

The Evolutionary Roots of Environmental Problems

Comments on a paper by Penn (2003)

Michael McCarthy

Australian Research Centre for Urban Ecology
Royal Botanic Gardens Melbourne

VOLUME 78, No. 3

SEPTEMBER 2003

THE QUARTERLY REVIEW of BIOLOGY



THE EVOLUTIONARY ROOTS OF OUR ENVIRONMENTAL
PROBLEMS: TOWARD A DARWINIAN ECOLOGY

DUSTIN J. PENN

*Konrad Lorenz Institute of Comparative Ethology
Savoyenstrasse 1a, A-1160, Vienna, Austria*

E-MAIL: D.PENN@RIJVV.GEAW.AC.AT

KEYWORDS

evolutionary psychology, human conservation behavior, aboriginal overkill, demographic transition, conspicuous consumption, discounting, tragedy of the commons, environmental aesthetics, environmental education, social pressure

The world's problems

- humans use a large proportion of the Earth's resources
- humans pollute the environment
- humans are causing a mass extinction event
- by destroying the world, we weaken its capacity to support us

Penn's Argument

- environmental protection requires an understanding of the evolution of human behaviour
- science lacks the necessary integration

Perspectives on problems

- stabilizing population growth
- reducing consumption
- discounting the future
- tragedy of the commons
- maladaptive behaviour
- environmental aesthetics

Perspectives on policy

- environmental education
- social pressure and the tragedy of the commons

Stabilizing population growth

- wealth/fertility paradox



Stabilizing population growth

- wealth/fertility paradox
 - trading quantity for quality
 - education and women's costs
 - obtaining fertility cues from others
 - trading fertility for maladaptive status
 - reduced fertility due to pollutants

Reducing consumption

"How might we explain to our grandchildren why we pursued further embellishments of our outdoor cooking appliances at the expense of safer highways and clean air?" (Frank 2000)



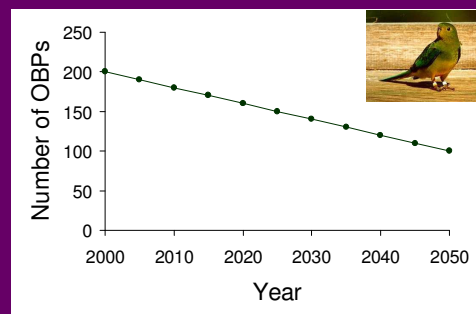
Reducing consumption

- why pursue goods that have no survival value?
 - the peacock tail, evidence of pecuniary strength
- over-consumption of fats and sugars
- relative wealth versus absolute wealth
- advertising fuels desire for wealth

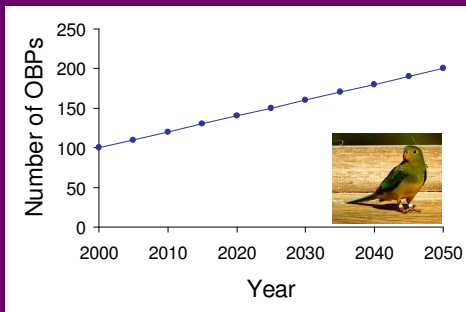
Discounting the future

- greater concern for the present than the future
- rate of discounting depends on payoffs
- exponential vs hyperbolic discounting
- \$200 now or \$200 next decade

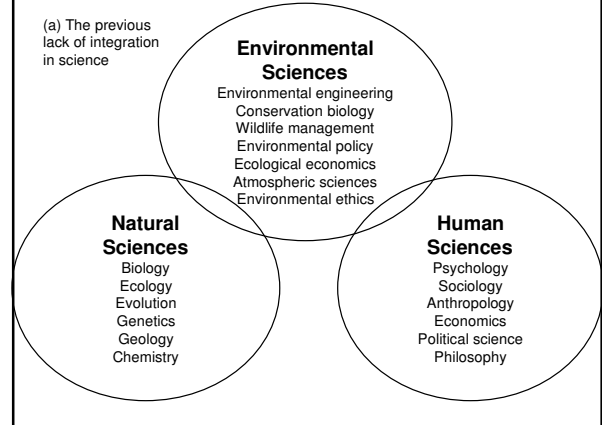
Discounting the future



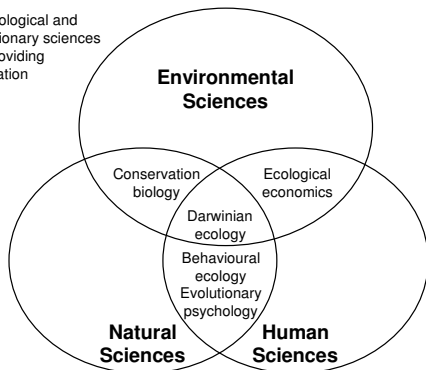
Discounting the future



(a) The previous lack of integration in science



(b) Ecological and evolutionary sciences are providing integration



Why I like this paper

- new ideas (for me)
- some answers, some questions
- I didn't like everything
 - vilification of non-scientific opinion
 - discounting
 - why a diversity of attitudes?