"In economic terms, the belief seems to be that natural resources are scarce; that the scarcity increases with time; and that resource scarcity impairs levels of living and economic growth... But in our view, these propositions are neither self-evident nor easy to formulate in meaningful terms." (Barnett & Morse, p. 49).

"For if growth and welfare are inescapably subject to an economic law of diminishing returns, the necessary social policies and the moral and human implications are surely different than if they are not." (Barnett & Morse, p. 3).

Note: This is a Ph.D. level seminar. The purpose of 8000-level seminars is to investigate current and even frontier topics in the field. Another major purpose here at C.U. is to provide an opportunity for the Ph.D. candidate to try a research topic that could serve as a Ph.D. dissertation. All participants are urged to look upon their research paper in this way—as a likely start on their dissertation. Grading in the seminar—especially on the research paper—will be based on those assumptions.

There will be a post-mid-term exam on topics 1-5 below, counting 40% of the grade. The research paper will count 40% of the grade, and class participation 20%.

Professor Howe will have office hours 10-11 and 1-2 on Tuesday and Thursday in Econ. 223, and 4-5 on Wednesday in IBS #5 (corner of University and 17th—next door east of the Armory—enter through Door 10). Selection of research topic must be discussed with and approved by Professor Howe as well as the final presentation.

Texts: (1) Natural Resource Economics by C. Howe, J. Wiley & Sons, 1979. A limited number available in University Bookstore. Three copies on 2-hr. reserve, one a looseleaf set of page proofs. You are free to copy the book—I have the copyright.

(2) Supplementary notes. Available at Reserve Room. It is suggested that you mutually make arrangements to have the readings copied.

Classics in the field:


Useful References:


Data Sources:


Beginning and Intermediate Level Texts:


Course Outline

Topic 1: Background Materials.
Reading: Howe, Chapters 1, 2, 3, 7, 8 (on your own, but questions may be raised in class).

Topic 2: Macro Forms and Effects of Resource Scarcity.
Reading: Howe, Chapter 4, Sections 4.1, 4.2, 4.3, 4.5, 4.6, 4.9.

Topic 3: Partial-Equilibrium Approach to the Issues of Non-Renewable Natural Resources.
   b. Howe Problem Sets 1 & 2.
   c. Notes on "Introduction to the Hotelling Model."
   d. Howe notes on control theory and Howe, Chapter 5.
   e. Mineral availability and exploration, Howe, Chapter 10 (Sec. 10.3, lightly).

Topic 4: Partial Equilibrium Approach to Renewable Resources.
   Howe, Chapter 11: Forestry (lightly, except Sec. 11.3).
   Howe, Chapter 13: Fisheries.

Topic 5: Indicators of Scarcity and Natural Resources in the National Accounts.
   a. Howe, Chapter 6.

Examination over Topics 1-5. This will be an evening exam of about 3 hours, scheduled at the class's convenience, to allow enough time for a "thinking exam" rather than pure memorization.

Topic 6: Economic Growth and Sustainability.

a. Howe, Chapter 16.


c. Howarth, Richard B., "Intertemporal Equilibria and Exhaustible Resources."


Presentation of Research Paper Summaries: There will be two presentations per class period. Students are expected to have discussed their work with Professor Howe at least twice (formative stages and results) and to provide useful handouts to the class.