M. W. Schwartz (1999). *Terrestrial Plant Ecology* (3rd ed.). Menlo Park, CA: Benjamin Cummings. 689 pp.

Ch. 1: Introduction.
Ch. 5: Allocation and Life History Patterns.
Ch. 6: Species Interactions: Competition and Amensalism
Ch. 7: Species Interactions: Commensalism, Mutualism, and Herbivory
Ch. 8: Community Concepts and Attributes.
Ch. 12: Productivity.
Ch. 13: Mineral Cycles *(skim; covered in detail elsewhere)*
Ch. 14: Light and Temperature.
Ch. 17: Soil *(skim; covered in detail elsewhere)*
Ch. 18: Plant-Water Dynamics.
Ch. 19: Water: Environment and Adaptations.

Biometeorology

Campbell, Gaylon S., and John M. Norman (1998). *An Introduction to Environmental Biophysics* (2nd ed.). New York: Springer. 286 pp.

Ch. 1: Introduction.
Ch. 9: Water Flow in Soil.
Ch. 14: Plants and Plant Communities.
Ch. 15: The Light Environment of Plant Canopies.

Biodiversity and ecosystem function

Fridley, J. D. (2002). "Resource availability dominates and alters the relationship between biodiversity and ecosystem productivity in experimental plant communities." *Oecologia* 132: 271–277.

Hooper, D. U.; F. S. Chapin; J. J. Ewel; A. Hector; P. Inchausti; S. Lavorel; J. H. Lawton; D. M. Lodge, et al. (2005). "Effects of biodiversity on ecosystem functioning: a consensus of current knowledge." *Ecological Monographs* 75(1): 3-35.

Balvanera, P.; A. B. Pfisterer; N. Buchmann; J.-S. He; D. Raffaelli and B. Schmid (2006). "Quantifying the evidence for biodiversity effects on ecosystem functioning and services." *Ecology Letters* 9: 1146-1156.

Theories of plant traits and resource competition

Reich, P. B.; M. B. Walters and D. S. Ellsworth (1997). "From tropics to tundra: Global convergence in plant functioning." *Proceedings of the National Academy of Sciences of the United States of America* 94(25): 13730-13734. [TD]

Chapin, F.S. III (1993). "Functional role of growth forms in ecosystem and global processes." Ch. 16 (pp. 287-312) in Ehleringer, J. R. and C. B. Field, eds. (1993). *Scaling Physiological Processes: Leaf to Globe*. San Diego, CA, Academic Press. [MT]

Reich, P. B.; D. Tilman; J. Craine; D. Ellsworth; M. G. Tjoelker; J. Knops; D. Wedin; S. Naeem, et al. (2001). "Do species and functional groups differ in acquisition and use of C, N and water under varying atmospheric CO_2 and N availability regimes? A field test with 16 grassland species." *New Phytologist* 150: 435-448.

Craine, J. M. (2005). "Reconciling plant strategy theories of Grime and Tilman." *Journal of Ecology* 93: 1041-1052.

Tilman, D. (2007). "Resource competition and plant traits: a response to Craine et al. 2005." *Journal of Ecology* 95: 231-234.

Westoby, M. and I. J. Wright (2006). "Land-plant ecology on the basis of functional traits." *Trends in Ecology & Evolution* 21(5): 261-268. [TD]

Violle, C.; M.-L. Navas; D. Vile; E. Kazakou; C. Fortunel; I. Hummel and E. Garnier (2007). "Let the concept of trait be functional!" *Oikos* 116(5): 882-892.

Plant-soil-water relations

Jackson, R. B.; J. Canadell; J. R. Ehleringer; H. A. Mooney; O. E. Sala and E. D. Schulze (1996). "A global analysis of root distributions for terrestrial biomes." Oecologia 108(3): 389-341. [MT]

Caldwell, M. M.; T.E. Dawson and J.H. Richards (1998). "Hydraulic lift: consequences of water efflux from the roots of plants." *Oecologia* 113: 151-161.

Burgess, S.S. O.; M.A. Adams; N.C. Turner and C.K. Ong (1998). "The redistribution of soil water by tree root systems." *Oecologia* 115: 306-311.

McCulley, R.L.; E.G. Jobbágy; W.T. Pockman and R.B. Jackson (2004). "Nutrient uptake as a contributing explanation for deep rooting in arid and semi-arid ecosystems." *Oecologia* 141: 620-628.

Zou, C.B.; P.W. Barnes; S. Archer and C.R. McMurtry (2005). "Soil moisture redistribution as a mechanism of facilitation in savanna tree-shrub clusters." *Oecologia* 145: 32-40.

Ludwig, F.; T. E. Dawson; H. Kroon; F. Berendse and H. H. T. Prins (2003). "Hydraulic lift in Acacia tortilis trees on an East African savanna." *Oecologia* 134: 293-300.

Methodology: Climate change experiments

Dunne, J. A., S. R. Saleska, M. L. Fischer and J. Harte (2004). "Integrating experimental and gradient methods in ecological climate change research." *Ecology* 85(4): 904–916. [JH]

Schulze, R. (2000). "Transcending scales of space and time in impact studies of climate and climate change on agrohydrological responses." *Agriculture, Ecosystems, and Environment,* 82 (1-3): 185-212.

Jentsch, Anke; Jürgen Kreyling; and Carl Beierkuhnlein (2007). "A new generation of climate-change experiments: events, not trends." *Frontiers in Ecology and the Environment* 5(7): 365-374. [MT]

Stenseth NC, Ottersen G, Hurrell JW, et al. (2003). "Studying climate effects on ecology through the use of climate indices: the North Atlantic Oscillation, El Nino Southern Oscillation and beyond." *Proceedings of the Royal Society of London, Series B - Biological Sciences* 270(1529): 2087-2096. [DK]

Methodology: Measurement of plant and soil parameters

Robertson, G.P.; D.C. Coleman; C.S. Bledsoe and P. Sollins, eds. (1999). *Standard Soil Methods for Long-Term Ecological Research*. New York: Oxford University Press. 462 pp. [MT]

All chapters (20), but not in detail.

Sala, O. E.; R. B. Jackson; H. A. Mooney and R. W. Howarth, eds. (2000). *Methods in Ecosystem Science*. New York: Springer-Verlag. [TD]

Introduction: Progress, Tradeoffs, and Limitations
Ch. 1: Stand Structure in Terrestrial Ecosystems
Ch. 2: Methods of Estimating Aboveground NPP
Ch. 4: Methods of Estimating Belowground NPP
Ch. 8: Stable Isotope Tracers and Mathematical Models in SOM Studies
Ch. 11: Canopy Fluxes
Ch. 12: Assessing Ecosystem-Level Water Relations Through Stable Isotopes
Ch. 13: Measuring Water Availability and Uptake in Ecosystem Studies
Ch. 14: Nutrient Transformations (*skim*)
Ch. 15: Biogenic Trace Gas Exchanges (*skim*)
Ch. 16: Ecosystem Nutrient Balance and Dynamics (*skim*)
Ch. 19: Nutrient Manipulation in Terrestrial Ecosystems
Ch. 23: Large-Scale Water Manipulations
Ch. 24: Ecosystem Climate Manipulations
Ch. 25: Ecosystem Modeling

2. Tropical agroforestry systems

Committee members for this topic: CS, LH, with input from TD and MT

Scope, motivation, and relevance: I wish to understand the biophysical principles on which agroforestry systems operate, with particular reference to small-scale systems in tropical Africa. I wish also to become familiar with different types of agroforestry systems and their uses, problems that can arise in their implementation, and the benefits that they can confer (economic, social, and environmental).

Agroecology: general principles

Altieri, Miguel A. (1995). *Agroecology: The Science of Sustainable Agriculture.* Boulder, CO: Westview Press. 433 pp.
- Part I: The Theoretical Basis of Agroecology
- Part II: The Design of Alternative Agricultural Systems and Technologies
- Part III: Alternative Production Systems

Gliessman, Stephen R. (2000). *Agroecology*. Boca Raton, FL: CRC Press. 357 pp.
- Part II: Plants and Environmental Factors
- Part III: System-Level Interactions

Agroforestry: general principles

Wojtowski, Paul (1998). *The Theory and Practice of Agroforestry Design*. Enfield, NH: Science Publishers. 282 pp.
- All chapters (10).

Rocheleau, Dianne; Fred Weber, and Alison Field-Juma (1988). *Agroforestry in Dryland Africa.* Nairobi: International Council for Research in Agroforestry. 311 pp.
- All chapters (7) plus selected appendices.

Huxley, Peter (1999). *Tropical agroforestry*. Oxford, UK: Blackwell. 371 pp.
- All chapters (27) plus two appendices.

Young, Anthony (1997). *Agroforestry for soil management* (2nd ed.). Wallingford, UK: CAB International. 320 pp.
- All chapters (12).

Ong, Chin K., and Peter Huxley, eds. (1996). *Tree-crop Interactions: A Physiological Approach*. Wallingford, UK: CAB International. 386 pp.
- All chapters (10).

van Noordwijk, Meine; George Cadisch; and Chin K. Ong, eds. (2004). *Below-ground Interactions in Tropical Agroecosystems: Concepts and Models with Multiple Plant Components*. Wallingford, UK: CAB International. 440 pp.
- Ch. 1. Ecological Interactions in Multispecies Agroecosystems.
- Ch. 2. Locally Derived Knowledge of Soil Fertility and its Role in Management.

Ch. 3. Models of Below-Ground Interactions: Validity, Applicability...
Ch. 4. Tree Root Architecture.
Ch. 5. Crop and Tree Root-system Dynamics.
Ch. 6. Opportunities for Capture of Deep Soil Nutrients.
Ch. 9. Uptake, Partitioning, Redistribution of Water by Roots in Agroecosystems.
Ch. 11. Below-ground Inputs: Soil Quality, Soil C Storage and Soil Structure.
Ch. 17. Managing Below-ground Interactions in Agroecosystems.
Ch. 18. Managing Movements of Water, Solutes & Soil: Plot to Landscape Scale.
Ch. 19. Soil and Water Movement: Combining Local Ecological Knowledge...
Ch. 20. Challenges for the Next Decade of Research: Client-Driven Solutions.

Ashton, M. S. and F. Montagnini, eds. (2000). *The Silvicultural Basis for Agroforestry Systems*. Boca Raton, FL: CRC Press. 287 pp.

Ch. 2, Table 2.2. Summary of Some Multi-Purpose Tree Characteristics.
Ch. 4. Ecological Theory of Diversity & Application to Mixed Species Systems.
Ch. 6. Water and Climatic Relationships in Agroforestry.
Ch. 8. N-Fixation of Leguminous Trees in Traditional and Modern Agroforestry.
Ch. 9. Species Interactions, Stand Structure, and Productivity in Agroforestry.

Biodiversity

Schroth, G; G.A.B. da Fonseca; C.A. Harvey; C. Gascon; H.L. Vasconcelos; and A-M.N. Izac (2004). *Agroforestry and Biodiversity Conservation in Tropical Landscapes*. Washington, D.C.: Island Press. 523 p.

Introduction.
Ch. 5. Is Agroforestry Likely to Reduce Deforestation?
Ch. 11. Live Fences, Isolated Trees, and Windbreaks: Conserving Biodiversity.
Ch. 18. Agroforestry and Biodiversity: Conservation in Tropical NE Australia.
Ch. 20. Agroforestry and Climate Change-Integrated Conservation Strategies.
Conclusion.

Steffan-Dewenter, I.; M. Kessler; J. Barkmann; M. M. Bos; D. Buchori; S. Erasmi; H. Faust; G. Gerold, et al. (2007). "Tradeoffs between income, biodiversity, and ecosystem functioning during tropical rainforest conversion and agroforestry intensification." *Proceedings of the National Academy of Sciences of the United States of America* 104(12): 4973-4978.

Ecomimicry

Ewel, J. J. (1999). "Natural systems as models for the design of sustainable systems of land use." *Agroforestry Systems* 45(1-3): 1-21.

Ong, C. K. and R. R. B. Leakey (1999). "Why tree-crop interactions in agroforestry appear at odds with tree-grass interactions in tropical savannahs." *Agroforestry Systems* 45(1-3): 109-129.

van Noordwijk, M. and C. K. Ong (1999). "Can the ecosystem mimic hypotheses be applied to farms in African savannahs?" *Agroforestry Systems* 45(1-3): 131-158.

Pate, J. S. and T. E. Dawson (1999). "Assessing the performance of woody plants in uptake and utilisation of carbon, water and nutrients: Implications for designing agricultural mimic systems." *Agroforestry Systems* 45(1-3): 245-275.

Pate, J. S. and T. L. Bell (1999). "Application of the ecosystem mimic concept to the species-rich *Banksia* woodlands of Western Australia." *Agroforestry Systems* 45(1-3): 303-341.

Agroforestry modeling

van Noordwijk, M. and B. Lusiana (1999). "WaNuLCAS, a model of water, nutrient and light capture in agroforestry systems." *Agroforestry Systems* 43: 217-242.

van Noordwijk, M.; B. Lusiana and N. Khasanah (2004). *WaNuLCAS version 3.01: background on a model of water, nutrient and light capture in agroforestry systems*. Bogor, Indonesia: International Centre for Research in Agroforestry (ICRAF).

All chapters (4) plus selected appendices.

Walker, A. P.; P. K. Mutuo; M. van Noordwijk; A. Albrecht and G. Cadisch (2007). "Modelling of planted legume fallows in Western Kenya using WaNuLCAS. (I) Model calibration and validation." *Agroforestry Systems* 70(3): 197-209.

Huth, N. I.; P. S. Carberry; P. L. Poulton; L. E. Brennan and B. A. Keating (2003). "A framework for simulating agroforestry options for the low rainfall areas of Australia using APSIM." *European Journal of Agronomy* 18: 171-185.

Ellis, E. A.; G. Bentrup and M. M. Schoeneberger (2004). "Computer-based tools for decision support in agroforestry: current state and future needs." *Agroforestry Systems* 61: 401-421.

Rowe, E. C.; M. T. van Wijk; N. de Ridder and K. E. Giller (2006). "Nutrient allocation strategies across a simplified heterogeneous African smallholder farm." *Agriculture, Ecosystems & Environment* 116(1-2): 60-71.

van Wijk, M.T., and I. Rodriguez-Iturbe (2002). "Tree-grass competition in space and time: Insights from a simple cellular automata model based on ecohydrological dynamics." *Water Resources Research* 38 (9): Art. No. 1179. 15 pp.

Agroforestry and climate change adaptation

Verchot, L. V., M. van Noordwijk, S. Kandji, T. Tomich, C. Ong, A. Albrecht, J. Mackensen, C. Bantilan, et al. (2007). "Climate change: linking adaptation and mitigation through agroforestry." *Mitigation and Adaptation Strategies for Global Change* 12(5): 901-918.

Watson, Robert T.; Ian R. Noble; Bert Bolin; N. H. Ravindranath; David J. Verardo; and David J. Dokken, eds. (2000). *Land Use, Land-Use Change, and Forestry: Special Report of the Intergovernmental Panel on Climate Change*. Cambridge, UK: Cambridge University Press. 375 pp. [DK]

Chapter 4: Additional Human-Induced Activities - Article 3.4

focus on 4.4, "Agroforestry," and Fact Sheets 4.10 and 4.11

Lin, B. B. (2007). "Agroforestry management as an adaptive strategy against potential microclimate extremes in coffee agriculture." *Agricultural and Forest Meteorology* 144: 85-94.

Southern African agroforestry technologies

Kwesiga, F.; F. K. Akinnifesi; P. L. Mafongoya; M. H. McDermott and A. Agumya (2003). "Agroforestry research and development in southern Africa during the 1990s: Review and challenges ahead." *Agroforestry Systems* 59: 173-186.

Keil, A.; M. Zeller and S. Franzel (2005). "Improved tree fallows in smallholder maize production in Zambia: do initial testers adopt the technology?" *Agroforestry Systems* 64: 225-236.

Ajayi, O. C.; S. Franzel; E. Kuntashula and F. Kwesiga (2003). "Adoption of improved fallow technology for soil fertility management in Zambia: Empirical studies and emerging issues." *Agroforestry Systems* 59: 317-326.

Ngugi, D. (2002). Agroforestry in Malawi and Zambia: summary report of a CTA/MAFE study visit. Waginengen, The Netherlands, Technical Centre for Agricultural and Rural Cooperation. 32 pp.

Phiri, E.; H. Verplancke; F. Kwesiga and P. Mafongoya (2003). "Water balance and maize yield following improved sesbania fallow in eastern Zambia." *Agroforestry Systems* 59: 197-205.

Sirrine, D.; C. Shennan; G. Kanyama-Phiri; S. Snapp and B. Kamanga (2007). "Agroforestry, risk and vulnerability in Southern Malawi: improving recommendations resulting from on-farm research." Unpublished manuscript.

Maize in Africa

Miracle, Marvin (1966). *Maize in Tropical Africa*. Madison, WI: University of Wisconsin Press. 327 pp.

Ch. 6. The Importance of Maize in Tropical Africa, pp. 81-86.
Ch. 7. The Introduction and Spread of Maize in Africa, pp. 87-100.

Byerlee, Derek; and Carl K. Eicher, eds. (1997). *Africa's emerging maize revolution.* Boulder: Lynne Reinner. 301 pp.

Ch. 2. Evolution of the African Maize Economy. pp. 9-22.
Ch. 3. Zimbabwe's Emerging Maize Revolution. pp. 25-44.
Ch. 4. Zambia's Stop-and-Go Maize Revolution. pp. 45-62.
Ch. 5. Maize Technology and Productivity in Malawi. pp. 63-80.
Ch. 9. The Technological Foundation of the Revolution. pp. 127-144.
Ch. 10. Maize Research Priorities: The Role of Consumer Preferences.
Ch. 11. Soil Fertility Management in Southern Africa.

3. Resilient subsistence systems

Committee members for this topic: DK, LH, with advice from CS, LF and IR

Scope, motivation, and relevance: I wish to understand the principles of managing subsistence land-use systems in a way that is culturally appropriate, economically viable, ecologically sustainable, and resistant to external shocks. To do so, I will draw upon multiple literatures: traditional ecological knowledge, adaptive management, gender and natural resources, adoption of agricultural technologies, diversification and risk management, and (to a limited extent) connections between rural communities and larger market systems.

Agricultural innovation and technology transfer

Hayami, Yujiro, and Vernon W. Ruttan (1985). *Agricultural Development*. Baltimore: Johns Hopkins University Press. 506 pp. [DK]

Ch. 3. Theories of Agricultural Development.
Ch. 4. Toward a Theory of Technical and Institutional Change[1].
Ch. 9. International Transfer of Agricultural Technology.
Ch. 10. Technology Transfer and Land Infrastructure.

Metz, Bert; Ogunlade R. Davidson; Jan-Willem Martens; Sascha N. M. van Rooijen; and Laura Van Wie McGrory (eds.) (1999). *Methodological and Technological issues in Technology Transfer*. Cambridge, UK: Cambridge University Press. Online at http://www.grida.no/climate/ipcc/tectran/.

Chapter 11. Agricultural Sector
Chapter 12. Forestry Sector

Marra, M., D. J. Pannell and A. Abadi Ghadim (2003). "The economics of risk, uncertainty and learning in the adoption of new agricultural technologies: where are we on the learning curve?" *Agricultural Systems* 75: 215-234.

Sibongile, Moyo (2001). *The economic and social context of technology adoption: agroforestry in sub-Saharan Africa*. IES Special Report No. 27. Harare, Zimbabwe : Institute of Environmental Studies, University of Zimbabwe. 26 pp.

Pattanayak, Subhrendu K.; D. Evan Mercer; Erin Sills; and Jui-Chen Yang (2003). "Taking stock of agroforestry adoption studies." *Agroforestry Systems* 57: 173–186, 2003.

Mercer, D. E. (2004). "Adoption of agroforestry innovations in the tropics: a review." *Agroforestry Systems* 61-2(1): 311-328.

[1] Instead of reading this chapter, I will read "Part 2: Sources of Technical Change" in *Technology, Growth and Development* by Vernon W. Ruttan (New York: Oxford University Press, 2001). The concepts are similar, but I prefer the style of the more recent book. I am including Hayami and Ruttan's Ch. 4 here in order to show that I expect to be held responsible for the ideas therein.

Global context of agricultural development

Hirschman, Albert (1967). *Development Projects Observed.* Washington, D.C.: The Brookings Institution.
Chapter 1. The Principle of the Hiding Hand
Chapter 4. Project Design: Trait-Taking and Trait Making

Scott, James (1998). *Seeing Like a State*. New Haven, CT: Yale University Press.
Chapter 1. Nature and Space
Chapter 7. Compulsory Villagization in Tanzania: Aesthetics and Miniaturization
Chapter 8. Taming Nature: An Agriculture of Legibility and Simplicity

Scott, James (1987). *Weapons of the Weak*. New Haven, CT: Yale University Press. [DK]
Chapter 2. Normal Exploitation, Normal Resistance.
Chapter 5. History According to Winners and Losers (pp. 147-169 only).

Ascher, William, and Robert Healy (1990). *Natural Resource Policymaking in Developing Countries.* Durham, NC: Duke University Press.
Chapter 3. Agricultural Modernization.

Hunger and famines

Devereux, Stephen (2002). "The Malawi famine of 2002." *IDS Bulletin* 33(4):70-78.

DeRose, Laurie; Ellen Messer; and Sara Millman (1998). *Who's Hungry? And How do we Know? Food Shortage, Poverty, and Deprivation.* New York: United Nations University Press. 201 pp.
All chapters (7).

Sen, Amartya (1999). *Development as Freedom*. New York: Anchor Books. 366 pp.
Chapter 7. Famines and Other Crises
Chapter 9. Population, Food, and Freedom

de Waal, A. and A. Whiteside (2003). "New variant famine: AIDS and food crisis in southern Africa." *Lancet* 362: 1234-1237.[2]

Political economy and political ecology

Blaikie, P. and H. Brookfield (1987). "Defining and Debating the Problem." Ch. 1 (pp. 1-26) in *Land Degradation and Society*, eds. P. Blaikie and H. Brookfield. London: Methuen. [LF]

Berry, Sarah (1993). *No Condition is Permanent: The Social Dynamics of Agrarian Change in Sub-Saharan Africa*. Madison, WI: University of Wisconsin Press.[3]
Ch. 1. Introduction.
Ch. 3. Inconclusive Encounters: The Era of Planned Development *(skim)*
Ch. 4. Commercialization, Cultivation, and Capital Formation (pp. 88-100 only)

[2] Thanks to Naïm Dargouth for suggesting this paper.
[3] Thanks to Kamal Kapadia and Rebecca Ghanadan for suggesting this book.

Ch. 5. Access to Land: Property Rights as Social Process *(skim)*
Ch. 8. Time is of the Essence: Intensification, Instability, Appropriate Technology

Carney, J. A. (1998). "Women's land rights in Gambian irrigated rice schemes: Constraints and opportunities." *Agriculture and Human Values* 15: 325-336.

Dove, Michael R. (2003). "Bitter shade: throwing light on politics and ecology in contemporary Pakistan." *Human Organization* 62(3): 229-240.

Dove, Michael R. (2005). "Anthropogenic Grasslands in Southeast Asia: Sociology of Knowledge and Implications for Agroforestry." *Agroforestry Systems* 61:423-435.

Fairhead, James, and Melissa Leach (1997). "Web of power and the construction of environmental policy problems: forest loss in Guinea," in Grillo, R. D. and R. L. Stirrat, eds., *Discourses of Development: Anthropological Perspectives*. Oxford, UK: Berg.

Fairhead, James, and Melissa Leach (1995). "False forest history, complicit social analysis: rethinking some West African environmental narratives." *World Development* 23(6): 1023-1035.

Leach, Melissa (1994). *Rainforest Relations: Gender and Resource Use Among the Mende of Gola, Sierra Leone*. Edinburgh, UK: Edinburgh University Press. [LF]
Ch. 2. Gender and the environment
Ch. 4: Farming, food and fallows
Ch. 5. Tree crops, cash crops
Ch. 5. Timber and non-timber forest products
Ch. 9. Conclusions: forest resources, forest futures

Schroeder, Richard A. (1999). *Shady Practices; Agroforestry and Gender Politics in the Gambia*. Berkeley, CA: University of California Press. 172 pp.
All chapters (7).

Methodology

Sayer, Jeffrey, and Bruce Campbell (2004). *The Science of Sustainable Development: Local Livelihoods and the Global Environment.* Cambridge, UK: Cambridge University Press. 292 pp. [LF]
All chapters (11).

Ostrom, Elinor; and Harini Nagendra (2006). "Insights on linking forests, trees, and people from the air, on the ground, and in the laboratory." *Proceedings of the National Academy of Sciences of the United States of America*, 103(51): 19224-19231.

Giampetro, M. (2004). "Integrated assessment of agroecosystems and multi-criteria analysis: basic definitions and challenges." Ch. 5 (pp. 93-126) in *Multi-scale integrated analysis of agroecosystems*. Boca Raton, FL: CRC Press.

Gladwin, Christina H.; Jennifer S. Peterson; and Abiud C. Mwale (2002). "The Quality of Science in Participatory Research: A Case Study from Eastern Zambia." *World Developmen*t 30(4): 523-543.

Community and adaptive management

Roe, E., L. Huntsinger and K. Labnow (1998). "High reliability pastoralism." *Journal of Arid Environments* 39: 39-55.

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