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Human Ecology Review (ISSN 1074-4827) is a refereed journal published twice a year by the Society for Human Ecology. The Journal publishes peer-reviewed research and theory on the interaction between humans and the environment (Research in Human Ecology), book reviews (Contemporary Human Ecology), essays, commentary and applications relevant to human ecology (Human Ecology Forum), and letters, announcements of meetings, awards and other items of interest (Human Ecology Bulletin). Information for contributors to the refereed section is published on the inside back cover. For contributions to the journal, contact Linda Kalof at the above address. Information is also at www.humanecologyreview.org.


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Call for Papers

Special Issue on Business and Environmental Protection

The *Human Ecology Review* is pleased to announce a call for papers for a special issue on Business and Environmental Protection. The guest editors are Jorge Rivera and Magali Delmas. The deadline for submissions is August 31, 2003.

Overview

The social science literature is paying increased attention to the relationship between business and the natural environment. Traditionally, it has been argued that firms should strive to preempt environmental regulations or bear the cost of complying with mandatory environmental standards. During the last decade, however, a different view of the business and environment relationship has emerged. This new paradigm argues that competitiveness and proactive environmental management strategies are mutually reinforcing. Nevertheless, the theoretical understanding and empirical evidence supporting this perspective on business and the environment is still limited.

Research topics and questions

This special issue seeks to promote research that improves the understanding of the interaction between businesses and the natural environment across the world. We welcome theoretical and empirical studies from all social sciences. Papers involving innovative methodologies and international settings are encouraged. Areas of interest include but are not limited to:

- Voluntary environmental management systems including ISO 14001
- Voluntary agreements between firms and regulatory agencies
- Eco-labeling
- Business partnerships with NGOs
- Corporate environmental management in developing countries
- Corporate green behavior and environmental policy instruments
- Corporate green behavior and international environmental agreements
- Trade and the environment
- Corporate green behavior and managerial decision-making
- Environmental performance and corporate performance
- Industrial ecology
- Supply chain management and the environment

All articles will be peer-reviewed in a double blind process. Please specify in your cover letter that your article is being submitted to this special issue. Four copies of the manuscript must be submitted for review to the *HER* editor, Linda Kalof, Professor of Sociology and Environmental Science & Policy, Department of Sociology and Anthropology, Mail Stop 3G5, George Mason University, Fairfax, VA 22030, USA. Additionally, authors must submit a Word for Windows electronic copy of their manuscript in a labeled 3 ½ inch diskette and by email to HERreview@gmu.edu.

Further instructions for submission, presentation, and format of references, tables, and graphs, can be found at the *Human Ecology Review* website: www.humanecologyreview.org. Additional information can be obtained by contacting Jorge Rivera, Department of Environmental Science and Policy, George Mason University; e-mail, jrivera5@gmu.edu; phone, 703 993 1517; or Magali Delmas, Stanford Graduate School of Business, Stanford University e-mail, delmas_magali@gsb.stanford.edu.
Abstract

This paper presents models of land allocation among primary forest, crops, pasture and secondary forest on small farms in the Brazilian Amazon. The discussion begins with a review of theoretical arguments as to why demographic variables should influence environmental outcomes at the household level, to complement population-level arguments more commonly alleged. The paper then focuses on the case of Uruará, a frontier colony along the Transamazon highway in the Brazilian state of Pará, for an empirical analysis of land use in the Amazon frontier. Use of seemingly unrelated regression models allows efficient estimation of the effects of the explanatory variables, while accounting for the effects of correlated error terms among forest, crops, pasture and regrowth. The findings highlight the importance of household-level demographic processes for environmental change, and bear implications for future resource use and policy proposals in the Amazon as well as for research on human-environment interactions.

Keywords: household, demography, land use, Amazon, Brazil

Introduction

In many areas of environmental studies, there is longstanding interest in the role that demographic processes play in the alteration of biophysical systems. Over the past decade, discussions of population-environment interactions have become more salient in the demographic community (e.g., Arizpe et al. 1994; Mazur 1994; Ness et al. 1993; Pebley 1998; UN 1994). Most attention to demographic influences on the environment is pitched at a macro level, wherein aggregate population characteristics are posited to influence regional or global change (e.g., Bongaarts 1992; Cohen 1995; Davis and Bernstam 1991; Keytiz 1991; MacKeller et al. 1998; Panayotou 1996; Perz 2002a; Preston 1996; Smil 1994). This is true in part because existing theories of environmental change that feature demographic factors tend to focus on population size, growth, or density (e.g., Jolly 1994). Two prominent examples are neo-Malthusian notions that population growth leads to resource degradation (e.g., Ehrlich and Ehrlich 1990; Green 1992; Kates 1996; Smil 1997), and theories inspired by Boserup (1965) that population-induced technological innovations might avoid or alleviate degradation (e.g., Angelsen and Kaimowitz 2001; Binswanger and Ruttan 1978; Feder et al. 1985; Turner and Brush 1987). Less common are micro level frameworks of household demography as an influence on environmental outcomes (e.g., Lutzenheiser and Hackett 1993). Micro-level models provide the valuable service of differentiating among groups within populations to better deal with questions concerning human ecology and environmental impacts of distinct subpopulations. More systematic attention to micro-level demographic factors would broaden the relevance of demography for human ecology research and environmental studies in general.

This paper focuses on land use allocation among small farms in the Amazon, featuring the role of household demographic factors. Population processes occupy a central role in the “human dimensions” of land use, as articulated in the Science and Implementation Plans developed by the international land cover/land use change community (Lambin et al. 1999; Turner et al. 1995). The Amazon is a crucial case for an examination of household demographic effects on land use, given the region’s extensive deforestation (e.g., Houghton et al. 2000; INPE 2001; Skole and Tucker 1993) and its many local, regional, and global environmental consequences (e.g., Fearnside 1990; Gash et al. 1996; Jordan 1986). The core argument is that the “location” of a household in its life cycle is an important determinant of land use allocation (Marquette 1998; McCracken et al. 1999; Perz 2001a; Walker and Homma 1996; Walker et al. 2002). The “location” of a household’s life cycle, refers to a set of demographic characteristics of a domestic group that includes the household’s duration of residence and its age composition. Households that differ in terms of these demographic characteristics occupy different “locations” along a domestic life cycle trajectory.

In the context of focusing on household demography and forest change in the Amazon, an analysis of land use alloca-
tions advances our understanding of population-environment interactions for three reasons. First, existing household level models of land use in tropical Latin America pay limited attention to demographic factors such as duration of residence or age structure. Though characterization of a household's life cycle “location” may require several indicators, many analysts use few or none (see Perz 2001a; Walker et al. 2002). Second, virtually all of the literature on land use and land cover change in the Amazon focuses on one outcome, such as analyses of deforestation. This is true of deforestation models at the regional level (e.g., Pfaff 1999; Reis and Margulis 1991; Wood and Skole 1998) and the household level (e.g., Alston et al. 1999; Godoy et al. 1997a, 1997b, 1998a, 1998b; Ozório de Almeida and Campari 1995). Such “one category” analyses, while vitally important, provide incomplete assessments of land cover/land use change dynamics. Third, the few available analyses that consider multiple land use or cover types in the Amazon focus on “primary” forests (i.e., old-growth) and land in productive use, but do not distinguish land taken out of production, or abandoned, and now regrowing into “secondary” forests, or regrowth (e.g., Jones et al. 1995; Pichón 1997; Reis and Guzmán 1994). Whereas deforestation bears negative environmental consequences and may lead to unsustainable land use, regrowth has potentially positive implications for environmental services (e.g., Brown and Lugo 1990; Gascón and Moutinho 1998; Houghton et al. 2000; Lugo and Brown 1992; Unruh 1988) and rural livelihoods (e.g., Anderson et al. 1991; Dubois 1990; Nair 1993; Redford and Padoch 1992). Land use allocation models, to be complete, must separately consider regrowth (Perz and Walker 2002).

This paper proceeds in three sections. The first section, which provides a theoretical background, has two parts: a review of the theoretical basis for considering household demographic factors in models of land use allocation, followed by a discussion of land use patterns among small farm households in the Amazon. This discussion highlights key land use outcomes and notes when they become important as households proceed through their life cycles. The second section covers data, variables, and findings and has three parts. It first introduces the study case of Uruará, a frontier colony on the Transamazon highway in the Brazilian state of Pará, and the site of a survey of family farms in 1996. Next, it reviews the explanatory and outcome variables in the analysis by presenting operational definitions, descriptive statistics, and correlations. Finally, it presents models of primary forest, cropland, pasture, and secondary growth on farm lots in the survey, using seemingly-unrelated regression equations (SURE) to obtain efficient estimates of coefficients in the presence of correlated error terms. The models show contrasting but significant effects of household life cycle variables for the four land use outcomes. These findings provide empirical evidence to support greater attention to demographic variables as influences on resource use and environmental change at the household level. The third and final section draws some conclusions and discusses the importance of household demographic change for future land use in the Amazon, policies that promote sustainable livelihoods alongside forest conservation in the region, and research on human-environment interactions in general.

Theoretical Background

Chayanov’s Theory of Household Life Cycles and Land Use

The theoretical foundation of the importance of household life cycles for land use was laid by A.V. Chayanov, who studied farming practices among peasants following the 1917 Revolution in Russia (Thorner et al. 1986). Chayanov observed that peasant households contained families with different age structures, and that those households also farmed different quantities of land. He reasoned that age structures are older in households with larger numbers of economically active adults and/or smaller numbers of dependent children, both of which allow for greater allocation of labor to agriculture. This, in turn, enables cultivation of larger land areas. Chayanov extended this insight about labor availability and child dependency by noting that the age structure changes through the course of a household’s life cycle. He distinguished among life cycle stages, where early on the household age structure is young (due to the presence of infants and young children), and relatively little land is farmed due to limited labor available for agriculture. As time passes, the average age increases and children become more economically active, allowing expansion of the land area cultivated. By distinguishing households in terms of their age structure, Chayanov provided a domestic life cycle explanation for differences in land area cultivated among Russian farms.3

Chayanov’s insights are generalizable from post-revolutionary Russia to frontier areas of the Amazon because both cases exhibit agricultural production under conditions of land abundance (Pichón 1996; Thorner et al. 1986). However, Chayanovian theory makes five assumptions that hinder direct application to agriculture in tropical regions of Latin America (Ellis 1993; Netting 1993). First, it does not address complexities arising from migration of farm households to new biophysical environments. This raises questions about the impact of region of birth and duration of residence on adapting land use strategies to new circumstances (Moran 1989). Second, it assumes that agricultural input, credit, and product markets are very limited, largely precluding the possibility for generation of monetary incomes or investment in
capital inputs. This is more common in the Amazon and calls for attention to the use of agricultural capital and credit as influences over land use. Third, Chayanovian theory assumes that labor markets are also limited so that farm families do not generally hire or sell labor. However, both are relatively widespread in Amazon frontier zones, which requires an account of hired labor and income from family wage work. Fourth, it assumes that land use involves a more or less homogeneous set of agricultural practices shared by all households. In the Amazon, however, some agricultural households may emphasize crop cultivation while others focus on ranching, and yet others exhibit highly diversified systems (Perz 1998; Pichón 1996; Walker et al. 2000, 2002). Fifth, Chayanovian theory focuses on productive activities and neglects fallowing practices (Walker 1999). In the Brazilian Amazon, most soils are inadequate for sustained crop cultivation (e.g., Moran et al. 2000; Nicholaides et al. 1984; Sanchez 1994), and this necessitates fallowing or risk of land degradation, abandonment, and regrowth.

**Household Life Cycles and Land Use Dynamics in the Amazon**

Walker and Homma (1996; see also Marquette 1998) recognize the shortcomings in the Chayanovian model and provide an adaptation of the household life cycle argument to the case of small farm families in the Brazilian Amazon. They situate farm families in a context where labor can be hired or sold, credit and capital are available, production is often destined for markets, households may diversify or specialize in their land use, and regrowth is present. The distinctions among land uses are of particular importance, as each involves different land, labor, and capital requirements, and also bears a particular set of environmental implications. The economic and environmental distinctions among land uses provide a means of linking household demographic characteristics to land cover outcomes. This linkage prompts these authors to argue that household demographic composition and change dispose farms to engage in different land uses through the course of their life cycle, and to allocate some share of their land to secondary growth.

Walker and Homma (1996, 68-73) articulate a stylized case wherein colonists migrate to the Amazon frontier as young families who establish farms by clearing plots of forest. Having spent much of their savings on the move, and often with responsibility for young children, the parents begin by cultivating annual crops, such as rice, beans, corn, and manioc. Annuals require considerable labor inputs for clearing, planting, weeding, and harvesting, but land and capital requirements are limited. Because annuals produce soon after planting, they constitute a low-risk agricultural strategy (e.g., Pichón 1996; Serrão and Homma 1993). Given the low capital requirements and low level of risk, young households or recent arrivals with limited labor and high child dependency generally plant annuals to secure a basic subsistence. However, because Amazon soil fertility declines with repeated cultivation on a given plot, households must periodically clear more forest to sustain production of annuals, implying a rise in deforestation and regrowth over time. At this stage, farm lots have little cleared land, but in labor-scarce households, weed invasions hinder productivity and make emergence of regrowth more likely, leading to plots of secondary vegetation (Maxwell 1980; Scatena et al. 1996; Thiele 1993).

As the seasons pass, farmers gain experience in Amazon agriculture, the labor of growing children makes larger contributions to the household labor pool, and farms accumulate a stock of deforested land unfit for further production of annuals. These changes — learning about locally appropriate agricultural techniques, expansion of available household labor alongside declining child dependency, and more cleared land — reduce the risk aversion of colonists. They then use the income from early harvests or proof of land claims to obtain credit, purchase capital, or hire labor and diversify into more market-oriented activities, particularly perennial crops and/or pasture for cattle.

Older households with larger labor pools often plant perennials, or tree crops, such as cocoa, coffee, coconuts, and black peppers (Marquette 1998). Perennials not only involve substantial labor inputs during planting, harvesting, and processing, but also require significant capital inputs in the purchase of seed or saplings (Pichón 1996). Older households with sufficient labor may thus plant perennials on weedy plots where tree crops can still compete, thereby shifting land out of fallow (or deforesting) and into production. Because perennials require 4-7 years of growth before the onset of production, and because they are subject to insect and fungal attacks, they pose greater economic risk to households than annuals. However, perennials often command higher prices than annuals, so the former are eminently cash crops, with production destined for local or regional markets. Perennials also offer environmental advantages because they can be planted on land formerly under annuals, as tree crops can tap nutrients deeper in the soil, and they contribute to soil remediation by providing cover and reducing erosion (e.g., Serrão and Homma 1993; Pichón 1996).

Older households with less available labor often shift land into pasture for cattle (Marquette 1998). Pasture is valuable because it indicates investment in agriculture, which raises land values (Perz 2001b). In addition, ownership of cattle constitutes a capital reserve that acts as an insurance substitute, which can be liquidated to cover unforeseen costs, such as from an illness (Pichón 1996). Smallholders cannot afford to buy many cattle due to the high capital cost and
extensive land areas required. Small farm households often convert several adjoining plots previously used for cropland into pasture, and purchase a few cattle for breeding and expansion of the herd. Ranching has often been vilified as a cause of deforestation due to the large land tracts required and the unsustainability of production on many pasture grasses, which leads to weed invasions and severe land degradation (e.g., Nepstad et al. 1991; Serrão and Toledo 1990). However, the low labor requirements and the insurance function of cattle make ranching an attractive land use option among farm households in the Amazon (Tourrand et al. 1996), especially in the context of emerging urban markets for beef in the region (Faminow 1998).

McCracken et al. (1999, 1313) summarize Walker and Homma’s (1996) discussion in a diagram that links life cycle stages to the extent of land allocated to different uses, including secondary growth. They distinguish between five stages of a household’s life cycle, where each stage corresponds to a specific duration of residence, household age structure, and land use allocation. Stage I involves young parents with young children who are newcomers (duration of residence under 5 years), and own land largely covered in primary forest, with some clearing for cultivation of annuals. In Stage II, parents have growing children, a duration of residence around 5 years, and allocate less land to primary forest and more to annuals, young perennials, newly-formed pasture, and emergent regrowth. Stage III is characterized by older parents with teenage children, a duration of residence around 10 years, less forest decline than before, a reduced emphasis on annuals, greater attention to cattle pasture, and increasing regrowth. In Stage IV, parents are older still, children begin to reach young adulthood, duration of residence is around 15 years, forest clearing ceases, ranching and perennials predominate, and regrowth expands further. Finally, in Stage V, after 20 or more years, children may begin to leave the farm, perennials production is high, and regrowth increases yet further.

Previous discussions can be extended to consider different household and land use dynamics beyond Stage V. Two possible trajectories present themselves. The first trajectory follows that posited by McCracken et al. (1999), where outmigration of young adults occurs as they leave to establish their own farms or find urban housing and employment. Under this scenario, labor availability declines, but so does dependency and demand for subsistence production, leading to the cessation of forest clearing, a reduction in the land area under crops and pasture, and the continued expansion of land under secondary growth. However, a second trajectory is possible if grown children stay in the parental household (Perz and Walker 2002). This reflects a “generational transition” as the older generation passes control of the property to the next. This is likely if the young adult generation consists of couples with young children since the farm provides the security of an established productive enterprise for heirs. Under the “generational transition” scenario, new clearing of primary and/or secondary forests may be necessary for renewed crop cultivation and/or pasture formation as young children again expand demand for subsistence.

This discussion suggests that among small farms in the Amazon, the evolution of household age structures is paralleled by the evolution of land use allocation. As households move through their life cycles, their farming experience, dependency, and labor availability change. As a result, the latitudinal households that have to make land use decisions also changes. Therefore, land use allocation should be different among households with age structures that indicate different “locations” along their life cycles.

Data, Methods and Findings

The Uruará Survey

The objective of this paper is to empirically assess the significance of household life cycle factors for land use allocation between primary forest, cropland, pasture, and secondary growth among small farms in the Amazon. Data for this empirical assessment are available from a recent survey of small farm households in Uruará, a colonist community situated on the Transamazon highway with a township located at Lat. 03° 42' 54" S, Long. 53° 44' 24" W in the Brazilian state of Pará, in the eastern Brazilian Amazon (IDESP, 1990). Map 1 shows the location of Uruará in Pará, situated in the “Legal” Amazon of Brazil. Uruará began in the early 1970s as a colonization project to resettle landless peasants from the Brazilian Northeast (IDESP 1990). Colonists were given lots of 100 hectares (247 acres) and began cultivating annuals, later diversifying into perennials, and most recently moving into cattle pasture, with some reforestation. In the mid-1980s, high prices for perennial crops stimulated a second wave of in-migration, raising the municipality’s population to about 25,000 by 1991, with over 11,000 being migrants since 1980 (IBGE 1996). Uruará’s population has since risen further, exceeding 37,000 by 1996 (IBGE 1998a) and 45,000 by 2000 (IBGE 2001). Uruará is an appropriate site for an assessment of how life cycle factors among farm households affect land use allocation in the Amazon for three reasons: 1) this community consists almost entirely of family farms, 2) the Transamazon highway corridor exhibits substantial deforestation for crops and pasture, but also significant regrowth (e.g., Moran et al. 1994), and 3) it is situated near research sites in the Amazon where Walker and Homma (1996) and McCracken et al. (1999) gathered data in developing their theoretical frameworks.
In June and July 1996, a nine-member research team consisting of North American and Brazilian social and agricultural scientists administered a survey questionnaire to farm households in Uruará. The questionnaire was divided into two parts, where the first addressed household characteristics and the second concerned land use practices. Household items addressed migration history, material wealth, and the age composition of the families present. The land use component included items pertaining to reported land under forest, cropland, pasture and secondary growth. The sample includes 261 households, or 12% of all rural establishments in Uruará at the time (IBGE 1998b). These households together owned 347 lots, and the same questions were asked for each lot owned by a household. Systematic sampling proved intractable because houses on many lots were not visible from roadsides, and sampling the nth house encountered was problematic because residents were frequently absent. Instead, the team sampled on the basis of “first opportunity” and employed a cadastral map from the Brazilian Amazon’s regional agricultural agency, EMBRAPA/CPATU, to ensure that samples were not clustered spatially or selective of households by socioeconomic status.

Operationalization, Description and Correlations of Explanatory and Outcome Variables

Table 1 presents operational definitions, descriptive statistics, and correlations for the outcome and explanatory variables. Data from the Uruará survey allow construction of indicators of primary forest, cropland, pasture, and secondary growth on farm lots in the sample. Two points about the operationalization of the outcomes deserve mention. First, while it would in some ways have been more attractive to separately model annuals and perennials, given their different labor and capital inputs and the distinct farming strategies they represent, data from the Uruará survey do not allow for this distinction as it pertains to land use allocation. This does not represent a shortcoming of the questionnaire instrument per se, but illustrates the fact that annuals and perennials are often interplanted (Pichón 1996; Serrão and Homma 1993), making it impossible to separate the two for purposes of modeling land allocation. Second, natural log (ln) terms are employed for the four land allocation categories. Raw values for the land uses took highly skewed distributions (values over three) that led to weaker models than those presented in this paper, and calculating percentages was unnecessary since virtually all lots were the same size (100 hectares). All four outcome variables are thus measured as the ln of hectares (ha). Antilogs of the natural log means in Table 1 show that lots had on average 53.5 ha of primary forest, 2.9 ha of cropland, 10.2 ha of pasture, and 2.0 ha of regrowth. The sizeable standard deviations for the land use outcomes indicate substantial variation among cases, which implies diverse landscapes among the lots in the sample. Correlations among the outcomes reveal systematic associations in land allocation in the farm lots surveyed. In general, it is expected that as primary forest area declines, the land area under other uses increases. This is confirmed by the negative correlation coefficients between primary forest and the other three outcomes, and the positive correlations for crops with pasture and regrowth.

Seven groups of one or more explanatory factors in Table 1 are considered: socioeconomic background, initial land cover, context of lot, institutional context, remittances and hired labor, land management practices, and life cycle location. These variables frequently appear in household models of land use and land cover in the Amazon and other neotropical forests of Latin America (Alston et al. 1999; Godoy et al. 1997a, 1997b, 1998a, 1998b; Jones et al. 1995; Ozório de Almeida and Campari 1995; Perz 2001a; Pichón 1997; Walker et al. 2002). Key to this discussion are life cycle factors (Marquette 1998; McCracken et al. 1999; Perz 2001a; Walker and Homma 1996; Walker et al. 2002). The other variables, while important, will effectively serve as controls in the models to come.

The discussion that follows highlights the reasons for including the explanatory factors in the models to follow. At this point, it is worth stating three general expectations concerning the effects of explanatory factors on the land use outcomes. First, factors that widen the decision-making latitude
of households should serve to reduce the allocation of land to primary forest cover and increase cropland, pasture, and secondary growth. This reflects the expectation that one key land use dynamic in frontier settlements, such as in the Amazon, involves the conversion of primary forest to various types of land use or fallowing. Second, given that the production factor inputs differ somewhat between crops and pasture, the effect of an explanatory factor on the first outcome is unlikely to be the same on the second. In addition, given the fact that much regrowth reflects fallowing of land taken out of production (Perz and Walker 2002), explanatory factors that give rise to more cropland or pasture will not always lead to more regrowth. This reflects a third expectation that land put into one form of use reduces the land available for other uses. This is why land allocation among uses is important to consider: not only do 100 ha lots with more deforestation necessarily have less forest, but lots with more pasture also tend to have less land under crops or regrowth.

The first group of explanatory factors concerns the household’s “socioeconomic background,” which refers to the cultural and financial capital households brought to Uruará. The household head’s region of birth (cultural capital) and factor-weighted indexes of the household’s durable goods wealth and agricultural capital upon arrival (financial capital) are included. For region of origin, colonists from more industrialized parts of Brazil (the South and Southeast) are distinguished from areas with less agricultural technology (the North, Northeast and Center-west). Coming from the

Table 1. Descriptive statistics for land use outcomes and explanatory factors, farm lots, Uruará, Pará, 1996 (n=347).

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Forest</th>
<th>Cropland</th>
<th>Pasture</th>
<th>Regrowth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Log (ln) of Hectares (ha) under Primary Forest</td>
<td>3.98</td>
<td>0.92</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln ha under Cropland</td>
<td>1.08</td>
<td>1.67</td>
<td>-0.13 *</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln ha under Pasture</td>
<td>2.32</td>
<td>1.90</td>
<td>-0.20 **</td>
<td>0.22 **</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Ln ha under Secondary Growth</td>
<td>0.70</td>
<td>2.02</td>
<td>-0.08 +</td>
<td>0.14 *</td>
<td>-0.02</td>
<td>1</td>
</tr>
<tr>
<td>Socioeconomic Background</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Region of Origin (0=South or Southeast, 1=North, Northeast or Center-west)</td>
<td>0.33</td>
<td>0.48</td>
<td>0.00</td>
<td>-0.14 **</td>
<td>0.02</td>
<td>-0.04</td>
</tr>
<tr>
<td>Initial Wealth (Factor Index)</td>
<td>0.00</td>
<td>1.28</td>
<td>0.11 *</td>
<td>-0.24 **</td>
<td>-0.11 *</td>
<td>-0.08</td>
</tr>
<tr>
<td>Initial Agricultural Capital (Factor Index)</td>
<td>0.00</td>
<td>2.47</td>
<td>-0.02</td>
<td>-0.16 **</td>
<td>0.01</td>
<td>-0.11 *</td>
</tr>
<tr>
<td>Initial Land Cover</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln ha Deforested at Time of Acquisition</td>
<td>0.26</td>
<td>2.38</td>
<td>-0.07</td>
<td>0.04</td>
<td>0.11 *</td>
<td>0.08 +</td>
</tr>
<tr>
<td>Context of Lot</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ordinal Lot Number (1=1st, 2=2nd...6th)</td>
<td>1.25</td>
<td>0.43</td>
<td>0.03</td>
<td>-0.37 **</td>
<td>-0.34 **</td>
<td>-0.23 **</td>
</tr>
<tr>
<td>Kilometers to Uruará Town</td>
<td>31.16</td>
<td>15.49</td>
<td>0.27 **</td>
<td>-0.33 **</td>
<td>-0.35 **</td>
<td>-0.13 *</td>
</tr>
<tr>
<td>Neighborhood Organization (0=No, 1=Yes)</td>
<td>0.34</td>
<td>0.47</td>
<td>0.05</td>
<td>-0.06</td>
<td>-0.01</td>
<td>-0.12 *</td>
</tr>
<tr>
<td>Damage by Fire Set by Neighbor (0=No, 1=Yes)</td>
<td>0.21</td>
<td>0.41</td>
<td>-0.17 **</td>
<td>0.17 **</td>
<td>0.22 **</td>
<td>0.19 **</td>
</tr>
<tr>
<td>Institutional Context</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of Credit (0=No, 1=Yes)</td>
<td>0.46</td>
<td>0.50</td>
<td>-0.12 *</td>
<td>0.29 **</td>
<td>0.42 **</td>
<td>0.08 *</td>
</tr>
<tr>
<td>Assistance from Extension Agency (0=No, 1=Yes)</td>
<td>0.16</td>
<td>0.37</td>
<td>-0.19 **</td>
<td>0.19 **</td>
<td>0.15 **</td>
<td>0.07</td>
</tr>
<tr>
<td>Remittances and Hired Labor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remittance Income from Absent Family Member (0=No, 1=Yes)</td>
<td>0.11</td>
<td>0.31</td>
<td>0.08</td>
<td>-0.07</td>
<td>-0.13 *</td>
<td>0.07</td>
</tr>
<tr>
<td>Ln Days of Labor Hired</td>
<td>2.25</td>
<td>2.24</td>
<td>0.03</td>
<td>-0.01</td>
<td>-0.03</td>
<td>-0.04</td>
</tr>
<tr>
<td>Land Management Practices</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural Inputs (Factor Index)</td>
<td>0.00</td>
<td>2.12</td>
<td>-0.14 *</td>
<td>0.26 **</td>
<td>0.22 **</td>
<td>0.06</td>
</tr>
<tr>
<td>Pasture Rotation (0=No, 1=Yes)</td>
<td>0.69</td>
<td>0.46</td>
<td>-0.13 *</td>
<td>0.29 **</td>
<td>0.61 **</td>
<td>-0.04</td>
</tr>
<tr>
<td>Life Cycle Location</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years on Lot</td>
<td>10.12</td>
<td>6.70</td>
<td>-0.13 *</td>
<td>0.21 **</td>
<td>0.23 **</td>
<td>0.27 **</td>
</tr>
<tr>
<td>Number of Elderly (Persons age 66+)</td>
<td>0.15</td>
<td>0.46</td>
<td>0.02</td>
<td>0.10 +</td>
<td>0.06</td>
<td>0.05</td>
</tr>
<tr>
<td>Number of Adults (Persons ages 15-65)</td>
<td>4.33</td>
<td>2.65</td>
<td>-0.07</td>
<td>0.14 **</td>
<td>0.22 **</td>
<td>-0.01</td>
</tr>
<tr>
<td>Number of Adults Squared</td>
<td>25.76</td>
<td>30.65</td>
<td>-0.06</td>
<td>0.09 +</td>
<td>0.19 **</td>
<td>-0.03</td>
</tr>
<tr>
<td>Number of Children (Persons under age 15)</td>
<td>2.93</td>
<td>2.83</td>
<td>-0.02</td>
<td>0.08</td>
<td>-0.01</td>
<td>0.04</td>
</tr>
<tr>
<td>Number of Elderly * Number of Children</td>
<td>0.64</td>
<td>3.87</td>
<td>-0.03</td>
<td>0.10 +</td>
<td>0.05</td>
<td>-0.03</td>
</tr>
</tbody>
</table>

* p < .15, * p < .05, ** p < .01
south and bringing more capital should increase land use decision latitudes, leading to less forest and more of the other uses, particularly pasture. However, the bivariate correlations are mixed: though Southerners had more cropland, more wealth corresponds to less cropland and pasture.

"Initial land cover" serves as a control because many households acquired lots that already had deforested land. As Table 1 indicates, initial land cover was operationalized in terms of the ln ha deforested when the current owner acquired the lot. The antilog of the ln mean was only 1.3 ha, though the large standard deviation indicates considerable variation. More initial deforestation reduces the inputs necessary for land use and also makes more extensive regrowth possible, and the correlations, though weak, confirm these expectations.

"Context of lot" comprises four indicators. First, it refers to the place of a given lot in a farming system. This is important because many households had more than one lot, and in most instances the “first-order” lot was the most heavily used. As a result, higher-order lots (25% of all lots in the survey) will likely have more forest and less cropland, pasture, and regrowth, an expectation generally confirmed by strong correlations. Second, context of lot reflects distance to market. This influences land use decisions because transport costs are high on muddy roads in much of the study area, which reduce profits on produce as one moves farther away from town. Survey data indicate that lots on average were about 30 km from Uruará town, with substantial variation around the mean. Greater distances should correspond to more forest cover and less land under the other use types, and this expectation is confirmed by strong correlations. Third, the presence of neighborhood organizations indicates whether neighboring households were mobilized against land invasions and for cooperative labor arrangements, both of which provide informal tenure security (Rudel 1995). This may allow for more extensive land use, but it may also allow owners to hold land in primary or secondary forest as an insurance substitute, without fear of invasions and the loss of land and forest resources (Alston et al. 1999). About 34% of lots were in organized neighborhoods, but weak correlations suggest ambiguous effects of social mobilization on land allocation. Fourth, lot context refers to damage to land cover from fires set by neighbors. Such damage serves to reduce primary forest cover, thereby making it easier to bring land into production. However, damage may also exceed a household’s ability to use the land productively, leading to regrowth. About 20% of lots had damage to land by fires, and this shows strong correlations in the expected directions for the outcomes.

"Institutional context” encompasses two factors. First, the use of credit indicates the importance of lending institutions. Because it is a means to offset initial capital scarcity, credit widens the latitude of households to make land investments. As a result, access to credit should correspond to less forest and more of the other land uses. Nearly half of the lots surveyed were owned by households with credit, and having credit exhibits significant correlations for all outcomes in the expected directions. Second, extension assistance indicates whether government agricultural agents had ever visited a given lot to provide advice on locally appropriate farming practices. Extension agents in Uruará focus on productive activities, so assistance will likely correspond to less forest and more of the other uses. Only 16% of lots had been visited by extension agents, and in general the expected correlations that appear are significant.

"Remittances and hired labor” are included to assess the effects of local labor markets. The remittances variable refers to whether a household had absent family members sending money home, and this occurred among households who owned 11% of the lots surveyed. Like credit, remittances can offset initial capital scarcity and foster more land use, implying less forest. The correlations are weak but generally in the right direction. Similarly, hired labor, measured as the ln of days of labor paid in the previous year, can offset household capital or labor scarcity and encourage more land use and less forest. Owners of the lots surveyed paid on average for 9.5 days of hired labor, but correlations show insignificant effects on the land use outcomes.

"Land management practices” account for two key tactics that some households employ to sustain production on their lots, namely the use of agricultural inputs (e.g., pesticides and fertilizers) and the rotation of pastures. The agricultural inputs measure is a factor-weighted index that reflects intensification via the adoption of chemical inputs in order to sustain crop productivity. While some households may intensify via use of inputs to reduce the land area in use, others may do so to sustain production in larger areas. The correlations suggest that the latter interpretation is correct, as a negative association with forest and positive associations with crops and pasture emerge. Pasture rotation is less ambiguous, as this practice requires more land under pasture for a given number of cattle, implying less land area for the other land use outcomes. Rotation, used on 69% of the lots surveyed, shows a strong positive correlation with the extent of pasture and a negative association with forest, but a surprising positive correlation with cropland.

Aside from the foregoing explanatory factors, “household life cycle location” should influence the allocation of land on lots owned by small farm families (Marquette 1998; McCracken et al. 1999; Perz 2001a; Walker and Homma 1996; Walker et al. 2002). Table 1 presents six variables that together “locate” households along their domestic life cycles.
The first variable captures the household’s duration of ownership of a lot. Longer durations should correspond to better expertise at land use, as households adapt to local conditions through time by experimenting with and then adopting appropriate farming strategies (Moran 1989). Through the process of experimentation and adoption, households will clear more land, perhaps experience land degradation, and allow regrowth to appear. As a result, longer durations of time on a lot should correspond to less forest and more of the other land use outcomes. The survey data indicate a mean duration of 10 years with substantial variation, and significant correlations with the land use outcomes in the expected directions.

The first column presents coefficients for the primary forest model, which includes age structure effects and other factors. The cropland model appears in the second column and is substantially stronger than the primary forest model ($R^2 = 0.32$ vs. 0.17). Moreover, the significant variables differ. Lots had more land allocated to annual and perennial crops if they 1) were located farther from Uruará town and 2) had not incurred fire damage. Among the life cycle variables, the number of children was significant and negative, which suggests that subsistence demand influences forest cover among the households surveyed.

The cropland model appears in the second column and is substantially stronger than the primary forest model ($R^2 = 0.32$ vs. 0.17). Moreover, the significant variables differ. Lots had more land allocated to annual and perennial crops if 1) the household had less initial wealth, 2) the lot was the “first-order” lot in a farming system, 3) the lot was closer to Uruará town, and 4) the household made heavier use of agricultural
inputs. These findings reflect the strategies underlying annual and/or perennial crop cultivation. For example, the negative effect of initial wealth likely implies that poorer households cultivated more annuals for food security, and perhaps more perennials to obtain a cash income. The market distance effect more likely reflects the importance of getting perennial crops to town than selling of annuals, though small farms do that too. And the use of agricultural inputs is largely for perennials, which in recent years have incurred attacks from fungal diseases. Aside from these factors, life cycle variables, particularly indicators of age structure, confirm expectations by exhibiting strong positive effects on land use allocation for crops. The positive effects of children and adults suggest that greater subsistence demands lead to the allocation of more land to crops. Moreover, the negative effect of the adults squared term suggests that land allocation to crop cultivation peaks in households with six or seven adults, and declines thereafter. This implies that especially large households increasingly allocate their labor to non-agricultural activities.

The third column presents the pasture model, which emerges as the strongest of the four ($R^2 = 0.46$). Again, stark contrasts with previous models appear regarding the significant variables. Lots had more pasture if 1) they were the first-order lot in a farming system, 2) they were closer to Uruará town, 3) the owner had received credit, and 4) the owner practiced pasture rotation. No life cycle variables indicate significant effects on the allocation of land to pasture. Instead, small-
scale ranching appears to be driven by credit, tenure security, market access, and a commitment to pasture maintenance via rotation. The fourth and final column shows the secondary growth model ($R^2 = .27$). Again, the significant variables contrast with those in previous models. Lots had more land under regrowth if 1) the household had less initial agricultural capital, 2) the lot had more land initially deforested, 3) the lot was first-order in a farming system, 4) the lot incurred fire damage, and 5) the owner did not practice pasture rotation. These findings indicate that capital scarcity, deforestation by uncontrolled fires, and pasture degradation (from not rotating) lead to more extensive regrowth. In addition, several life cycle variables show strongly significant effects that follow expectations. Lots also had more regrowth if 1) the ownership duration was longer, 2) there were more elderly household members, 3) there were more children, and 4) there was no generational transition underway, indicated by fewer elderly and children. The positive effects of ownership duration and elderly members confirm expectations from McCracken et al. (1999) of expanding regrowth over time and as households reach later stages of their life cycles. In addition, the positive effect of children supports arguments that annual crop cultivation is followed by fallowing early on in farm establishment and the household life cycle. Finally, the negative coefficient for the elderly/child interaction term indicates a “generational transition” effect that attenuates or reduces regrowth late in the household life cycle if the elderly generation passes control of a farm to the second generation with children, who renew subsistence demands, expand the production system, and reduce the extent of fallows (Perz and Walker 2002).

Conclusions and Discussion

The findings confirm arguments derived from life cycle theory that household durations of ownership, age structures, and generational transitions influence different aspects of land use allocation among small farms in the Amazon. This provides empirical confirmation that household demographic factors have diverse and complex effects on land use allocation, understood more broadly than with a singular focus on deforestation. The findings advance our understanding of land use dynamics in the Amazon in three ways: 1) they show that a nuanced appraisal of demographic factors is necessary to properly specify household models of resource use, 2) they go beyond commonly seen one-outcome models of land use and land cover, and in so doing, 3) they separate secondary growth from other outcomes and show very distinct explanatory factors. Together, the theoretical framework and the multivariate findings imply a broader conclusion, namely that the relevance of demographic variables for resource use and environmental outcomes extends beyond a focus on macro-level factors to those operating at the household level. Land use dynamics in Uruará are complex and their sustainability is questionable. To review briefly, annuals cultivation does not use much land at a given time, but may require substantial deforestation over time since yields on a given plot decline; perennials offer environmental advantages because they can be planted on land previously under annu-
als, and because they provide shade that contributes to soil remediation; pasture for cattle requires extensive land areas which are subject to soil erosion and compacting, leading to weed invasions that prevent forest succession; and regrowth offers environmental services similar to perennials that aid in soil remediation (e.g., Fearnside 1990; Pichón 1996; Serrão and Homma 1993). In recent years, there has been a shift from perennials to pasture in many households because prices on cash crops declined since the mid-1980s boom and because of crop blights (IDESP 1990; Toni 1999; Tourrand et al. 1996; Walker et al. 2000). The shift to cattle raises many questions about pasture sustainability, as pasture degradation is common in the Amazon, even to the point where succession toward primary forests is prevented (Nepstad et al. 1991; Serrão and Toledo 1990). Furthermore, there are growing concerns about timber extraction in remaining forests as a means of financing pasture remediation (Almeida et al. 1996). Selective logging opens forest canopy gaps and increases fire risks (Nepstad et al. 1999), as witnessed by the fires in the Amazon during 1998.

In addition to the shift to pasture, data from the Uruará survey indicate largely inadequate fallowing practices. Estimates of the fallow periods required for secondary growth to renew soil productivity in the Amazon vary, but they range from 5 to 10 years or more (e.g., Fearnside 1996, 24; Scatena et al. 1996, 35; Walker 1999, 405). By contrast, among lots in the Uruará sample with cleared plots ($n = 298$ out of 347), 69% were managed with fallow periods under 5 years, 24% were managed by shifting plots directly from one use to another, and only 6% were managed with fallow periods of 5 years or more. As a result, it is not surprising that respondents reported soil fertility declines in 42% of the lots surveyed. The concern over land degradation under colonist land use systems has prompted many to call attention to indigenous land use strategies such as agroforestry, which combines crop cultivation with long fallow periods, where fallows include economically important tree crops planted among other species to hinder pest attacks (e.g., Beckerman 1987; Dubois 1990; Dufour 1990; Hecht 1982; Smith et al. 1995).

Recent demographic changes underway in the Amazon and the life cycle framework presented here suggest that cur-
rent land use patterns may not persist. Rural population growth in the Brazilian Amazon has ceased, switching from an annual increase of 1.5% during 1980-1991 to a yearly drop of 0.9% during 1991-2000 (IBGE 1983, 1996, 2001). This was due in part to a slowdown in regional population gains due to net migration (Perz 2002a). Nonetheless, land cover change continues in the Amazon (INPE 2001). These trends imply that contemporary land use in the Amazon is the result of existing populations in frontier areas (Perz 2002b).

That said, macro-level demographic data beg questions about micro-level demographic processes that may affect current and near future resource use in the Amazon. The life cycle framework suggests that as households continue to move to later stages of their life courses, they allocate more land to perennials and secondary growth. However, this remains to be seen, and it may depend on how “generational transitions” proceed among farm households.

The issue of generational transitions raises questions of how the “second generation” of family farmholders will allocate their land. On the one hand, if the “new” households go through their life cycles and use land as their forebears, we might expect reductions in the extent of land use as pasture is abandoned to regrowth and the second generation focuses on smaller plots of annuals. Preliminary analysis of a panel of landholdings in one colonization area of the Ecuadorian Amazon suggests that this may be the case (Murphy 2000). On the other hand, the new households may choose to build on the accomplishments of the first generation and continue running cattle on pasture, perhaps even expanding cleared areas. It is therefore possible that the second generation’s life cycle, as it influences land use, will be very different from that of the first. Because the second generation begins with more cleared land and greater knowledge of local agriculture, demographic changes may move small farms along a different land use trajectory than the historical record shows.

The importance of household demographic changes for land allocation therefore bears implications for policy formulation for farm households in the Amazon. There are many policy proposals for the Amazon that in some way seek to generate livelihoods while conserving ecosystems and resources. Two examples are intensification, often via technology adoption (e.g., Almeida et al. 1996; Angelsen and Kaimowitz 2001; Sanchez 1994), and diversification, often via agroforestry (e.g., Browder and Pedlowski 2000; Pichón 1996; Smith et al. 1995). A key finding of this paper is that the demographic evolution of farm households as they move through their life cycles alters land allocation because decision latitudes and risk aversion change. It is also likely that changes associated with domestic life cycles will widen or narrow the latitude families have to respond to a given policy incentive. The aging of families, and the potential for generational transitions, means that policies directed at households are in effect aiming at moving targets who may respond differently over time. An instructive example involves agroforestry proposals, which seek to improve fallows by incorporating economically valuable species that add to household income while providing environmental amenities. Promotion of productive fallows may not generate substantial results if, for example, a second generation of young householders establish new claims with little land cleared and no regrowth, or older households let land go to fallow with no need for further production. In the first case, the household has little fallow to improve; in the second case, the household has little interest in making its regrowth generate income. A policy to promote agroforestry via economic improvements to fallows may have greater effects if it is tailored in some way to households at specific points in their life cycles (Perz and Walker 2002).

While this study focused on land allocation in one Amazon colony, demographic processes involved in household life cycles likely also affect resource use elsewhere. Here it is important to bear in mind the limitations of Chayanovian theory regarding applicability to different historical, cultural, economic and biophysical contexts (e.g., Ellis 1993; Netting 1993). However, it is also crucial to recognize that adaptations, such as that of Walker and Homma (1996), allow for the incorporation of demographic factors into research on resource use in regions that differ from Chayanov’s post-revolutionary Russia. The importance of household demography for farming is recognized in many contexts around the world (e.g., Binswanger and McIntire 1987; Chibnik 1987).

These observations call attention to the role of household demography in resource use among local peoples experiencing rapid changes in their cultural, economic, and political circumstances. In the context of economic globalization, sustainable and longstanding resource use practices by indigenous and traditional peoples are in many places threatened, at least in Latin America (e.g., Loker 1999; Pichón et al. 1999; Redford and Padoch 1992). As alterations occur in tenure regimes, access to credit, market prices, and other contextual factors, the ability of households to respond to new opportunities and constraints in resource use may depend in part on their life cycle location. The interaction of contextual and household changes produces varying responses in resource management, not only among contrasting households but also among contrasting communities. This ongoing interaction between changing contexts and households requires a focus on household demography alongside community circumstances in order to understand land allocation and other forms of resource use.
Endnotes

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2. I speak of land use allocation rather than land cover allocation. While land use and land cover are closely linked, the two are not the same (e.g., Turner et al. 1995). The data employed in this paper are based on categories of land uses as reported by landholders. Reported land uses reflect the “functional” categorizations of households, in contrast to land cover categorizations derived from e.g. satellite imagery. Some of the land uses discussed, such as primary forest, are often regarded as land cover categories. Nonetheless, because the categorization scheme employed here is based on the function of land as viewed by landholders, categorizing land as primary forest still reflects a use-based classification. This becomes more important for pasture and regrowth because land that appears in a satellite image as regrowth may still be functionally categorized as pasture if the landholder runs cattle on it, i.e., uses that land as pasture (Perz and Walker 2002).

3. Chayanov also considered household motivations for working more or less (i.e., “drudgery”), which he also viewed as a function of internal dependency (Thorner et al. 1986).

4. One can imagine more complex dynamics over even longer timescales. Threats of land degradation under new plots of annuals and pasture may eventually force renewed fallowing, leading to a second decline in the extent of primary forest and rise in the extent of secondary growth. Under conditions of land abundance, however, this is not likely to occur in the space of one generation.

5. Colonization of the Amazon accelerated while Brazil’s military controlled state policies. A hallmark of the military’s development policy was to encourage frontier colonization as an alternative to agrarian reform (e.g., Burns 1993; Skidmore 1999). Land redistribution, which had been called for by civilian politicians in the 1960s, was one of the factors that precipitated the military coup in 1964. As a result, by the 1970s, the state was building new highways into the Amazon, instituting directed colonization projects, and offering fiscal incentives for capital investment (e.g., Mahar 1979; Ozório de Almeida 1992). These policies helped stimulate rapid in-migration, land settlement, rural conflicts, the emergence of a regional agro-extractive economy, and land cover change (e.g., Browder 1988; Hall 1989; Schmink and Wood 1992).

6. A precursor to the present paper separately models the land area under annual crops and the number of productive perennial plants (Perz 2001a). These models have the shortcoming of treating the two outcomes as independent, when in fact land allocation for annuals and perennials is to an extent interdependent.

7. I also considered the household head’s years of schooling as an indicator of human capital. However, it was never significant in models and had many missing values, so it is excluded from the models that follow.

8. Variables and factor weights from principal components analysis for the wealth index were: urban house 0.74, brick walls 0.48, electricity 0.63, generator 0.52, gas stove 0.63, sewing machine 0.54, refrigerator 0.73, radio 0.48, television 0.77, satellite dish 0.68, bicycle 0.54, and car 0.50. The factor with the weights used to calculate this index accounts for 42.4% of the common variance of these 12 variables. Variables and factor weights for the agricultural capital index were: chainsaw 0.81, cocoa dryer 0.63, and tractor 0.48. The factor with the weights used to calculate this index accounts for 42.8% of the common variance of these three variables.

9. I originally considered the formal tenure status of lots. Legal land titles provide a formal type of tenure security because they imply the presence of functioning legal institutions. Lots with titles may allow longer-term planning for land use, and proponents of property rights argue that this should reduce speculative deforestation (Alston et al. 1999). However, titles also valorize land and facilitate access to credit, which may prompt users to invest more heavily in crops and especially pasture. Because titles are usually necessary to obtain credit (which had a high correlation with title status, r > 0.60), and because credit exerted stronger effects, I exclude title status from the analysis presented.

10. Variables and factor weights from principal components analysis for the agricultural inputs index were: insecticides 0.74, fungicides 0.54, herbicides, 0.53, chemical fertilizers 0.81, and organic fertilizers 0.58. The factor with the weights used to calculate this index accounts for 42.3% of the common variance of these five variables.

11. Multicollinearity is not a problem among the life cycle variables. Time on lot, elderly, adults, and children all have correlations of r < 0.15 except adults and children, where r = 0.45.

12. One might object that men and women play distinct roles in farming systems and should therefore have separate variables to assess their effects on land allocation. However, correlation analysis indicated a strong association between the number of men and women (r > 0.60), which hinders observation of differentiated effects by gender. Models with separate variables for men and women tended to show strong effects for one of the terms, indicative of multicollinearity more than gender differentiation per se. Later models with a single variable for adults exhibited stronger performance.

13. Of the 300+ lots included in the analysis, three had no forest, 49 had no cropland, 39 had no pasture, and 90 had no regrowth. These zero values in many instances suggest varying degrees of “left-censoring,” which can lead to biased estimates of significance in model estimation. As a result, one might object to the choice of a SURE approach and argue instead for the application of Tobit models, which adjust standard errors of coefficients for censoring (e.g., Maddala 1983). However, Tobit models of each of the four outcomes generated results that were very similar and substantively the same as those that will be presented from SURE models. Given that finding and the conceptual importance of recognizing the “jointness” inherent in land allocation, I opt for the SURE approach instead of separate Tobit equations.

14. A correlation matrix of the four SURE models’ residuals indicates significant associations (p < .05) for forest and pasture (r = -0.12), forest and regrowth (r = -0.12), and cropland and pasture (r = -0.12).

15. Removal of the pasture rotation variable reveals a positive effect of adults and a negative effect of children on pasture area (both p < .05). This finding is consistent with the expectation that older households (with fewer children and more adults) will have more pasture. However, the model presented in Table 2 with pasture rotation was stronger (R² = 0.46 vs. 0.31).
Acknowledgements

This research was supported by a grant from the US National Science Foundation (SBR-9511965). I thank Charles H. Wood and Robert T. Walker for support in the US, and Adilson Serrão and Alfredo Homma for support in Brazil. Research team members André Caetano, Roberto Porro, Fabiano Toni, Célio Palheta, Rui Carvalho, and Luiz Guilherme Teixeira, as well as the people of Uruará, provided engaging discussions of the issues pursued here. An earlier version of this paper was presented at the 2001 meetings of the Population Association of America, and I thank participants in that session for their comments. Finally, I thank two anonymous reviewers for their comments. Remaining errors are the author’s responsibility.

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Naturally Not! Childhood, the Urban and Romanticism

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Abstract

The aim of this paper is to explore the idea that in the UK ‘the urban’ can be constructed as an intrinsically unsuitable space for childhood. My suggestion is that romantic constructions of ‘nature’, ‘childhood’, the ‘rural’ and the ‘urban’ remain active symbolic legacies within contemporary culture and these can make the presence of the ‘natural child’ in the ‘unnatural urban’ problematic. The rural and the urban are markedly differentiated spaces both materially and symbolically, and account must be taken of that, but these spaces are also constructed as single symbolic spaces in broad but nonetheless powerful ways. This does have implications for childhood in both urban and rural areas, particularly through the ways adults see, judge and direct children. Childhood also has to be seen as a differentiated category, but again there are deeply imbedded assumptions about ‘what a child is’ that will have effects across that differentiation. Dimensions of class, gender and ethnicity are considered because these appear to bring differing trajectories to the central narrative attempted here. I end with some thoughts on reconfiguring childhood-urban symbolic relations into a more positive form.

Keywords: childhood, urban, nature, romanticism

Introduction

In Britain, the late modern private child [is] predominantly the city child

(James, Jenks and Prout 1998, 51)

These are times of great anxiety about the fate of childhood (Higonnet 1998; Gittens 1998; Wallace 1995). From certain perspectives it seems that childhood is under pressure, being eroded (Humphries et al. 1988), or even coming to an end (Postman 1982). Poverty and exploitation have always “threatened” the status of childhood and these persist, often in new contexts, not least as stark contrasts to the emphasis put on the specialness and vulnerability of childhood in late modernity. Other concerns have grown over the latter decades of the twentieth century about the fate and very possibility of childhood in modern society. Fear for the safety of children has driven them from the street into their bedrooms (Summers 1995) — from public to private space, where they are now “not so much free-range as battery-reared” (The Times, 5 Aug. 1995, cited by McNeish and Roberts 1995, 3). Children are subjected to all kinds of pressures and knowledges transmitted by broadcast and print media, information communication technologies, and (re)distributed through peer group networks.

All this, hand in hand with the commodification of childhood — see McKendrick et al. (1998a, 2000) on the expansion of commercial playspaces, and Aitken (2001) on childhood and globalisation — seems to threaten the innocence and separateness of childhood, the very conditions that are so essential to our late modern vision of what childhood is. The lives of children who have grown up in the last three decades or so seem different, even from the childhoods of their parents, and certainly of their grandparents. Their lives seem more confined, pressurised and commodified in many ways, and yet maybe they are liberated in other ways too — through access to information, technology and related distinctive lifestyles and identities.

In the UK, concerns for the conditions of modern childhood are particularly articulated through visions of the child in the urban environment. This perhaps is inevitable, given that in the UK the majority of children now live in urban rather than rural areas, and that the urban is clearly the site of issues of considerable concern in relation to childhood, such as children and traffic (Green 1995), rises in levels of asthma (Barr 1994), and so forth. Although there has been much discussion of the problematic relationship between childhood and urban space in such practical terms, my contention is that this is related to and deepened by symbolic disjunctures between notions of childhood and notions of the urban which are powerful but largely unacknowledged and unexamined. These disjunctures are to do with romantic inheritances that see childhood as a state of naturalness and innocence, and the urban as a cultural (often corrupted) edifice which has moved away from nature.

My interest then is in symbolic notions deeply rooted in our culture, and particularly in the possibility that “childhood” and the “urban” are, at best, uneasy companions, and, at worst, symbolically incompatible. This symbolism may underpin particular concerns about children in urban space,
but also the more general concerns for childhood already hinted at, as we have become an increasingly urban society. How we represent and are represented is at the heart of culture. If we want to readjust relationships within society (as in human — nature relationships, see Peterson 2001), we have to excavate and critically examine the understandings and assumptions (representations) with which we articulate the world. As Midgley states (1996, 2)

> when things go badly [w]e must then somehow readjust our underlying concepts, we must shift the set of assumptions that we were brought up with. We must restate those existing assumptions — which are normally muddled and inarticulate — so as to find the source of the trouble. And this new statement must somehow be put in a usable form, a form which makes the necessary changes look possible.

In the sections below I begin with some illustrations of the urban being constructed as a problematic space for childhood in adult discourse, particularly when it is held in contrast to the rural. I then explore some of the roots of this in romantic thinking which was influential in the development of modern views of childhood, nature, the rural and the urban. Thirdly, I consider the crisis of childhood as articulated through urban space. Fourthly, I briefly attempt to trace out some of the consequences of these constructions of childhood and the urban for children’s lives. I then consider some qualifications of the main argument in terms of differentiated urban space, and issues of childhood class, gender and ethnicity. Finally, as a form of conclusion, I consider how understandings of childhood and the urban need to be symbolically liberated to form new urban space(s) for children.

But before embarking on the above, some further introductory explanations are required. These are on the significance of adult views of childhood; the way that the paper weaves together different elements of adult discourse; and on views of modern childhood which in some senses challenge the whole rural-urban dichotomy being used. This paper does not contain children’s views or voices on their presence in urban space. It is about adult expectations and assumptions about children in urban (and rural) spaces. These are important because children are, more or less, under the control of adults, or have to live their lives under adult surveillance which may be either critical or approving. Unpacking these adult assumptions is a critical part of understanding the forces which shape children’s lives. It is essential that “the Western ideological construction of childhood as a private domain of innocence, spontaneity, play, freedom and emotion” (Aitken 2001, 7) is critically explored in conjunction with its spatial implications.

The term “childhood,” as in the quote above, is intended to indicate collective cultural understanding of this condition of being. When the terms “child/children” are used, these indicate more the lived lives of individual children within that institution. I acknowledge that both “child” and “childhood” are very broad terms. Although I will refer to differences in age, gender and ethnicity to some extent, here I am using “childhood” in the ways that it is used as a catch-all collective shorthand packed with particular, powerful meanings. I should add that this discussion, and much of the literature considered in it, addresses what have been called “the middle years of childhood,” so, to some extent, this discounts the particular needs and circumstances of very young children and older teenagers.

The focus of this paper moves back and forth between (adult) imagination about the nature of childhood (what it is to be a child); concerns for the fate of childhood in today’s society (the pressures childhood faces); and the reality of the “lived childhoods” of children. I am concerned with how these real and imagined childhoods intersect with real and imagined urban spaces, as this reflects how the “real” and “imagined” are dialectically bound together in the ongoing (re)construction of lived childhoods in urban areas. Consequently, this paper moves between various elements of discourse about childhood, such as ethnographic material, media, literary and academic texts, because that is how discourses construct and conduct the meanings and representations at work within society (see Mills 1997).

Finally in this opening section I pay heed to discussions on the changing positions of childhood in society and how it is defined. Key issues here are the roles of technology and the “globalisation of childhood” (Aitken 2001). These can weave new childhood practices from information, money, commodity, and lifestyle flows, and radically disrupt settled ideas of childhood identity and childhood space. Over the last decades of the twentieth century broadcast media have increasingly catered for children, beaming into urban and rural homes alike and further breaking down the dichotomy between them. More recently, internet technology, mobile communication technologies and cultures of computer games have continued this trend. The home space and even the school space can be reconfigured by children forming new assemblages with these technologies (Lee 2001), and access to public outdoor space(s) maybe be reconfigured. Rural-based children (Valentine et al. 2000) and urban-based children may have access to such resources and this again blurs the distinction between these spaces and thus challenges ideas of their appropriateness for childhood. These are powerful developments which are changing the nature of childhood and childhood space. But, as the following material will show, adult ideas about childhood and the spaces it is lived out in still ring with ideas of innocence, nature, fear and
threat, and these are still often articulated in the symbolic frameworks of urban and rural, and it is this which sustains their influence in the shaping of children’s lives.

**Constructing Urban Space as Unsuitable for Childhood**

Colin Ward (1990), in the opening to *The Child in the Country*, said that part of the motivation for writing that book was that he kept encountering negative views of urban childhood and the associated deprivations which may accompany it, which were based on an often unstated, but implicitly negative, comparison with some ideal country environment for childhood.

Others have made sure that this negative comparison of the city with the countryside has not remained implicit. For example, Marion Shoard in her famous book, *The Theft of the Countryside* (1980, 192), states “the countryside is of course a boundless treasure-house of opportunities for creative play, and one for which no real substitute has ever been found.” For Shoard the traditional countryside provided space, freedom to access space, and all the props and pageants of nature for children to engage with in innocent, healthy, collective and safe play (Jones 1997). The need of children to somehow engage with nature and wild places (Moore 1997, 1989; Nabhan and Trimble 1992), and to be able to find and make their own space(s) (Sobel 1990), intuitively seems more likely to be satisfied in the countryside. The urban, in its unnaturalness, cannot seemingly offer these key ingredients of romantic childhood. Worse still, the urban offers greater threat and risk to children. As Scott et al. (1998, 700) point out

> one crucial aspect of the spatial distribution of risk anxiety [of parents about children] is the difference between urban and rural locations. There are both material and imaginary differences between the city and the country. [..] For example, the idea of the city as dangerous spaces haunted by the spectres of crime and violence versus the romanticised and nostalgic views of the countryside.

Such ideas are deeply embedded in popular culture in the UK and it is easy to find media accounts of parents-to-be, or parents with young children, moving from the urban to the rural to give their kids a country upbringing and a “proper childhood.” For example, here is the journalist Nicci Gerrard (who covers childhood issues for one of the main broadsheet papers) writing about deciding to move out of London once she and her partner had children. “I worry about schools, lorries, asthma, and syringes in the sandpit [..] The desire to remove children to green spaces is primitive, huge, sharply irrational” (Gerrard 1999, 1, my emphasis).

Here is another journalist, Ronald White, commenting sarcastically on such moves. He suggests that childless middle class couples are happy in the city but

> The children of the inner-city middle classes have barely made it out of the maternity ward before their parents have decided to move to the country. The city is so polluted, you see, and there’s the traffic and the schools to consider and children these days just can’t play in the streets any more, and they’ve just got no room to grow, and no daughter of mine is growing up without seeing a cow. For a time, everything goes well. Young children love the countryside, the fresh air fills their lungs, the beauty of the wild flowers delights their innocent eyes (White 1995, 10).

Now we hear from one such couple who made this kind of move, relocating from London to the Yorkshire countryside:

> Why did we do it? The biggest reason was the kids. We lived in Stratford, east London, and there was nowhere for them to ride a bike, kick a ball, or play outside on their own. [..] There was the big fire at King’s Cross. Susan suggested it, living in the country for the kids’ sake. [..] The contrast with London is giant sized, open spaces, hills, and trees. The kids can walk to school. It’s been so good for them. They are calmer, softer, more polite (Mackenzie Thorpe cited in Tredre 1996, 19).

This is another mother whose family moved from London:

> what we wanted for our children was a proper childhood, so we moved to a small village in Cornwall. [..] Within a few months, Jessica, now six, had turned from the ‘nervous’ child she had been in London into a happy, carefree girl. Both she and her sister, Louella, three, have a confidence and an innocence that is often missing in children raised in an urban environment (Claire Roberts cited in Gordon 1996).

Finally, Lauren Young (1995) when recounting her family’s move from London to rural Dorset, also put consideration of the benefits for her two children (aged three and nine), at the heart of her narrative. She concluded (two years after the move), there’s an innocence and sweetness about country children that our eldest had almost lost [in the city] now he’s quite transformed (my emphasis).

I run these examples together to show how the themes of nature and innocence repeat through them and how the urban is seen to deny these essential ingredients of childhood. They do raise practical and real concerns about parenting and about risks and problems for children’s lives, but they also play on
the idea that the city does not offer the chance of a “proper childhood.”

Jonathan Miller’s (1997, 8) assertion that “a new generation is fleeing the city in quest of rural bliss and most of those streaming from London will tell you that they are doing it for the children ... As part of our national mythology, we hold the country to be a good thing for children” (my emphasis) is a good summary of the discourses illustrated above. They clearly reflect the belief that the countryside is a more appropriate environment for children to grow, learn and play in than the urban. The depth of these associations is demonstrated by the construction of the countryside as a place of refuge and healing from the pressures and mental and physical ailments of city life for children. This notion has manifested itself in numerous ways. It has been vividly and categorically portrayed in books, famously, for example, in Burnett’s classic children’s book, The Secret Garden, and it has also inspired organisations dedicated to taking deprived urban children on rural visits and holidays (Jones 1997).

These persistent media and literary discourses not only reflect the presence of such ideas in society but also contribute to their ongoing propagation. They interact with and support lay discourses (Jones 1995) of everyday rural lives where constructions of the rural as a better, more appropriate, environment for children can also be found. This has emerged strongly in a number of qualitative research initiatives in the UK which have addressed adult constructions of bringing up children in the countryside. The essence of such attitudes is captured in Bell’s account of the village of Childerley where, many Childerleyans also talked about the countryside as a better place for the family. The phrases ‘better for the children’ and ‘good for the family’ are conversational cowslips for the village. [One villager told Bell] ‘It’s been really great bringing up kids in a natural environment. They’re sort of natural kids, and I think that’s better. I wouldn’t want to have brought them up inside (a city), and they’re real happy kids. They love it’ (Bell 1994, 93, my emphasis).

Valentine’s (1997a) research, which focused on adult constructions of child safety in rural areas, produced a number of interview extracts in which parents talked in very similar terms to those set out above. Similar sentiments can be found in research reported in Jones (2000) and Little and Austin (1996). In the research that I conducted the striking notion emerged that parents felt that children living in the countryside could remain children for longer than they would if living in an urban area. One mother told me how she had been waiting for her teenage children to cease being children through what amounts to a loss of innocence, but how living in the village has postponed this growing up:

“I just feel that Robert and Liz — who are now fifteen and a half — for the last two or three years I have been thinking, well, this is the last time they are going to have a good old fashioned summer where they could climb trees and have picnics in the field — well its gone on a lot longer than I expected it would, and on the one hand they are growing up, and Liz is quite sophisticated and quite trendy, and when she is in school [in nearby town], I think she is indistinguishable from her friends who are town kids, most of them. But when she comes home she kind of puts that off and goes back to being a tomboy.”

Another mother similarly claimed, “they do end up growing up rather quicker in the city... ours were quite happy to grow up quite slowly.”

In Valentine’s (1997a, 6) research, such notions of the prolonged innocence and hence childhood of children in rural areas also emerged, with one of her interview subjects saying “I think they can be kids longer can’t they” [in the countryside]. Valentine was also told how children would change their behaviour, and the age of their behaviour, according to whether were in the town or the country. One woman had noticed that her nieces, when in the village, would “play games, silly games, and laugh and have fun, whereas they never act like that in Chesterfield [local town] ... It’s nice because they come here and go back a stage, and have a bit of fun and play childish games, which they should be playing at twelve you know” (Valentine 1997a, 6).

In these cases there are indications that parents regard their children as, in effect, oscillating from being still childlike when in the country to being grown up when in the town. It is as though the innocence of childhood is more at home, and can survive longer, in rural settings where children have contact with “nature” and are away from the problems and unnatural sophistications of the urban. As innocence and naturalness are at the heart of our view of children (see Gittens 1998, 7), anything that challenges or compromises these are likely to be seen to be in a problematic relationship with childhood itself, and that, essentially, is the tension that exists between childhood and urban space.

**Romantic Legacies:**
**Childhood, Nature and the Urban**

Having shown that tensions between ideas of childhood and urban space can be found in lay and popular discourses, I now turn to the legacies of romantic thinking that remain critical in our views of nature, the rural, the urban, and childhood; for here may lie some of the sources of the disjunctions I am concerned with.
**The Natural, Innocent Child**

There are a number of commentaries on the nature and histories of modern childhood which stress the key role romantic constructions have played in its creation (see Higonnet 1998). Jenks (1996, 98) suggests “it was Rousseau who promulgated the manifesto of the child in modernity.” This new view of childhood as a state of innocence was strongly developed in the work of Blake, Wordsworth and Dickens (Coveney 1982), and had far-reaching effects on educational theories (Brown 1993), and the subsequent portrayals of children in literature (Drabble and Stringer 1987). James et al. (1998, 13) find that it is this model of childhood that has fed into cultures of policy provision for childhood:

“The innocent child [...] is set against the model of the evil child, encapsulating far more of what we have come to imagine as modern, Western childhood ... In the romantic images of Blake and Wordsworth can be found the source of public standards for our demeanour towards children and for our expectations of policy and provision in relation to them.”

The romantics invested so heavily in symbolisms of childhood because they saw it as a natural state. Nature, far from being a realm of fear and desolation, was a repository of attributes that the romantics turned to as objects of desire in the face of Enlightenment development of rationality, industrialism and urbanism (Macnaghten and Urry 1998). Childhood, like nature, under the romantic gaze, became a state of innocence, naturalness, purity, spontaneity, goodness, naive creativeness and wisdom, and closeness to the sublime and the godhead. It carried the heavy freight of representing the best of, and hopes for, the human condition. To grow up was to grow away from this vaunted state. As Day (1996, 57) observes, “Wordsworth regrets the passing of a childhood state when the immortal origins of the soul seemed everywhere apparent.”

In accordance with this new vision of the naturalness of childhood, children began to be moved into the symbolic spaces of nature (Higonnet 1998). In art, children were increasingly depicted “outdoors, often close to animals and the larger natural world” (Regents of the University of California 1995). Blake’s *Songs of Innocence* (first published 1789), key proto-expressions of romantic sensibility, are a synthesis of nature and childhood set in the pastoral spaces of the rural. Rousseau’s pivotal work *Emile* is about a boy being raised in “rural seclusion” where his naturalness can flourish (Day 1996) — an alternative to then established models of raising and educating children through discipline and confinement. Children’s literature, which burgeoned along with the development of romantic modern childhood, was dominated by rural and natural themes and spaces (Hunt 1995), for these were the symbolic spaces where childhood imaginations and children themselves were seen to be most at home. Given that nature and the countryside also became romantic (or related transcendental) constructions (Cronon 1996; Macnaghten and Urry 1998), it is hardly surprising that romantic notions of the innocence of childhood came to be at home in these spaces.

**The Innocent Child in the City**

The corollary of romantic views of innocent nature/countryside was romantic antithesis to modernity, particularly as materialised through the growth of industrial urbanism (Macnaghten and Urry 1998). Blake contrasted his *Songs of Innocence* with *Songs of Experience* (first published 1795) and in one of these, the poem “London” he portrays his vision of the city and the child in the city.

*I wandered thro’ each charter’d street,*
*Near where the charter’d Thames does flow,*
*And mark in every face I meet*
*Marks of weakness, marks of woe.*

*In every cry of every Man,*
*In every Infant’s cry of fear,*
*In every voice, in every ban,*
*The mind-forg’d manacles I hear.*

*How the Chimney-sweeper’s cry*
*Every black’ning Church appalls;...* (Blake 1990, 38).

Throughout the nineteenth century, as the notion of childhood as a state of innocence and naturalness was growing to be a dominant cultural currency, children were increasingly seen living apart from nature in the expanding urban centres, and their presence there was becoming problematic. The “sustained popularity of Dickensian imagery” (James et al. 1998, 48) of childhood in the city testifies to the unease that this engendered. Dickens, of course, was an acute social observer and campaigner on the great ills that were apparent in urban areas at this time. Child poverty and deprivation was at a startling level. Ackroyd (2000) charts a brief history of childhood poverty in London, showing the massive and problematic presence of “children on the street.” They were sometimes confined “because, in their natural and liberated state, they were considered to be wild [ ] ‘ill natured cattel’ “ (650), but they were also described and depicted in their poverty. Such depictions prompted, eventually, some welfare initiatives and a slow creep of legislative reform (James et al. 1998). But it must be noted that child poverty and deprivation was not purely an urban problem at time (Horn 1985). The evidence of these particular problems of urban childhood served to confirm and deepen the problematic relationship...
between childhood and urban space which formed under romantic sensibilities. Ackroyd (2000), summarising the relationship between childhood and London, states “the death of children is a constant thread in the history of London ... In more than one sense, youth is a stuff which will not endure in the confines of the city” (639, my emphasis).

It is also important to note that the urban was not only constructed as a problematic space for childhood, but also, because of its “denial” of nature, as an intrinsically inferior space in comparison to the rural. In the nineteenth century, Ruskin, who took up romanticism’s focus on nature, lamented the continuing rise of the industrial city (Macnaghten and Urry 1998, 13) which ensured that cherished nature “was increasingly taken to exist on the margins, away from the centre of industrial society” (ibid). Under romantic discourses (and earlier pastoral discourses, see Williams 1985), literary and artistic expression persistently valorised the rural over the urban and rendered the former in some sort of idyllic form which became bound up with notions of English national identity (Jones 1995; Cloke 1994; Bunce 1994). Scruton (1998) and Barnett (1998) explore this urban-rural dialectic in some detail, and both show how a bias towards the rural and away from the urban was a dominant theme in English culture. Barnett (1998) states that under a past “malevolent pastoralism,” “the towns and cities where most of us live are declared a no man’s land” (331). He goes on that, “the influence of this attitude has lasted to our own time. Its effects have been pernicious. It casts the towns into an abyss” (332). Or, as Stana Nedanic has it, “in the popular psyche, England is still a rural place; our towns and cities are intrusions in the Garden of Eden” (cited by Muir 2000, 99, my emphasis). The symbolic flows of this “anti-urbanism” (Lowe et al. 1995), where “seven out of ten Britons dream of living in the country” (Chesshyre 1995, 29) are clearly implicated within processes of counterurbanisation (Halfacree 1994).

As most children now grow up in urban settings I am trying to tease out the idea of a tension that may stem from this innocent, most cherished condition of childhood, being confined to an apparently culturally inferior space, which may also subvert the very nature of childhood itself. Berg (1972, 64) baldly states “London hates children,” because of what she sees as the lack of contact with nature, because of the fear which confines them, and because of the control placed on their naturalness. One consequence of all this, as James et al. (1998) point out, was the shift of children’s place in the city from the public to the private domain. Children were increasingly interned from the street for their protection, and the public spaces of the city became adult spaces, spaces of experience and even corruption, which were unsuitable for the innocence of children. But the urban, as Ward (1978) and Moore (1986) have depicted in vivid detail, can offer a rich environment of possibilities for childhood (including contact with nature), and to this I will return, but somehow such richness can be tainted in adult constructions and this affects the ways in which children can engage with urban environments.

The Crisis of Childhood and Contemporary Urban Space

In his seminal work The Child in the City, Ward cites Paul Goodman’s declaration that “the city under modern conditions, can no longer be dealt with practically by children” (Ward 1978, vii), and he dedicates his book to studying and retrieving that situation. But in the decades since then the problematics of this relationship have only deepened and have expanded into the more general idea of a “crisis of modern childhood.”

In response there has been a flurry of recent research which aims to study the relationship between childhood and contemporary urban space. The “Childhood, Urban Space and Citizenship: Child Sensitive Urban Regeneration” research which has been conducted as part of the ESRC Research Programme, “Children 5-16: Growing into the 21st Century” (1997 to 1999), begins with the premise, Environmental planners have become increasingly aware of the ‘impossibility’ of urban space for children (ESRC 1999). This “impossibility” seems chiefly ascribed to parental fears for children’s safety. Yet this research is mainly child-centred, focusing on the views and attitudes of children (see Valentine 1999), and also focuses on the material nature of the urban environment and how children engage with it, with the intention of feeding suggestions on urban design into the policy process. The findings from this research programme are now being published, notably in respect of this paper, O’Brien et al. (2000); and Matthews et al. (2000). Both these projects show complex pictures of differing children’s interactions with differing urban contexts. Matthews et al. (2000) report that their research did find children using “street space” in ways that challenge the notion of “the progressive retreat from the ‘street’ by urban children” (63), but also how this is a increasingly contested and problematic relationship. They also conclude that fears about the shrinking of children’s access to public urban space may have been overstated, but paint a very differentiated picture where access is by no means straightforward (O’Brien et al., 2000). They talk of parental anxiety and how “parents worry about most aspects of their children’s lives” (in urban areas) (14). They conclude “parental anxieties should not be dismissed no matter how irrational they might appear to be” (16). These anxieties that O’Brien et al. consider are not merely “irrational,” or indeed, “rational” risk assessment, but stem, in part, from the symbolic tensions I am exploring here.
The UNESCO-MOST Programme “Growing Up in Cities” is research which is also child centred. Percy-Smith (1999) in his research from this programme asks what are the consequences of adults’ “alienating and hostile attitudes to children’s presence in urban public space.” He explores the negotiations, subversions and conflicts surrounding children’s access to urban space. The research reveals how “the myths and stereotypes of childhood [ ] impact upon young people’s local geographies” and calls for community development initiatives to transform these adult constructions of children’s use of urban neighbourhoods. My concern here is with these hostile attitudes, the *symbolic unease* that may contribute to it, and the spatial consequences which are reflected in Connolly and Ennew’s (1996, 133) observation that “to be a child outside adult supervision, visible on city centre streets, is to be out of place.”

**Urban Images and Urban Narratives**

One major factor which exacerbates the tensions between ideas of childhood and contemporary urban space is the persistent use of urban images to illustrate concerns about the “crisis in contemporary childhood.” For example, in the various campaigns run by Barnardos raising awareness of such issues as childhood poverty, neglect and abuse, bleak urban backdrops are often deployed. Similarly, in a recent anti-child-abuse television campaign run by the NSPCC, a young girl is shown being bullied by her father at home, then she is shown walking to school, lonely and sad, through a *bleak, natureless, uncomforting urban wilderness*. In one way this use of urban imagery is hardly surprising given that the majority of children now live in urban areas, that some problems are particularly prominent in urban settings, and that this is the kind of imagery most likely to mobilise public concern. However, a whole range of studies has been conducted into childhood problems in rural areas, e.g., on poverty (Davis and Ridge 1997), isolation (Hargrave 1991), and the loss of spaces in which to play (National Children’s Play and Recreation Unit 1992; Ward 1990; Shoard 1980; National Playing Fields Association 1984; Santaniello 1978), often couching their arguments in terms of “needing to look at the reality behind the idyll,” for example (Marshall 1993).

Although the urban clearly presents challenges to lived childhoods, many of the pressures modern childhood faces, be it poverty, neglect, access to knowledges which challenge ideas of innocence, are not intrinsically urban or rural. My concern is that the persistent use of urban iconography to illustrate society-wide problems of childhood is bound up with, and further reinforces, the notion that the urban is imagined as an unsuitable environment for childhood. Another example is a special report entitled “Childhood: An Innocence Betrayed,” published by The Observer in conjunction with Barnardos. The front cover of this publication, in a large, powerfully drawn depiction, shows healthy, happy, wholesome children gazing from the past and from some leafy space into the uncertain, unhappy world (tower blocks in the background) of a modern urban child (see Figure 1). The implication being that to place children in such an urban space is in itself a “betrayal of innocence.”

Rayner (1999, 7) writes that “it is fashionable to declare that today’s generation of young children have been robbed of their innocence; that in the urban cracks and shadows lie terrible threats of which they must be made aware” (my emphasis). The argument he develops is that the fear generated in parents by well-meaning campaigns on the dangers facing children can be more damaging to childhood than the threats themselves. But it is significant that he too sees these portrayals of childhood concern as specifically urban-based. Through the 1990s in the UK some of the stream of discourse depicting childhood in certain urban areas has portrayed it in plainly nightmarish terms where innocence is irrevocably compromised. This calls into question the urban as a space for romantic childhood and can also give rise to other, darker, constructions of childhood.

![Figure 1 Childhood: An Innocence Betrayed. Courtesy of Guardian Newspaper Group and Barnardos. Illustration by Paul Slater.](https://example.com/childhood-betrayed)
The End of Innocence

The nature of childhood can be transformed by the nature of the space it is set in. Children in “rural,” “natural” settings can be “wild” and yet retain their innocent status, while “wild” children in urban areas can be transformed into something else, something at odds with the notion of innocent romantic childhood. In my research one mother who had moved from an inner-city area to a rural village said:

well, you see, he [Jack] couldn’t be a wild thing in Crompton Road [their old address] without people telling him off and whatever, whereas out here he can, can’t he. They can’t do wild things in the city can they without, without sort of damaging things. Jack running around with a huge stick [here] sort of, it looks funny rather than menacing doesn’t it?

Given that childhood has become more urbanised, both because most children now live in urban areas, and because certain technology-borne cultures of childhood emanate from urban culture, it is perhaps inevitable that our romantic views of natural, innocent childhoods has come under pressure. The question then arises as to what happens to the children who do remain in urban areas, and to those who do retain a presence in public urban space. Is the idea of “the end of childhood” a consequence of the urbanisation of childhood?

Constructions of childhood in the city may abandon the idea of innocence and reengage with the notion of the Dionysian (evil) child (see Jenks 1996). In cities there is not only fear of what might happen to children who are at large, but also fear of what children might “get up to” or become. In the mix of the city, control of the experiences and knowledges that children might engage with is uncertain and difficult. Conversely, the notion of the rural childhood idyll (from a parental point of view) may be as much about controlling children’s experiences as it is about allowing them freedom (Jones 2000).

“Little Devils” Playing Strange Games

In urban space, children who are at large may become the “little devils” that Jill Valentine (1996) and Marina Warner (1994) have discussed. This is the construction of children that flares when the idea of “little angel” is somehow kicked away and the adult emotional symbolic investment in childhood collapses sourly. Contemporary reworkings of the Dionysian child — which according to Jenks (1996) predates and has since shadowed Apollonian childhood — reform with a vengeance.

Children can become “vermin” on inner-city estates, as in the story of “Ratboy” (press reports about a child criminal found hiding in central heating ducting) (Independent Newspaper 1993), and revert to “Lord of the Flies Savagery” according to Prince Charles (Kay 1993, 7). They play strange, dangerous (fatal) games like “lift surfing” (Wainright 1997, 7); throwing junk off tower block roofs (with lethal consequences) (Wainright 1995, 4); vandalism and arson (Davis 1995, 4). The Bulger murder case, often held up as an icon of this new schizophrenic, uneasy view of childhood, and as an icon of urban childhood turned evil (see Franklin and Petley 1996 on UK press reporting of the case), was depicted through the quintessentially urban medium of a grainy CCTV tape of a shopping precinct. City children can also become “too knowing,” too sophisticated and clued up (Freely 1993). The urban environment is seen, not only for its problems, but also for its sophistication and its complexity, as a hostile environment for the innocence of childhood, and therefore for childhood itself.

As the intensities of many urban spaces increases they may become even more at odds with the presences of childhood in symbolic and practical terms. Such intensities are articulated by the increasing speed of life and the density of capital. This is manifest most obviously in increased road traffic and also in the increased “purity” of consumption spaces — an idea which revolves around spaces becoming much more tightly defined and controlled, with unwanted elements (people, material, activities) being excluded. (See Sibley 1995, who discusses this idea specifically in relation to the exclusion of children and other “others.”) Thus the residential streets and the commercial centres — never natural places, but maybe places of defacto play and childhood access in times past — have become more intensely monomorphic (Jones 2000); in other words, devoted to a singular primary use to the exclusion of other, secondary, unofficial uses, such as playspaces for children.

This sense of childhood being excluded from urban space by these two symbolic force fields (as angels or devils), is articulated in detail by Matthews et al. (2000, 63), who state “when ‘read’ together, these negative discourses account for a supposedly profound feature of contemporary life,” (63) — the withdrawal of children from public urban space. However they also add that “although there is evidence for a general exodus of this kind [ ] the experience is not universal” (63-64). The idea of differentiating this general analysis is taken up later, but first I conclude the overall theme of children in urban space by considering some consequences of the problematics I have explored.

Some Consequences for Urban Childhoods

There are real consequences for the lives of urban (and rural) children that stem from these imaginative symbolic edifices, and for the practices of the spaces (rural and urban) as well. Cultures of fear and of curfew (in urban areas) are the
most pressing, but other issues follow in their wake; particularly the commodification of play, the flight from the city for some, and the ongoing negotiation of the urban as a childhood space for others. Thus I am revisiting themes already explored, but trying to extend them towards considering their more practical outcomes in everyday life.

Fear of/for Children in Urban Space

The fears held by adults, parents and guardians for the safety of children in their charge seem particularly articulated in urban contexts. There may be very practical reasons for such fear and a heightened (over)sensitivity to risk (Furedi, 2001) but this is reinforced by the unease about the appropriateness of urban space for natural, innocent childhood. Reports such as Summers (1995) indicate that fear for children’s safety or status in all environments is growing. But it is in urban contexts in particular that this generates cultures of control, curfew and surveillance (see below) which are seen as restricting the freedom of childhood to play and to live outside parental/guardian supervision. In the rural village where I conducted research (Jones 2000), some children (even as young as 5) still have quite a degree of spatial freedom, and parents were specific in comparing this to an expectation and experience of more constrained urban childhoods.

The constraint of childhood due to fear leads to concerns about children’s physical and mental health, their development, their isolation from other children, and about “family health” (as parental fear results in constant rounds of anxious parent — child negotiations and conflicts about children’s independence). There is also concern how this opens up the potential for the commodification of play and playspaces (see below) and childhood more generally. Those children who are at large in urban space can become objects of fear and suspicion themselves; their image shifting from “little angel” to “little devil” in a setting where the innocence of the former is hard to sustain. This leads on to very real effects of control and confinement of children which is at odds with their rights and their well-being.

Cultures of Curfew, Exclusion and Surveillance

The consequences of the above are the growing official and unofficial cultures of curfew, exclusion and surveillance, where childhood is spatially and temporally over-ordered, restricted and monitored, and children are “minded out of their minds” and “trapped inside” (Hugill 1998). The state can now openly question whether (urban) parents are good parents if they don’t know where their children are and what they are doing at all times. Certain sections of the 1998 Crime and Disorder Act can impose Parenting Orders on parents to “encourage them to exercise a greater degree of control over [their] child” (Lee 2001, 67). Admittedly this is often in relation to controlling juvenile crime and truancy, but Lee adds that other related sections of the Act dealing with Child Curfews “effectively turns children’s unsupervised presence on the streets into an instance of antisocial behaviour” (68). Aitken (1994, 58-59), considering more private regimes in the US remarks, “caregivers are increasingly keeping children as old as twelve indoors unless their play outdoors is supervised.” As indicated above, this confinement may have implications for children’s physical and even psychological well-being. For example, concerns over children’s mental health were raised in reports stemming from the “Bright Futures” initiative of the Mental Health Foundation (Brindle 1999); this joins a long list of reports that focus on the health implications of unprecedented levels of control and confinement of children (see Brindle 1997).

Commodification of Childhood Space and Play

Dissatisfaction with play provision in urban areas is well documented (see McNeish and Roberts 1995). There are concerns that this, coupled with the restriction of children’s opportunities to use urban public space, opens up markets for the private provision of play. This is an area which is now attracting research attention (see McKendrick et al. 1998a, 1998b, 2000). The nature of these spaces, how children and adults see and use them, and how play — one of the basic rights of childhood (National Voluntary Council for Children’s Play 1994) — becomes subject to issues of affordability and accessibility are subjects of deep concern. In the climate of general concern for the spatial and temporal over-ordering of childhood and the erosion of its spontaneity and otherness, this form of private play provision adds yet further dimensions to these questions.

Flight from the City

As the earlier quotes from Miller, Gerrard and others show, processes of counter-urbanisation are in part driven by the desire to take children away from the urban and to apparently more appropriate settings. But what are the implications of these movements away from the city to the countryside? What does this do to both types of space socially, economically and culturally? These are significant questions which need close consideration. Certain rural areas are being gentrified and house prices remorselessly driven up by middle class in-migration driven partly by the quest for the ideal family/childhood setting, isolating poorer families and fragmenting services. In urban areas it will add to what I am calling “environmental negativity” (see below). But there are also other ways of fleeing the city, by retreating into policed and protected private spaces — houses, private streets (see Sibley 1995), the car, exclusive schools and services, which begin to ghettoise both the exclusive and excluded spaces.
Environmental Negativity of Parents and Children

What are the implications of all this for those who remain in the city? The term “environmental negativity” is meant to capture the idea that some urban-dwelling parents and children live with the notion that in some ways it is an inferior space for childhood. This may put a destructive strain and direction of expectation on their relationship with that environment. For example, Cullingford, Professor of Education at the University of Huddersfield, conducted a series of interviews with children aged 6–9, asking them about their perceptions of the urban environment in which they lived, and found that “Children express deep suspicions of towns — not as an idea but as a reality, as experienced by them directly and vicariously ... They long for the contrasting idea of the countryside” (1994, 5, my emphasis).

Differentiated Urban Childhoods

The urban can be simultaneously a single symbolic space and a complex, differentiated set of spaces. As Raymond Williams (1985) points out in his analysis of the “city” and the “country,” these are widely differentiated forms, but “in and through these differences, all the same, certain images and associations persist” (1-2, my emphasis). Thus far I have focused on the urban as a single space, but now I turn to the idea of the urban as differentiated childhood space for here are other detailed material, social, economic and symbolic fabrics which will effect children’s lives. Distinctions need to be made between different types of urban space, and between the differing experiences that children’s age, gender, class, culture and family circumstances may bring.

It is clear that urban spaces can vary from highly wealthy enclaves (Sibley 1995) to so-called “sink” estates, and from sprawling leafy suburbs to densely packed terraced streets. All these are woven through with the urban patterns of public space, transport networks, shopping areas, commercial/industrial areas and so forth. These render the city into differing spaces and micro-spaces which will have their own dynamics as landscapes for childhood. For example, Shoard (2000) stresses the potential of urban fringe land for childhood. O’Brien et al. (2000) consider the “socio-spatial geographies” of areas of inner London, outer London and a lower-density satellite town near London, where differences in street patterns, housing type and density and traffic control influenced the children’s geographies of these areas. But, returning to the idea of the urban as a single space, attention needs to be paid to how meanings and practice move complexity between these scales of construction and how these areas might interact with each other.

Parts of urban environments may be leafy, wealthy and privileged spaces. But their possible proximity to and connections with other, even dystopian areas of the urban means that perceived “impurity” can seep from one kind of space to another, thus making the creation of “pure space” (Sibley 1995), for childhood in the city problematic. Even if some urban enclaves are protected by security gates and even guards (see Sibley 1995), it remains impossible to hermetically seal spaces, or children’s lives. For example, in a recent TV drama *King Girl*, a child living in a middle-class, well-ordered part of town encounters bullying at her school by children from a poor, run-down estate (where “wild children” was a key image). One day her tormentors follow her home to her respectable street and house and urinate through the letterbox much to her and her parents’ shock and horror. This dramatic illustration shows how very real concerns about such issues as bullying, drugs, crime, and even traffic danger and air quality, can permeate through the differing spaces of the urban.

When it comes to differentiating childhood itself, significant factors would seem to be class, wealth, ethnicity, gender, age, ableness, and family form. Here I briefly anticipate three of these.

Class. In many of the accounts of parents leaving the urban, it is the voices of middle-class parents which are heard. There are two immediate observations to be made from this. Firstly, it is the middle classes who are likely to have the cultural and economic collateral to be able to make this move. Would other families make the same choice if they also had the resources to do so? There are accounts of how working-class urban families found the British countryside an alien and uninviting place during the evacuation of children in the Second World War (see for example, Fitter 1945, 208-9). Secondly, although middle-class families are likely to come from more favoured urban areas, some still make the choice to move to the countryside for the sake of their children. Those who live in less favoured urban areas, and thus those with perhaps more reason to look to the imagined and real countryside as an alternative, are those least able to make such a choice. For those families who remain in urban settings the resources available to them in terms of location and economic power will offer markedly different opportunities for childhood.

Ethnicity. The English countryside has often been labelled, and more recently analysed, as a “white space” (see Agyeman and Spooner 1997). This has made the notion of “the rural idyll” an extremely sensitive issue in terms of ethnicity. This has been highlighted by the work of Ingrid Pollard, a black British woman who has depicted and analysed her own presence in the English countryside through words and images. “Pollard makes it clear that while others may feel relaxed in such an environment she feels a sense of unease and dread” (Creswell 1996, 167). According to
Agyeman and Spooner (1997, 204, 206), ethnic populations in the UK are mainly based in urban centres and are “infrequent users of the countryside.” They are even “overwhelmingly associated with the inner city: their landscape is of Brixton and Toxteth” (Creswell 1996, 167). Questions thus arise about childhood framed in these differing cultural milieus. Are then the urban and rural, and the place of children within them, imagined differently from these perspectives? Does the rural present itself as “impossible space” from the point of view of certain ethnic minority families with children? And how does this affect their constructions of the urban itself?

**Gender.** Male and female children are constructed as having differing competencies and vulnerabilities that can interact with constructions of differing kinds of spaces (see Jones 1999; Valentine 1997b). This can generate complicated and contested configurations of children and particular sorts of space. In certain settings, somewhat counter-intuitively given their apparent vulnerability, girls may be sanctioned more freedom than boys in that they can be seen by parents as more “sensible” or cautious than boys, and thus less likely to meet or cause problems. Girls, according to Valentine (1997b, 57), are seen as having “greater self-awareness, sexual maturity and a sense of responsibility.” They are reputed to “grow up” faster than boys and leave childhood, and become more sophisticated, earlier. This means they might be considered more controlled and controllable in the urban. The threat female children pose to urban space may be construed as less (but there are instances of reports of “Girl Gangs” in urban areas). Male children, who are often constructed as wild, as “forces of nature,” may be more at home in the nature spaces of the rural (Jones 1999) where they can “let off steam” or “run wild” without the negative implications this may bring in urban space. Matthews et al. (2000, 77) report that “McRobbie notes the continuing ‘invisibility’ of girls in debates about public space” and through their research they emphasise that girls do use street space and in a number of ways which are gender-specific. But Matthews et al. (ibid) end by saying “there is still work to be done in order to render the position of young girls more visible in the urban landscape” (77).

I suggest that these differences in childhood contexts will cross-cut with each other and with other factors and will render specific constructions of differing children in (differing) urban space(s). For example O’Brien et al. (2000, 12) show in their research that it was “older Asian girls” “who were particularly displaced from the public realm.” But all childhoods will need to negotiate the tensions that arise between notions of (romantic) childhood and urban space. These relationships need to be unpacked as part of a better understanding of how children can more comfortably fit into urban space.

**Conclusions: Re-imagining Childhood and the Urban**

There are many accounts of children and the urban in successful relationships (from the children’s points of view). Ward (1978) and Moore (1986) chart children’s intimate exploitation of urban space in some detail. An autobiographical account of the poet Edward Thomas’s (1938) childhood time in London, seems as wild and idyllic as any account of rural childhood. But the notable thing about these accounts is that they are often about spaces of disorder in the city and about children rendering the city “other.” Opie and Opie (1969, 15), in their famous survey of children’s games and folklore, observed that “the peaks of a child’s experience are [ ] occasions when he (sic) escapes into places that are disused and overgrown and silent.” This is where the fabric of the strongly striated space of the urban — to use Deleuze and Guattari’s (1988) term — is disrupted or rent and otherness can well up in these interstices. Perhaps most graphically, the blitz (the bombing in the Second World War) of London made spaces which became celebrated resources for childhood. Nature can also find a home in these spaces and sometimes children and nature come together. But more importantly, the surveillance of childhood by adults is in abeyance, and the normal symbolic orders of the urban are scrambled. Romanticism has always had a relationship with ruins (Woodward, 2001), for they mark the limits and the hubris of rational, triumphant Enlightenment order and culture and the reassertion of nature, and thus romantic spaces can open up in the urban.

Children are extremely adept at finding and exploiting environmental opportunities for play (Jones 2000; Aitken 1994). Their imagination and their intimate, fine-grained relationship with landscape means that they can find space and play opportunities in all manner of situations. The city, as Ward (1978) in *The Child in the City* and Moore (1986) in *Childhood's Domain* show, offers a “flowing terrain” rich in possibilities for childhood. But this possibility is often closed or restricted by the fears that constrict children’s geographies. Part of this fear may be about children’s unchaperoned presence in the ordered urban landscape. There is a need to re-conceptualise both the nature of childhood and the nature of the urban in order to make children’s use of urban space less symbolically suspect.

Higonnet (1998) argues that the romantic construction of childhood is now unsustainable. It has afforded children some freedom (in certain respects) and protection (Jones 2000), but as Higonnet and others point out it has also thrust a whole load of baggage onto childhood which has little to do with what children really are. These opening quotes from a BBC television programme on childhood capture this idea:
We have pinned onto children as individuals, children as persons, a whole enormous philosophical edifice, about something called childhood, which is not at all what the condition of children is.

Childhood is a projection of what adults fear and hope and desperately want, not even really for their children, but for all the things they would like to still be, or to have been.

We’ve still got a romantic view of childhood deeply embedded in our society, long after its sell-by date. By the end of the twentieth century I think that the ideal is beginning to collapse, it’s going to be impossible to sustain any longer the idea that childhood should be like that. (BBC 2, “Late Show” “The End of Childhood?” written and produced by Sarah Dunant, 5 Dec 1994.)

I agree with Higonnet that we need to move away from the more cloying constructions of children as innocent, pure and natural (see also Brown 1993) to positions which acknowledge and cherish their otherness, their rights, their individuality, their needs and their aspirations. These “new children” will not be at home just in the rarefied imagined spaces of (rural) idyll, but in all manner of spaces that can satisfy the requirements set out above. We also need to reassess children’s competencies (Valentine 1997a, 1997b), and as parents and guardians (I am a parent) not let our fear of risk to children run out of control to the extent that we utterly confine childhood (Furedi 2001).

This is all particularly relevant to children in urban settings. But these settings too need to be imaginatively reconfigured. We need to shake off the notion of the urban as a somehow inferior (but necessary) space (for childhood) and reconfigure it as a landscape rich in possibilities for the otherness of childhood. In particular, the tired old dualism of pure nature in opposition to pure culture has come under strong critical gaze in recent times, and our countryside is repeatedly shown to be a cultural creation, just as much as the urban is. These ideas, to some extent at least, cut the ground away from under notions of the rural/urban childhood dualism, and their strengths and weaknesses as childhood spaces need to be assessed relationally and contingently.

The urban can offer green spaces and contact with nature, but also a range of environments beyond that available in rural settings. As Ackroyd (2000, 647) puts it, “the texture of the city itself can create opportunities for play.” Shoard (2000) points out that “edgelands”—the hybrid spaces on the edge of many cities offer “wild” subversive landscapes which children “often value more than any other groups, seeming to find the edgeland a wonderful place to play [ ] Its dereliction stimulates the imagination” (84). We need to see such hybrid landscapes as symbolically appropri-

ate places for the otherness of childhood, rather than unnatural places unsuitable for the innocence of childhood.

Finally, the ways in which the urban is created, maintained, policed and used must take into account the needs and possibilities of urban childhood. In the current climate of restrictive access of children to urban space, it becomes easy not to see designing and managing for their presence as a priority. Through word, image and deed we need to celebrate and “naturalise” the presence of children in urban spaces. Ackroyd (2000, 647) says of spaces in London where children have managed to play, “the presence of children will soften them and render them inhabitable,” thus throwing up the idea that the presence of children in the urban is a symptom of healthy, liveable space for the wider urban community. As Ward (1978, 48) said, “I want a city where children live in the same world as I do.”

This opens up a whole host of issues that range from open space provision and “street” design, to traffic management issues, the policing of these spaces, and the protection of children in them. Adams (1995) tells of one London project which aimed to reengage children with their neighbourhood. The research reported that “bonding with neighbourhood takes place only when play is owned by the children and has its own space” (162). Adams goes on to use “neighbourhood” as a useful form of local identity for children to possess. O’Brien et al. (2000) similarly conclude “a greater trust needs to be engendered at a local level” (16). I would add that this needs to be a trust between the idea of childhood and idea of the city. These ideas challenge parents, educators, local authority children’s officers, NGOs, planners and society more widely, to appreciate that children are not out of place in urban spaces and that society needs to find ways of ensuring appropriate levels and qualities of their presence in them. That is, in the end, the hard specific work that has to be done, but it needs to go hand in hand with efforts to symbolically reorder these presences in spaces as positive rather than negative.

Acknowledgements

Thanks to Paul Slater for permission to reproduce the illustration in Figure 1, and thanks to the Guardian Newspaper Group and Barnardos for their permission to reproduce the “Observer” and “Barnardos” logos shown in Figure 1. I am grateful for the very thoughtful and useful comments of the three anonymous referees on earlier versions of this paper. I also acknowledge the support of an Arts and Humanities Research Board grant.

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Community Ecology: A New Theory and an Illustrative Test

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Abstract

This “structural” theory of human ecology interprets communities as problem-solving organizations that are concerned with improving the welfare of the residents. It then makes a distinction between their general (structural differentiation, pluralism and solidarity) and specific (hospitals, public health agencies, public safety, etc.) problem-solving capacity and postulates a multiplicative interaction, in the sense of mutual reinforcement, between them. The combined strength of these two types of social problem-solving enables communities to overcome the impact of most environmental threats so that population health, which is the criterion of success, is improved. Although the theory draws on the (transposed) social evolutionary model of innovative institutions, environmental selection and population increase, it diverges from the natural selection model in using “population health” as the criterion of success and, especially, by postulating the causal primacy of the three general dimensions of “problem-solving capacity.” The theory is compared to other frameworks in social and cultural ecology and illustrated with findings from the 47 Japanese prefectures.

Keywords: community ecology, population health, structure, organizations, environment

Introduction

The structural approach to community ecology assumes that communities are units of evolutionary change. They are problem-solving organizations that are biased toward maintaining the health of their members in a changing and unpredictable social and physical environment. It further postulates that over the course of history, nested hierarchies of communities have formed that augment the response of any one level of community to “environmental threats.”

The theory uses “population health” as the criterion of successful adaptation and contends that differentials in life expectancy, infant mortality, “disability days,” and similar measures reflect community adaptation. The population health criterion diverges from the “reproductive superiority” that biological evolution holds up and links the theory to the emerging subfield of “social epidemiology” (Berkman and Kawachi 2000). It also avoids the distortions due to migrations and annexations of territory that can occur when size of population is the criterion.

Following Selznick (1996), communities may be defined as multifunctional groups that are concerned with the general welfare of the residents. The second criterion, welfare, simply articulates the empirical generalization that local governments and related community organizations tend to consider general welfare, including population health, in the course of their deliberations. Single function organizations usually talk about more specific goals. Thus, the welfare criterion simply specifies a class of organizations; it is not a teleological claim.

By this definition groups as small as the family and as large as the nation-state are communities, although the two ends of this continuum are usually treated separately. In between are neighborhoods, villages, towns, counties, and provinces. In modern states, the government mandates a legal basis for communities at most levels. Even so their boundaries may be fuzzy, introducing measurement error that works against precise hypothesis testing. Structural theory, which emphasizes the public, formal, and legal aspects of social organization, side-steps this problem to some extent by focusing on the component institutions of communities — schools, churches, bookstores, committees of government, factories, clinics, and the like. It avoids informal networks and aggregate behaviors except for the measures of popula-
tion and controls on composition effects that could invalidate tests.

Many community institutions deal directly with the environment — defined as everything outside the socially defined community boundary. Because their activities cross the boundary, they may be referred to as “transaction organizations” (or agencies). These fall into the conventional categories of production, commerce and medical.

In identifying a role for transaction organizations and their technologies for warfare, agriculture, industry, health, and so on, structural ecology acknowledges a family resemblance to Darwinian natural selection and functionalism. But structural theory eventually moves away from these models by allowing only a greatly reduced role for transaction organizations. This rejection is based on the judgment that they provide no guidance for identifying the institutions that make a difference in adaptation. Military innovations, for example, typically appear as complexes that include changes in leadership, government support, and troop reorganization. It is difficult to identify in advance the element that made the difference. By contemporary sociological standards, hypotheses that turn on such specific institutions, or even the complexes, are untestable.

The structural remedy for this flaw is to point out that in addition to their role in transacting with the environment, institutions fit formal dimensions of “problem-solving capacity.” One such dimension is the differentiation of occupations. Other dimensions are pluralism, in terms of political contestation, and solidarity, the degree to which institutions are coordinated by core beliefs. All these dimensions are brought together in the general hypothesis that the mutual reinforcement of one or more structural dimensions with appropriate transaction agencies determines the level of population health. That is, the combination of general and specific problem-solving capacity determines population health.

Although these general strategies are referred to as “universals,” the term is used in the sense of concepts that purport to apply accurately and comparatively to all communities, from family to nation-state. The term is not used in the functional sense of common problems like “making a living” or socialization that all communities must solve.

Another confusion that requires clarification is the tendency to think of differentiation and possibly other dimensions as universal paths that all communities must follow. That was the view of the classical writers, although to my knowledge, none of them claimed that communities (especially state-level societies) would continually increase their degree of pluralism and solidarity. As used here, the structural dimensions are general problem-solving strategies. I happen to believe that increments of differentiation, pluralism, etc. appear as side-effects of social movements, but that Durkheimian’s “big bang” theory (Young 1994) is beyond the scope of this essay — although it suggests the near random origin of increments. The point is that reconceptualizing the classical dimensions as general problem-solving “software” rescues them from the theory textbooks and puts them to work in a new kind of ecological explanation.

Do universal dimensions in a model undercut any claim that the theory is consistent with the natural selection format? For strict adherents of natural selection as transposed to human groups, it probably does, even though general problem-solving is still consonant with the mutation-like technologies and institutions that communities use on a daily basis.

Even this brief introduction implies a divergence from other ecological models. First, the theory claims that the appearance of language in the course of human history makes possible the maintenance of formal, universal, systemic (as contrasted with sectoral), and group-level (as contrasted with aggregated behaviors) dimensions. These may be measured at all community levels and facilitate the formulation of a priori hypotheses that contrast with the ex post facto “interpretations” of institutional evolutionary theories. It is these structural dimensions that form the backbone of this theory.

Second, these structural dimensions apply to the whole community and transform it into a unit of survival. The current debate (Sober 1993, 215ff) in biological evolution about whether “groups” evolve is beside the point because, as defined here, human communities are emergent properties and cannot be disaggregated. Population health measures are rates of the biological status of the human organisms in a community, but accepting that criterion does not undercut the claims of structural theory.

The version of ecology outlined here also diverges from the currently popular view that decries the destructive impacts of human communities on the web of physical, biological, and social interrelations. Communities certainly impact negatively on their hinterlands, but that is not the focus of this theory. Instead, it will elaborate a tripartite schema: community structure and dedicated agencies defending against potential environmental threats in an effort to improve the average health of members. All of these claims will be emphasized in the interest of communicating the new material. Moreover, the statements are subject to empirical tests and trimming, a process that will surely lead to theoretical revision and shifts of emphasis.

Environmental Change and Community Structure

Communities respond to events in the environment — crop failure, diseases, factory closings, etc. — by first defin-
ing them as threats and then bringing to bear specialized knowledge, policies that emerge from political debates, and on occasion, a reform movement that shifts perspectives. These three strategies may be labeled as structural differentia-
tion, pluralism, and solidarity. Thus, structural differentia-
tion is the degree to which specialized knowledge is “stored” in the diverse occupations and organizations of a community, while pluralism is the degree to which a community has suc-
ceded in institutionalizing political contestation. Solidarity/
mobilization, especially reform movements, is less frequent because it involves a difficult community-wide shift in orient-
tation.

Other general strategies of problem-solving capacity exist but these three predominate. All of them — making distin-
tinctions, seeing alternative courses of action, and mobilizing behind a leader — depend on language and probably appeared with it. In contrast, the many agencies that loom so large in modern communities are a recent product and take many differ-
ent forms, depending on context. Certain transaction orga-
nization complexes - market capitalism, democracy, and “social movement lobbies” — are intermediate between the structural dimensions and specific agencies, but they are still derivative as compared to the primordial strategies.

It is assumed, subject to test, that superior community problem-solving capacity optimizes the biological functions of all residents, producing the energy, alertness, and rapid recovery from illness that we call health. Said differently, the human organism thrives as a problem-solving creature and communities augment this capacity. This optimizing process must be a postulate, but it is easily observed in the form of non-optimization — obesity, consumption addictions, low respiratory capacity, etc. — that are thought to be the prox-
imate causes of poor health. The optimization process replaces the immune system that is central to the classical biomedical explanation.

Transaction Organizations

Communities with high levels of problem-solving capac-
ity are more likely to create or borrow the dedicated agencies (and their technology) that transact with the environment. This empirical claim, which has yet to be rigorously tested, rests on general observations and some research that show correlations between big cities and new occupational special-
ties, between counties and states in the U.S. non-South (where one tends to find higher pluralism) and the institutions of democratic government, and the association of nationalism with the invention and acquisition of military innovations. A reasonable summary is that the level of differentiation, es-
specially in cities, accounts for most borrowing (once an institu-
tion finds its niche, it diffuses rapidly to complex communi-
ties that offer such niches) and that the other two structural
dimensions are more involved in the creation of new institu-
tions.

How do transaction organizations relate to the structural dimensions? Classical sociological theory has always claimed that “structure” is fundamental because it is the glue that holds all of the institutions together. If we take this “embeddedness” claim seriously, then agencies should inter-
act, in the sense of mutual reinforcement, with structure. This process may be compressed symbolically to ($^s \cdot t$). This for-
mulation, which is the core proposition of this theory, differs fundamentally from the conventional view of “institutional adaptation” which may be summarized simply as: population health = (t), that is, population health depends solely on trans-
action organizations, especially medical.

A problem that arises when transaction agencies are used in a prediction equation is ascertaining their effective-
ness. If an intervention, such as a sex abstinence campaign for young people, has no demonstrated effect in a clinical comparison, then there is no use including it in the prediction of population health. But the assessment of immediate impact is difficult at best. For now, we must assume that if the clinics, hospitals, or separate aspects of medical technol-
ogy persist for a decade or more, they are probably effective in some respect. The question then is whether a new tech-
nology makes a significant difference in the prediction of population health when measures of the structural dimen-
sions are in the equation. Evaluation of transaction organiza-
tions in this context is much more demanding. They must make a significant contribution to the prediction of popula-
tion health beyond that made by the structural dimensions.

A further problem is identifying appropriate transaction agencies in the first place. In contrast to the three structural dimensions, transaction organizations and their component technologies are infinitely varied and constantly changing. Consequently, they must be handled as ad hoc institutions and their identification and inclusion in a prediction equation is ultimately a matter of trial and error. The contrasting conceptual status of these terms is represented by upper and lower case letters; population health = ($^s \cdot t$).

Environmental Threats

In his book, Plagues and Peoples, McNeill (1976) clas-
sifies environmental threats as “macroparasitism,” by which he means warfare and raiding, and “microparasitism, “the mass of microorganisms that cause disease. From the perspective of human history, raids, massacres, and slavery on the one hand, and epidemics of disease on the other, are the principal environmental threats. But recent history is increasingly a matter of the impacts of economic change. Some accounts (i.e., Molnar and Molnar 2000) amend McNeill’s binary classification by adding the negative impact
of regional development and urbanization on communities.

Given the constantly changing natural and economic processes, even changes that turn out to be beneficial in the long term tend to affect mortality rates in unpredictable ways. Alternatively, communities lag in finding and using appropriate defenses. Because of this unpredictability, we cannot specify in advance the potentially disruptive impact of environmental threats except to say that the theory sees the disruption as indirect: the community’s problem-solving capacity is weakened and then the residents suffer higher mortality.  

It is possible to list a number of guidelines that facilitate the recognition of potential threats. They tend to fall into the familiar classification of physical (exhaustion of resources, natural disasters, etc.), organizational (other communities that compete or attack), and biological, especially diseases. Another distinction is between short-term and long-term threats. It seems doubtful that short-term threats are powerful enough to affect the level of death rates, although they may produce a sharp spike in the trend line. Even major epidemics, according to Watkins and Menkin (1985) have limited impacts on long-term population growth. Therefore, the search for environmental threats should look for those that are likely to last a generation or more. Murdock, Hoque, and Backman (1993) provide a potential example with their analysis of the impact of international business competition on migration trends in Texas counties. Migration, like unemployment, is a ubiquitous threat to health because it frequently disrupts problem-solving.

Significant environmental threats must be clearly visible to the residents because problem-solving can occur only if the problem is perceived. That is why regional economic shifts based on a new technology, legislated prices or subsidy shifts, new government regulations, or their analogs in the global economy are better candidates for the test equations than soil erosion or a gradual increase in the scale of manufacturing.

The interpretation of environmental threats varies with the size and level of the community. At the regional level material poverty may look like stagnation that calls for a governmental response, but at the family level it tends to take the form of constant uncertainty. Likewise, the income inequality of a unit as large as a county is often invisible to residents until it becomes associated with an excluded community, such as the African-Americans. Then it may be is recognized as a problem.

A threat like poverty is classified as an environmental threat because it is almost always a symptom of processes in the regional economy that disrupt problem-solving capacity, especially for families. Like poverty, segregation and discrimination reflect the impact of a dualized regional economy that disrupts problem-solving.

Distinguishing between internal patterns and externally imposed disruptions of local problem-solving is a long-term challenge for structural theory. “Pathologies” like police states, fundamentalist theocracies, drug cartels, or autocrats who treat communities or families as fiefdoms are ubiquitous and recurring. Calling them “low pluralism” does not do justice to their many other features. Yet treating them as “macroparasitic” does not do justice to their long term grip on the community. Some of these may someday be interpreted as problem-solving strategies under adverse conditions. Geertz (1968) has made the case for “involution” as a survival strategy under repressive colonial-type conditions and fundamentalist theocracies that may be a catch-up strategy for societies that believe they have been left behind.

Clearly, the identification of significant (enough to affect mortality rates) environmental threats is problematic. The fundamental criterion is that the threat should have the potential for disrupting problem-solving capacity. Changes like forced migration are therefore general indicators of stress. Once a significant threat has been identified, it is important to attempt to trace its disruptive effect on the appropriate community: family, neighborhood, ethnic group, or province.

From the perspective of evolutionary theory the most important aspect of environmental threats is that they are only weakly selective. Businesses rise and fall and medical technologies change. Selection probably accounts for many of these changes. However, it is rare that communities become extinct — the extreme of population health. They do not have to wait around for a random gene. By virtue of their problem-solving capacity they can often create new agencies, borrow from other communities or, on occasion, call on a superordinate community for assistance. If all else fails, their leaders can “solve” the problem by denying its existence, postponing action, compromising, obfuscating, agreeing with contradictory positions, and lying. Even if most residents are physically destroyed, there is usually enough memory somewhere to begin again, perhaps in a different region or at a lower level of community.

Some Conceptual Comparisons

Several recent “ecological histories” (McNeil 1976; Diamond 1997; Flannery 2001) and interpretations (West 1985 — of Weber’s sociology) show the closest conceptual affinity to the theory of community ecology presented here even though their theory is not codified. Their common strategy for explaining the rise and decline of human communities is to pinpoint decisive cultural/technological innovations, usually of a military type. Other examples, such as the customs that the Asian nomads along the Silk Road once used to protect against the marmots that carried the plague bacillus
(McNeill 1976, 155-56) are well known to medical historians. But these “variables” are usually context and epoch specific. Comparisons are limited, often to the point of non-comparability.

A paradigm that ought to have a close affinity with that presented here is Hawley’s (1950) “ecological complex” (see also Namboodiri 1988 and the essays edited by Micklin and Poston 1998). But it turns out to be a remote comparison. Although both the structural and the Hawley frameworks see human communities adapting to a continually changing environment, and both accept aspects of population as the criterion of success, their theoretical cores diverge. Hawley’s scheme is fundamentally materialistic (“sustenance organization”), while the structural perspective is sociological in its conceptualization of problem-solving capacity.

Both theories refer to technology, but it plays different roles. It is an independent “variable” in Hawley’s model but a component of agencies in structural theory, and such agencies are assigned a secondary status. Both models refer to the environment, but structural theory focuses on publicly identified threats, not its sustenance potential. The principal contrast, of course, is that structural ecology contains a causal explanation of population health. Hawley’s model points to possible links among the indicators of the four categories (Population, Organization, Technology, and Environment), but the relationships are fundamentally indeterminant.

A conceptual framework that is explicit about its non-causal approach has been proposed by Molnar and Molnar (2000). They nominate diet, disease, demography, and development as key, and proceed to elucidate the many linkages that determine human adaptation. Interestingly, they organize their exposition according to the scale and economic base of communities — hunting and gathering, agrarian, and industrial — because both the problems and the responses of such communities are different. More generally, they find a “world of linkages” which they weave together by means of “mini-explanations” that are plausible and potentially testable. The underlying principles are mostly economic but, of course, their use of four categories as a starting point undercuts any general explanatory power.

Most of these criticisms apply to Steward’s (1955, 1968) “cultural ecology” even though he is oriented to both industrial and non-industrial societies and explicitly recognizes the community as a unit of survival. Steward’s schema is more open to a variety of responses to environmental challenges and recognizes that subsistence activity may not be the primary determinant of community organization. As previously noted, one of his early followers, Geertz, elaborated a non-material option for Indonesia.

At first glance, theories of cultural evolution, which turn on units of meaning, appear so far removed from a structural theory like this one that they are not worth comparing. But a well-constructed cultural theory in the Darwinian tradition that addressed the blind spots of structural theories would be welcome, and a recent statement (Burns and Dietz 1992; Dietz and Burns 1992) offers just such a possibility: “Social rule systems theory” is evolutionary in terms of focusing on the variation among cultural rules, their (sometimes defective) transmission, and the selective impact of the environment. Thus, the model is inherently dynamic and, given its recognition of meta-rules and collective actors, it can address macrosociological processes.

Rule theory has the potential of making more sense of the structural account of transaction organizations. At best, structural theory can claim that the structural profile of communities influences the repertoire of agencies, either their creation or the borrowing that communities do. After that they are on their own, so to speak, in a changing social and physical environment.

Cultural rule theory (Burns and Dietz 1992, 263ff) provides a much richer account of the variability that organizations must generate. It may arise from invention, migration, and chance effects in transmission. Selection and retention forces further affect this variability. Not all innovations are retained, but those that are take the form of rules, which are central to organizations. Thus, we are presented with an embryonic explanation of the micro underpinnings of macro processes in transaction organizations.

Another point of contact is the role of social actors with respect to decision-making, independence, and creativity. This question of “agency” is especially pertinent to the rule system interpretation of the role of individuals who hold the cultural ideas and rules. Rule theory proposes four criteria for agency: effective action, intentionality, observing consequences, and reflexivity. Therefore, agents are somewhat constrained even though they have a great deal of autonomy. Rule theory also recognizes the necessity to interpret rules as they are applied, and occasionally to act on the resulting variability. It notes that actors sometimes learn or implement rules in deviant ways that nonetheless prove viable. In short, the actions of cultural actors are more open-ended than the individuals in structural theory which sees them as problem-solving units no different in principle from the communities in which they participate. Individuals apply the master strategies of specialized knowledge, mentally debate options, and occasionally manifest a dramatic personal mobilization. They also have a broad range of “transaction habits” (to use a term that sounds better at the individual level), and these are constantly created, borrowed, maintained, and renovated. They exhibit a kind of agency, but their latitude is limited by both their structural profile and the shifting social and physical environment.
The Population Health of Japanese Prefectures

It may seem odd to illustrate an ecological theory with variables from the prefectures of an industrial country. Most studies of human ecology use data from non-industrial societies in an effort to simplify the analysis. Of course, there is the precedent that Hawley and his followers have set, but Hawley’s theory turns on industrialization and urbanization, so he had no choice. Structural theory claims to be applicable to all communities at all levels so the availability of appropriate data is the limiting factor. Fortunately, the information on Japanese prefectures is amazingly rich. It provides the raw material for measures of two of the structural dimensions plus medical transaction organizations and environmental threats (crowded cities and the harsh working conditions of the newly industrializing prefectures). Unfortunately, there are not enough cases for the analysis of interactions or the longitudinal dynamics that are inherent in the changing environmental forces. Therefore, the illustration falls short of the ideal.

In brief preview, this preliminary test attempts to measure the three structural dimensions and plausibly succeeds for two: differentiation and pluralism. Then it introduces what are arguably the most relevant transaction organizations: a factor score composed of physicians, nurses, clinics, and hospitals. Inasmuch as the theory interprets a wide range of transaction organizations as potentially relevant to the population health criterion, this factor is the minimum test, and much exploratory research is indicated. The same thing must be said for environmental threats. In the U.S. one would focus on the enclave situation of blacks and Native Americans. In Japan, the search produced an urban and a semi-rural source of threat, but surely there are many others. An obvious question is whether locality specific threats, such as mercury poisoning, would make a significant difference, even with smaller unit of analysis.

In short, the test format requires considerable local knowledge of changing threats and responses. Such exploratory research could easily become mindless empiricism except for the backbone relationship of the theory: the association of the general problem solving dimensions with measure of population health and their community (prefectural in this case) context. Even so, the test is limited and is included as a first attempt to render the theory operational. Given the amorphous state of terminology in sociology, some effort in this empirical direction is required.

Data and Measures

The data refer to 1990-1995 but are treated as a single cross section. The dataset derives from the Japanese census and other official sources, especially those selected for the annual Japan Statistical Yearbook (1998).

Table 1 lists the descriptive statistics for the two criterion variables, age-adjusted death rates for men and women in 1995. The male rate is nearly double that of women.

Structural Dimensions

For concepts such as differentiation and pluralism it is almost mandatory to use a technique like factor analysis that generates single dimensions for an intercorrelated cluster of indicators. Thus, in Table 2, the first factor has high (.50 or more) loadings on the number of high schools, libraries, religious organizations, and cities. These prefectures also have high incomes per capita. Other similar indicators could have been added, but these are sufficient for deriving a stable factor score, i.e., an index that weights the constituent variables and standardizes the total scores so that they range from approximately -3 to +3.

Our measure of pluralism follows previous work (Young and Lyson 2001) and that of Putman (1993), who used voluntary associations and sports teams as indicators. Lacking data on the latter, we used the available facilities — gymnasiums, etc. — as indicators. In addition, we invoke a rationale that diverges from the Putnam emphasis on cooperation because we see the potential for political divergence and opposition even among sports groups. If the issues are important enough, all voluntary associations become politicized.

The last item in the scale, proportion of government establishments in the prefecture, reflects the services that these prefectures have acquired as part of the national community development program, but we assume that the facilities indirectly promote the free exchange that is the essence of pluralism.

Medical Facilities

The third factor shows that physicians, nurses, clinics, and hospitals per 100,000 tend to cluster. If a prefecture has one of these, it will have the others. Note that although factor analysis generates technically adequate factors, they may not match a concept. Thus the medical factor is not theoretically derived. It is simply a useful empirical index.

The R-square for the first factor reflects the fact that the urban differentiation factor explains half the variance of this
Threats. The first is the disruption of workers’ relations with aggregated individual behaviors. The structural character of the factors (and most of the other variables) insures against biases that arise when using the help to avoid collinearity in the subsequent regression analyses. Likewise, the varimax rotation (a conventional refinement) sets the intercorrelation of all the factors to zero, which improves the precision of the conceptual interpretation. The character of the factors (and most of the other variables) insures against biases that arise when using aggregated individual behaviors.

### Environmental Threats

Exploratory analysis identified two environmental threats. The first is the disruption of workers’ relations with their home communities and their lack of integration in the host community. The crude but effective indicator for this disruption turns on the dichotomy of the mature industrialized heartland versus the industrializing peripheries in the northeast and southwest of the country (below Osaka) during the 1950-70 period. This dichotomy is more geographical because it reflects the post World War II industrialization phase in Japan (Kornhauser 1982; Tatsuno, 1986; Witherick 1983). A number of variables show the contrast of the two regions. The percent of change in manufacturing establishments from 1980 to 1990 was 17.6 in the recently industrialized prefectures, approximately three percentage points greater than the amount of change in the central region. The proportion of businesses that are organized as corporations is also higher in the peripheral regions. As one might expect in an industrializing economy, the peripheral population includes a higher percentage of older people, 18.3 percent versus 15.2 in the core region.

Although the industrializing prefectures are 16 percent less affluent than the heartland (Yano Tsuneta Memorial Association 1999) they are well supplied with medical personnel and facilities. The higher frequency probably reflects the need for many doctors and pharmacies to reach people in rural areas and fewer economies of scale. It is also possible that the government located medical facilities in the peripheral regions because of a perceived greater need for them there.

A second environmental threat may be labeled “hyper-urbanization” because many large cities (over 100,000) organize the seven prefectures that were so classified. These were Hokkaido, Aichi, Osaka, and four in the Tokyo region: Saitama, Chiba, Tokyo and Kanagawa. They were discovered with the help of a scattergram that showed a U-shaped curve for the association of urbanization and mortality. After attempts to model this non-linearity with a quadratic term failed, we turned to a specific indicator.

We measured hyper-urbanization by the proportion of environmental complaints that the Japan Statistical Yearbook classified as “vibrations” (Mean: 3.2; min-max: .6-10.4). Such noises emanate from trains, airplanes, and construction work, but the variable should not be interpreted to mean that vibrations make people sick. A more reasonable interpretation is that complaints like this reflect a generally disrupting environment, a type of stress that housebound Japanese women probably feel more than men.

The character of the seven hyper-urbanized prefectures is clarified by a comparison of means similar to those reported for the two regions. Thus, the average number of large cities in the hyper-urbanized prefectures is 15 as compared to 3 in the other prefectures. The proportion of manufacturing firms is 46 compared to 36, and the average proportion of vibration complaints is 6.2 percent as compared to 2.7.

### Table 2. Factor analysis of prefecture variables (n=47).

<table>
<thead>
<tr>
<th>Variable</th>
<th>F1 Urban differentiation</th>
<th>F2 Structural Pluralism</th>
<th>F3 Medical facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>High schools</td>
<td>.89</td>
<td>.87</td>
<td>.82</td>
</tr>
<tr>
<td>Libraries</td>
<td>.87</td>
<td>.82</td>
<td>.74</td>
</tr>
<tr>
<td>Big cities</td>
<td>.82</td>
<td>.83</td>
<td>.70</td>
</tr>
<tr>
<td>Income per capita</td>
<td>.74</td>
<td>.74</td>
<td>.70</td>
</tr>
<tr>
<td>Religious organizations</td>
<td>.70</td>
<td>.70</td>
<td>.70</td>
</tr>
<tr>
<td>Public gyms</td>
<td>.85</td>
<td>.85</td>
<td>.85</td>
</tr>
<tr>
<td>Sports facilities</td>
<td>.83</td>
<td>.83</td>
<td>.83</td>
</tr>
<tr>
<td>Pct. voting 1996</td>
<td>.77</td>
<td>.77</td>
<td>.77</td>
</tr>
<tr>
<td>Halls for meetings</td>
<td>.76</td>
<td>.76</td>
<td>.76</td>
</tr>
<tr>
<td>Pct government agencies</td>
<td>.64</td>
<td>.64</td>
<td>.64</td>
</tr>
<tr>
<td>Physicians</td>
<td>.92</td>
<td>.92</td>
<td>.92</td>
</tr>
<tr>
<td>Nurses</td>
<td>.81</td>
<td>.81</td>
<td>.81</td>
</tr>
<tr>
<td>Clinics</td>
<td>.80</td>
<td>.80</td>
<td>.80</td>
</tr>
<tr>
<td>Hospitals</td>
<td>.70</td>
<td>.70</td>
<td>.70</td>
</tr>
<tr>
<td>R²</td>
<td>.50</td>
<td>.16</td>
<td>.10</td>
</tr>
</tbody>
</table>

Descriptive statistics for variables: (Mean; minimum-maximum)

- Libraries: Number of libraries (46.2;13-338)
- High schools: Number of high schools(114; 34-459)
- Big cities: Number of cities 300,000 and larger. (4.7; 1-21)
- Income per capita: Income per capita, 000’s of Y en, approximately 1 to dollar 2863; 2149-4255.
- Religious organizations: (4893; 473-11951)
- Public gyms: Public gymnasiums per 1,000,000 (77.9; 15.3-181.7)
- Sports facilities: Public sports facilities per 1,000,000. (672.3; 148.8-1266.6)
- Pct voting 1996: 1996 average percent voting House of Representatives, of Councillors, and for Governor, 1996. (54.6; 40.3-73.6).
- Halls for meetings: Public halls per 1,000,000 (217.2;7.8-886.2)
- Pct government agencies: Percent of establishments that are owned by government (3.5; 1.2-5.4). Physicians: Doctors per 100,000 (185.3; 108-249.7)
- Nurses: Nurses per 100,000 (432; 213-600)
- Clinics: Clinics per 100,000. (68; 45-94)
- Hospitals: Hospitals per 1000 (1.1; 04-19)

Table 3. Regression analysis of male and female mortality.

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urbanization (FS)</td>
<td>-.15</td>
<td>-.06</td>
</tr>
<tr>
<td>Structural Pluralism (FS)</td>
<td>-.37*</td>
<td>-.38*</td>
</tr>
<tr>
<td>Medical Facilities (FS)</td>
<td>-.01</td>
<td>-.33*</td>
</tr>
<tr>
<td>Industrializing areas</td>
<td>.50*</td>
<td>.35*</td>
</tr>
<tr>
<td>Urban vibration complaints</td>
<td>.25</td>
<td>.49*</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>.35</td>
<td>.43</td>
</tr>
</tbody>
</table>

Numbers are standardized regression coefficients significant * at the .05 level. FS = factor score.

The Relationship of Structure to Mortality

Table 3 presents regression analyses that use as predictors the two structural factors, the measure of medical facilities and the two environmental threats. As is evident, some of the coefficients are not significant. Fortunately, we are working with the universe, where significance is less important than the size of coefficients. Also, we are aided by a theoretical framework that guides our expectations about the strength of the coefficients.

The principal result in columns 1 and 2 is that differentiation (weakly and nonsignificantly) and pluralism (moderately but significantly) predict lower mortality for both men and women. The urbanization result does not conform to theoretical expectations. Either specialized knowledge does not improve population health or the measure is flawed. What is probably needed is a factor based on a distinctive indicator of specialized knowledge.

Medical facilities lower mortality for women, but they have no effect, one way or another, on men. One of the environmental indicators, location in an industrializing region, is a strong positive predictor of mortality for men and a moderate predictor for women, while environmental complaints predict higher mortality for women. Interestingly, the prediction patterns for the two environmental variables tend to be mirror images.

How well does this test illustrate the structural approach to ecology? It uses age and sex adjusted mortality as the criterion for assessing the success of the model and it uses true structural measures for differentiation and pluralism, along with two indicators of environmental threats. The prediction equation includes measures of medical facilities, which are the transaction organizations most appropriate to the criterion variable. It lacks measures of socioeconomic status (aggregated to the prefecture level) as a control on the family level, pending adequate multilevel datasets. It also omits any further tests of alternative transaction organizations or environmental threats even though these may exist. Due to lack of cases, it does not calculate a multiplicative interaction term for a structural dimension and a health organization as the theory requires. Still, it demonstrates the way the theory guides the choice of indicators, the expected correlations, and the general feasibility of statistical tests.

Conclusion and Discussion

Structural theory claims that structural dimensions are universal, even though their strength may vary from place to place. Without some general capacity for problem solving, communities would cease to exist. In contrast, the particular agencies, as well as the environmental threats, are necessarily epoch and place specific. The structural dimensions are the novel feature of this theory that distinguish it from all other ecological explanations.

The structural dimensions that constitute the backbone of this theory are incarnations of the classical dimensions that preoccupied the 19th century sociologists. Now, instead of attempting to explain what is here called differentiation by appealing to population density and similar ecological determinants (see Lopreato 1990 for a penetrating account of Durkheim’s efforts), this theory takes differentiation as an independent variable that applies to all community levels. Along with solidarity and pluralism, it interprets these dimensions as the master problem-solving strategies. That leaves unanswered the classical question of how to account for these dimensions but explanations do exist (Young 1994).

A skeptic might ask where the theory is in this formulation if most of the terms are declared non-conceptual and their indicators ad hoc. The answer is twofold. First, categories — they are not concepts — like environmental threats and medical technology can be empirically specified as well as similar terms in other ecology formats. The difference here is that their ad hoc character is explicit. But second, the interpretation of three dimensions as general strategies of problem-solving capacity introduces an explanatory core to the ecological framework that is central to the survival of human communities. These general problem solving strategies combine with the ad hoc agencies to determine population health levels.

Are these structural dimensions plausible? The analysis of Japanese prefectures indicates that at least in principle their measurement meets the current concept-guided standard. They predict significant linkages even for large units and few cases. From the perspective of community members, they are easily recognizable and all competent adults learn to apply them in varied contexts. Residents might not call them “strategies of problem-solving,” but almost everyone understands that you can solve community problems by using them.

Another kind of criticism is that the theory is community-centric, and ignores the impact of human communities on the environment. As noted in the introduction, the emphasis
is intentional. This version of ecology is oriented towards population health and interprets the environment as potentially threatening. On the other hand, almost all current environmental threats reflect the past impact of community activity. Resources may be exhausted, rivers polluted, economic dislocations increased, and new diseases activated. These problems become the second generation targets of problem-solving. Therefore, the criterion of population health indirectly monitors the wider ecology. It is difficult to attain population health unless the environment is also protected.

Some of the many paths that future research could take have been mentioned or alluded to: continued work on measuring the three strategies at all community levels; intensive scrutiny of the role of medical agencies and their relationship, if any, to other transaction agencies; and the search for measures of pervasive threats such as unemployment and the many pathologies of exclusion. More specialized problems, such as interaction terms, and methods of modeling the changes in the environment and their organizational responses, await specialized attacks.

Driving these research probes, as well as the elaboration of this version of ecological theory, is a pressing need to understand the causation of population health. Even with the addition of “social determinants” like socioeconomic status, personal affiliations, or participation in clubs and associations, the biomedical model offers only a marginal role for social factors. Meanwhile, thoughtful representatives call for an “ecological model” (Smedley and Syme 2000, 2) that rises above biological fundamentalism. The question that this theory poses is whether biomedical advocates are prepared for an explanation that departs completely from the biological and individual foundations of many public health interventions. The claim here is that population health implies structural causation located in communities that are dealing, sometimes successfully and sometimes not, with a changing and multifaceted environment.

Endnotes

1. E-mail: Fwy1@cornell.edu
2. E-mail: kei@kiui.ac.jp
3. I assume that a pattern of small but persistent social movements, mostly in the form of street protests, has become institutionalized around the world, thanks to the innovations of the “Sixties.”
4. The assumption of a nested hierarchy of communities implies that subordinate communities like the family may be able to compensate for the weakness of the neighborhood or town. Indeed, the combination of the same structural dimensions and appropriate habits at the individual level is also available as a fallback.
5. For both individuals and communities, “stress” can be defined as problems for which feasible solutions are unavailable (see Stokols 1973).

Acknowledgments

The exacting comments of the three relentless reviewers are gratefuly acknowledged.

References


Winter Visitors to Yellowstone National Park: Their Value Orientations and Support for Management Actions

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Abstract

The idea of a National Park contains a diversity of values and missions. This paper takes a multi-dimensional, context-specific approach to measuring the perceived values of Yellowstone National Park. It is an initial step in recording how perceptions of National Parks are changing over time. Responses of 1064 winter visitors to 24 park value items were factor and cluster analyzed to produce four groups. Examination of the relationship between cluster membership and support / opposition to a variety of management actions showed significant differences for all 19 proposed actions. Groups of visitors with different value orientations showed correspondingly different levels of support for management actions. The National Park Service (and other natural resource agencies) can, therefore, expect to encounter and manage for a diversity of perceived values and conflicting attitudes towards park management and planning.

Keywords: parks, value orientations, attitudes, park management

Introduction

The concept of a National Park is one of the most influential and widely adopted ideas of American land management. It is an intriguing amalgamation of national pride, preservation of extraordinary natural beauty, and use and enjoyment by a wide range of people. There are now over 1,000 National Parks worldwide. Prior to the development of the National Park idea in the United States there had not been a major tradition of rural parks anywhere in the world (Sax 1980). National Parks have been variously described as America’s exalted places (Frome 1992), as being tied up in American memory and mythology (Foresta 1984), and as being places of great symbolic beauty (Sellars 1997). National Parks are highly valued by Americans and play a distinctive role in how Americans see themselves and their country. But as American culture develops and changes, the relevance or priority of various aspects of the park idea tends to ebb and flow (Foresta 1984). While important values are clearly preserved within National Park boundaries, the perceived purpose of the parks may change over time (McCool 1983).

The origins of Yellowstone National Park show an early diversity of values. After exploring and describing the headwaters of the Yellowstone River and its confluence with the Missouri River, Artist George Catlin in 1832 called for a “nation’s park, containing man and beast, in all the freshness of their nature’s beauty” (Zaslowsky and Watkins 1994, 14). In 1865 Thomas E. Meagher, Montana’s territorial governor, initially proposed the idea of a National Park in the Yellowstone area. In 1870 an exploration led by the surveyor-general of Montana, Henry Dana Washburn, brought public attention to Old Faithful and other such geothermal features. A popular myth is that the various members of the Washburn-Langford-Doane Expedition sat around a campfire near the junction of the Gibbon and Firehole rivers and discussed the need to set aside and preserve Yellowstone’s unique curiosities (Barringer 2002). However, it wasn’t until March 1, 1872 that Congress was to declare over 2 million acres as “a public park or pleasing ground for the benefit and enjoyment of the people” (Yellowstone Act, 1872: PL 17 Stat. 32).

As popular and pervasive as the National Park idea is, its organic mission is often viewed as inherently conflicted. The National Park Service Organic Act of 1916 (PL 39 Stat. 535) charges the agency to manage the parks so as to “conserve the scenery and the natural and historical objects and the wildlife therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations.” This conundrum of meeting both the objective for conservation of natural objects and for the use and enjoyment of the people has led one author to describe the mission of the National Park Service as one of “protecting and enhancing the scenic façade of nature for the public’s enjoyment, but with scant scientific knowledge and little concern for biological consequences” (Sellars 1997, 45). Some areas of National Parks have been intensely developed, concentrating the many visitors to the park,
while leaving the surrounding lands in a wilder state. This is consistent with early Park ideals of nature being scenic, full of curiosities, and a mere backdrop for the recreation enjoyment of the park. Even at an early age, the National Parks depended on economic development and pork-barrel politics for a sufficient infrastructure to both provide and protect the parks (Ridenour 1994).

However, this common analysis of the conflict inherent within the National Park mandate may be overly simplistic. While many analysts call for increased rigidity in the interpretation of the National Parks Service’s organic legislation, it may be the lack of specificity that has allowed the park idea to grow with the culture. Perhaps there were always more values represented within the mission than merely the scenic wonders and opportunities for pleasure. For example, when John Muir was arguing against the damming of Hetch Hetchy, his strategy was to tap into a myriad set of values including spirituality, social restraint, intrinsic worth, beauty, recreation and Yosemite’s role as a bastion against the growing power of commercialization (Nash 1982). When the fields of ecology and wildlife management came of age in the 1930’s through the 1960’s, the parks’ mandate allowed for inclusion of the values of wildlife preserves and sanctuaries (Sellers 1997). And when the Wilderness Act was passed in 1964, there was again room within the National Park mission to include and complement the values of wilderness.

A second reflection of social change relative to National Parks is apparent in the continued relevancy and role that parks play in American life. The appeal of parks has shifted from the exclusivity of the early visitors to include the mass visitation of middle class America. The dominant mode of experience has evolved over the years from that of stage coach tours and grand lodge visits to include backcountry backpacking and hiking, fishing, snowmobiling, and car camping.

The challenge to the National Park Service is to consider and balance all of the purposes that are assigned to it. Even in Muir’s early battle over Hetch Hetchy, he cautioned president Roosevelt not to underestimate the power of public values, sentiment, and their constituent’s political influence. Muir’s challenge was to bring the message to the people. Today, millions of people are bringing their message to the federal government has bestowed upon it holdings. Most of them, the parks are little more than grassy Disneyland, and the name park has no more meaning to them than forest or monument or any of the other titles the federal government has bestowed upon it holdings (1995, p. 73).

Is this the case with visitors at Yellowstone National Park? Or do park visitors today share to some degree the values of John Muir, Robert Underwood Johnson, Stephen Mather, George Wright, and A. Starker Leopold? The aim of this paper is to begin documenting those prescribed purposes that the public has for the parks. It is hoped that explicit description can help to show how the perception of the parks may be changing over time, and lead to a better understanding of the impacts of management decisions on those socially assigned ideals.

Park Values

This study seeks to measure the relative values or purposes for which visitors feel Yellowstone National Park exists. It is our belief that visitor assessments provide an opportunity to compare contemporary opinion of the purpose of the park with that which has emerged through a long history of debate of the National Park ideal. Further, we are striving for an improved understanding of the value orientation of winter visitors to Yellowstone National Park. We use a multi-dimensional, context-specific approach to the measurement of values, and examine their relationship to support or oppose for a variety of proposed management actions.

There have been many calls for the investigation of values as a necessary component of natural resource management. Values have been called a critical foundation for decision-making (Myers and Close 1998) and their documentation crucial for decision makers to adequately understand the public’s expectations regarding land management and desired future use and conditions (Jakes 1998). A better knowledge of divergent public values can “help environmental managers understand the range of perspectives they should expect among the public as well as identify possible shared values they can build upon in forging consensus” (Proctor 1998, 348). Kuentzel and Dennis (1998) suggest that much of the controversy in environmental management is due to different constituencies valuing specific amenities differently. Moreover, Averill and Stevens further state that many natural resource problems are “as much value-based as they are fact-based and we can no longer afford to ignore the value dimensions of decision-making” (1996, 400). Bengston (1993) suggests that the main challenge facing public forest managers is being responsive to diverse and changing forest values. Similarly, Kennedy, Dombeck and Koch state that
“rather than physical resource manipulators, public land managers are often social value brokers ... and will become more so in the future” (1998, 18).

Yankelovich, in an influential text called Coming to Public Judgment, makes a strong case for moving beyond objectivism and reliance upon expert knowledge to a more inclusive use of values and public judgment. In describing a dependence on rational, logical facts, he says, “it is not a bad method for coping with small problems. But it is a disastrous strategy for coping with big ones” (1991, 200). Yankelovich describes values as higher, more stable, and more enduring forms of public judgment. He states that “values reflect the individual’s ideals and goals” (1991, 123) and are therefore distinguishable from specific attitudes and opinions with which they may clash. Yankelovich considers values more foundational, more enduring conceptions of the good and desired human condition. Following Rokeach (1979) values are more central beliefs that influence less central beliefs such as attitudes. Values are a product of assigning relative importance. As Myers and Close suggest, “values lead us to regard some goals or ends as more legitimate or correct and other goals as illegitimate or wrong. They also lead us to regard certain ways of reaching those goals or means as proper and appropriate and other ways as improper or inappropriate” (1998, 291).

Given the importance of values for natural resource management decision-making, however, the empirical measurement of values has been relatively rare. Stynes and Stokowski (1996) observed three principle approaches: i) social-psychological methods to measuring broad-based values (eg., Rokeach 1979), ii) economic methods to measuring non-market values (eg. Loomis and Walsh 1997), and iii) inference of values from attitude, preference, and behavior. A fourth approach, the qualitative assessment of ethics (eg. Kohlberg 1971, Kahn 1999), is not strictly empirically based (Harding 2002).

The social-psychological approach to values seeks to measure the universal value orientations that underlie attitudes and behavior. The work of Schwartz (1996), for example, has sought distinct types or groups of values. His typology has since been found to be a good predictor of pro-environmental attitudes and behaviors (Stern, Dietz and Guagnano 1998). Environmental concerns and, in particular, attitudes towards new environmental issues, are rooted in more stable and relatively enduring value orientations (Stern, Dietz, Kalof and Guagnano 1995).

The economic approach has been to extend the identification and assignment of monetary values to objects not typically traded in an economic market place such as recreation, scenic beauty, and water quality. This approach frequently uses willingness-to-pay or contingent valuation measures to estimate benefits and net value of resources. However, the economic approach has been criticized and its applicability to many environmental contexts is uncertain. Authors such as Kellert (1984), Prior (1998), and Trainor and Norgaard (1999) have questioned the comprehensiveness of these methods for less tangible, non-utilitarian values such as spiritual, existence, intrinsic and symbolic values. More et al. (1996), Lockwood (1997), and Holstein (1998) further suggested that moral and ethical values are not appropriately valued through trading or purchasing metaphors. Others such as Bengston (1993) and Atran and Medin (1997) have questioned the ability of a single monetary value to sufficiently capture the values underlying complex decision-making.

The approach taken in this study can be found within the social-psychological tradition, searching for the broad value orientations specific to park settings. Previous studies point the way to the measurement of values in natural resource settings and their relationship to attitudes toward management of those resources. Bengston, Fan and Celarier (1999), for example, constructed four broad categories of benefits and values of forests and forest ecosystems (recreation values, commodity values, ecological values, and moral/spiritual values) using an analysis of their frequency of mention in the U.S. media. Gilbert, Manning, Negra and Koenemann (1996) similarly created a typology of ten major values of parks based on a review of wilderness literature and observed the following order of importance when questioning visitors to 45 Vermont State Parks: aesthetic, recreation, scientific/education, moral/ethical, ecological, therapeutic, economic, intellectual, historic/cultural, and spiritual. Manning and Valliere (1996) used the same typology in a study of visitors to the Broadloaf Wilderness in Vermont and found that ethics, more so than values, were related to attitudes toward wilderness management. Manning, Valliere and Minteer (1999) found that 6 of 11 similar values explained 49% of variance in attitudes towards national forest management, with aesthetic, ecological and recreational values receiving the highest ratings of importance.

Methods

Based on a review of the literature concerning the National Park idea, in particular the work of Henneberger (1996), 24 items were written to examine the perceived values of Yellowstone National Park. Included in these items are notions of parks as sacred places, where “wildlife would be protected, preserved, viewed and used for scientific research” (Henneberger 1996, 131), as public pleasing grounds for recreation and human utility, and as ceremonial landscapes for pilgrimage, nationalistic pride, and of natural wonder and awe. The specific wording of the 24 items is shown in Table 1.
Respondents were asked to rate how much they agreed that each was particularly important to the overall value of Yellowstone (using a scale that ranged from 1 (“strongly disagree”) through 8 (“strongly agree”), with a “don’t know” option).

The highly contentious nature of winter recreation in Yellowstone National Park (Sacklin, Legg, Ceachbaum and Helfrich 2000) provided an opportune research setting and 1818 winter visitors were contacted for this study between 1/17/98 and 3/7/98. Names and addresses of visitors were collected, voluntarily, at the four entrance stations throughout the day on thirteen randomly selected days. Sample size at each entrance station was proportionately representative of the number of visitors accessing the park at each entrance over the previous winter season. A random sample of 1505 of those 1818 visitors was mailed a questionnaire. This repre-

<table>
<thead>
<tr>
<th>Question Wording: Role of Yellowstone National Park. We are interested in your opinions about the values of Yellowstone. Please indicate for each of the following, how important they are to the overall value of Yellowstone National Park (1 = strongly disagree, and 8 = strongly agree):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>I believe Yellowstone National Park is particularly important as:</td>
</tr>
<tr>
<td>A place of scenic beauty</td>
</tr>
<tr>
<td>A wildlife sanctuary</td>
</tr>
<tr>
<td>A place everyone should see at least once</td>
</tr>
<tr>
<td>Protection for fish and wildlife habitat</td>
</tr>
<tr>
<td>A place for education about nature</td>
</tr>
<tr>
<td>A display of natural curiosities</td>
</tr>
<tr>
<td>A historic resource</td>
</tr>
<tr>
<td>A place for the use and enjoyment of the people</td>
</tr>
<tr>
<td>A place for all living things to exist</td>
</tr>
<tr>
<td>A place for wilderness</td>
</tr>
<tr>
<td>A symbol of America’s identity</td>
</tr>
<tr>
<td>A protector of threatened and endangered species</td>
</tr>
<tr>
<td>A display of natural curiosities</td>
</tr>
<tr>
<td>A place for recreational activities</td>
</tr>
<tr>
<td>A place for scientific research and monitoring</td>
</tr>
<tr>
<td>A tourist destination</td>
</tr>
<tr>
<td>A site to renew your sense of personal well being</td>
</tr>
<tr>
<td>A family or individual tradition</td>
</tr>
<tr>
<td>A reserve of natural resources for future use</td>
</tr>
<tr>
<td>A sacred place</td>
</tr>
<tr>
<td>A social place</td>
</tr>
<tr>
<td>An economic resource</td>
</tr>
<tr>
<td>A place to develop my skills and abilities</td>
</tr>
<tr>
<td>A place to be free from society and its regulation</td>
</tr>
</tbody>
</table>

Letters indicate statistically significant difference using paired students’ t-tests. If a group has the same letter then they are statistically similar. If the two groups have a different letter then they are statistically different. If they have two or three letters, then they are statistically similar to groups that share at least one of those letters.

* Letters indicate statistically significant difference using paired students’ t-tests. If a group has the same letter then they are statistically similar. If the two groups have a different letter then they are statistically different. If they have two or three letters, then they are statistically similar to groups that share at least one of those letters.

**Results**

The factor loadings and corresponding reliabilities (using Cronbach’s coefficient alpha) of the four resulting factors are shown in Table 2. The four factors explain a cumulative 56.4% of the variance in item response. Each of the four scales has a satisfactory Cronbach alpha, ranging from 0.87 to 0.64. Item-scale total correlations were all in the range 0.33 to 0.80. An initial interpretation of those four factors suggest that Factor 1 emphasizes natural values such as protection of wildlife, wildlife habitat, wilderness, and the education and study of nature. Factor 2 reflects an emphasis on the ceremonial, symbolic, and historic role of Yellowstone National Park: as a symbol of America’s identity, and as a historic and scenic resource that individuals and families should see at least once. Factor 3 shows a prioritization of the recreation and tourism resource values of Yellowstone as a tourist destination, a place for recreation, use and enjoyment of the people, and as a social place. Factor 4 emphasizes personal growth and development values such as the opportunity to develop skills and abilities, the chance to be free from society, and as a place to renew personal well-being. The item on sacred values of Yellowstone loaded on both the first and fourth factors. This could be interpreted for the first factor as a sacred place associated with the natural environment. For the fourth factor, we interpret it as an opportunity for a sacred or spiritual personal experience.

Table 1. Mean scores for park value items.

<table>
<thead>
<tr>
<th>I believe Yellowstone National Park is particularly important as:</th>
<th>Mean *</th>
<th>Std. dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A place of scenic beauty</td>
<td>7.6 a</td>
<td>1.06</td>
</tr>
<tr>
<td>A wildlife sanctuary</td>
<td>7.2 b</td>
<td>1.45</td>
</tr>
<tr>
<td>A place everyone should see at least once</td>
<td>7.2 b</td>
<td>1.57</td>
</tr>
<tr>
<td>Protection for fish and wildlife habitat</td>
<td>7.1 c</td>
<td>1.42</td>
</tr>
<tr>
<td>A place for education about nature</td>
<td>7.0 d</td>
<td>1.42</td>
</tr>
<tr>
<td>A display of natural curiosities</td>
<td>7.0 d</td>
<td>1.14</td>
</tr>
<tr>
<td>A historic resource</td>
<td>6.9 de</td>
<td>1.50</td>
</tr>
<tr>
<td>A place for the use and enjoyment of the people</td>
<td>6.9 de</td>
<td>1.60</td>
</tr>
<tr>
<td>A place for all living things to exist</td>
<td>6.8 ef</td>
<td>1.73</td>
</tr>
<tr>
<td>A place for wilderness</td>
<td>6.8 ef</td>
<td>1.84</td>
</tr>
<tr>
<td>A symbol of America’s identity</td>
<td>6.8 ef</td>
<td>1.66</td>
</tr>
<tr>
<td>A protector of threatened and endangered species</td>
<td>6.7 ef</td>
<td>1.82</td>
</tr>
<tr>
<td>A display of natural curiosities</td>
<td>6.7 ef</td>
<td>1.66</td>
</tr>
<tr>
<td>A place for recreational activities</td>
<td>6.4 gh</td>
<td>1.69</td>
</tr>
<tr>
<td>A place for scientific research and monitoring</td>
<td>6.3 h</td>
<td>1.72</td>
</tr>
<tr>
<td>A tourist destination</td>
<td>6.2 i</td>
<td>1.80</td>
</tr>
<tr>
<td>A site to renew your sense of personal well being</td>
<td>6.1 i</td>
<td>1.88</td>
</tr>
<tr>
<td>A family or individual tradition</td>
<td>5.6 j</td>
<td>2.10</td>
</tr>
<tr>
<td>A reserve of natural resources for future use</td>
<td>5.4 jk</td>
<td>2.64</td>
</tr>
<tr>
<td>A sacred place</td>
<td>5.3 k</td>
<td>2.49</td>
</tr>
<tr>
<td>A social place</td>
<td>4.7 l</td>
<td>2.11</td>
</tr>
<tr>
<td>An economic resource</td>
<td>4.5 m</td>
<td>2.29</td>
</tr>
<tr>
<td>A place to develop my skills and abilities</td>
<td>4.2 n</td>
<td>2.01</td>
</tr>
<tr>
<td>A place to be free from society and its regulation</td>
<td>4.2 n</td>
<td>2.42</td>
</tr>
</tbody>
</table>
The four cluster groups of respondents and their cluster means (for the four factor scores) are shown in Table 3. These clusters represent winter visitors grouped on the similarity of their values. Cluster 1 (labeled naturalists) represents those who highly value natural and symbolic values, and place less emphasis on human oriented tourism and recreation values. Cluster 2 (labeled human oriented) has higher scores on human oriented values, but lower scores on natural and personal growth and development values. Cluster 3 (labeled players), is a small but distinct cluster. Cluster three’s scores for personal growth and development values were relatively high but very low on natural and symbolic values. Cluster 4, the largest group, (labeled park enthusiasts) subscribes to most of the on-site values of Yellowstone National Park offered in this instrument, with specifically high importance on natural, human oriented, and personal growth and development values.

A significant difference was found between the cluster groups for the mean level of support for all nineteen proposed management actions. Using an ANOVA, the F statistic was significant at a .05 level for all nineteen items, and at a .001 level for seventeen of the nineteen. Members of cluster 1 (the naturalists) are much more likely to be supportive of stricter noise and emission standards, and more supportive of establishing alternate use periods to help minimize conflict between user groups. This group is also significantly more likely to be less supportive of grooming snowmobile trails more often, less supportive of providing more information about things to see and do, and less supportive of providing more trails for winter recreation. They are also significantly more opposed to plowing the road from West Yellowstone to Old Faithful. To typify this group, they tend to support greater protection of the park resources, and tend to offer less support for encouraging or facilitating use. Cluster 2 (human oriented) is more strongly against closing or restricting roads to oversnow vehicles. This group is significantly more supportive of providing more park rangers to educate and assist visitors. Describing this cluster, they tend to support making it easier for visitors to use and enjoy the park and do not support restrictions on access. Cluster 3 (players) is more sup-

Table 2. Factor and reliability analysis of park values scales.

<table>
<thead>
<tr>
<th>Item Wording</th>
<th>Mean</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
<th>Item-scale Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection for fish and wildlife habitat</td>
<td>7.1</td>
<td>.80</td>
<td>28</td>
<td>.02</td>
<td>.01</td>
<td>.80</td>
</tr>
<tr>
<td>A protector of threatened and endangered species</td>
<td>6.7</td>
<td>.80</td>
<td>.11</td>
<td>-.14</td>
<td>.17</td>
<td>.70</td>
</tr>
<tr>
<td>A wildlife sanctuary</td>
<td>7.2</td>
<td>.79</td>
<td>.28</td>
<td>-.01</td>
<td>-.02</td>
<td>.76</td>
</tr>
<tr>
<td>A place for all living things to exist</td>
<td>6.8</td>
<td>.68</td>
<td>.18</td>
<td>.09</td>
<td>.13</td>
<td>.63</td>
</tr>
<tr>
<td>A place for education about nature</td>
<td>7.0</td>
<td>.66</td>
<td>.29</td>
<td>.09</td>
<td>.09</td>
<td>.64</td>
</tr>
<tr>
<td>A place for wildness</td>
<td>6.8</td>
<td>.64</td>
<td>.07</td>
<td>.11</td>
<td>.04</td>
<td>.54</td>
</tr>
<tr>
<td>A place for scientific research and monitoring</td>
<td>6.3</td>
<td>.62</td>
<td>.03</td>
<td>.28</td>
<td>.05</td>
<td>.49</td>
</tr>
<tr>
<td>A display of natural curiosities</td>
<td>6.7</td>
<td>.48</td>
<td>.39</td>
<td>-.07</td>
<td>.06</td>
<td>.50</td>
</tr>
<tr>
<td>A symbol of America’s identity</td>
<td>6.8</td>
<td>.30</td>
<td>.69</td>
<td>.13</td>
<td>.19</td>
<td>.66</td>
</tr>
<tr>
<td>A historic resource</td>
<td>6.9</td>
<td>.34</td>
<td>.68</td>
<td>.15</td>
<td>.15</td>
<td>.70</td>
</tr>
<tr>
<td>A place everyone should see at least once</td>
<td>7.2</td>
<td>.14</td>
<td>.63</td>
<td>.37</td>
<td>-.01</td>
<td>.57</td>
</tr>
<tr>
<td>A place of scenic beauty</td>
<td>7.6</td>
<td>.51</td>
<td>.60</td>
<td>.20</td>
<td>-.15</td>
<td>.63</td>
</tr>
<tr>
<td>A display of natural curiosities</td>
<td>7.0</td>
<td>.41</td>
<td>.60</td>
<td>.15</td>
<td>.02</td>
<td>.59</td>
</tr>
<tr>
<td>A family or individual tradition</td>
<td>5.6</td>
<td>-.01</td>
<td>.47</td>
<td>.27</td>
<td>.44</td>
<td>.43</td>
</tr>
<tr>
<td>A tourist destination</td>
<td>6.2</td>
<td>.11</td>
<td>.18</td>
<td>.76</td>
<td>.01</td>
<td>.61</td>
</tr>
<tr>
<td>A place for recreational activities</td>
<td>6.4</td>
<td>.09</td>
<td>.20</td>
<td>.76</td>
<td>.08</td>
<td>.63</td>
</tr>
<tr>
<td>A place for the use and enjoyment of the people</td>
<td>6.9</td>
<td>.10</td>
<td>.49</td>
<td>.68</td>
<td>-.01</td>
<td>.63</td>
</tr>
<tr>
<td>A social place</td>
<td>4.7</td>
<td>-.08</td>
<td>.12</td>
<td>.61</td>
<td>.46</td>
<td>.59</td>
</tr>
<tr>
<td>An economic resource</td>
<td>4.5</td>
<td>-.06</td>
<td>.01</td>
<td>.51</td>
<td>.41</td>
<td>.41</td>
</tr>
<tr>
<td>A reserve of natural resources for future use</td>
<td>5.4</td>
<td>.11</td>
<td>.04</td>
<td>.38</td>
<td>.36</td>
<td>.37</td>
</tr>
<tr>
<td>A place to develop my skills and abilities</td>
<td>4.2</td>
<td>.18</td>
<td>-.08</td>
<td>.14</td>
<td>.68</td>
<td>.41</td>
</tr>
<tr>
<td>A place to be free from society and its regulation</td>
<td>4.2</td>
<td>-.02</td>
<td>.07</td>
<td>.09</td>
<td>.60</td>
<td>.33</td>
</tr>
<tr>
<td>A site to renew your sense of personal well being</td>
<td>6.1</td>
<td>.24</td>
<td>.43</td>
<td>.02</td>
<td>.52</td>
<td>.49</td>
</tr>
<tr>
<td>A sacred place</td>
<td>5.3</td>
<td>.45</td>
<td>.21</td>
<td>-.35</td>
<td>.51</td>
<td>.38</td>
</tr>
<tr>
<td>Percentage variance explained</td>
<td>31.6</td>
<td>13.1</td>
<td>7.2</td>
<td>4.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coefficient alpha</td>
<td>0.88</td>
<td>0.81</td>
<td>0.78</td>
<td>0.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scale mean (divided by # items)</td>
<td>6.9</td>
<td>6.9</td>
<td>5.8</td>
<td>5.1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
portive of grooming the trails and the provision of more information about things to see and do outside the park. Cluster 4 (park enthusiasts) is supportive of providing more accommodations in the park, and of providing more facilities to encourage visitors to use other areas of the park.

Conclusions

Perhaps the most important managerial implication of this study is that the majority of winter visitors to Yellowstone were able to strongly align themselves with a diverse set of core purposes ascribed to the national parks. The purposes they reviewed were consistent with those that have been proposed through time by the founders of the contemporary park ideal. We also saw distinct disagreements among visitors grouped on those values relative to the management actions they supported. That is, visitors with different values tend to support different management actions. This suggests that although attitudes toward management proposals may be swayed or influenced by information, explanation, and/or promotion, there could still be underlying disagreement or frustration with the agency. Attitudes and preferences for different management actions are related to, and perhaps derivative of, more stable and enduring values.

Table 3. Clustering of visitors based on factor scores.

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Factor 1 (Natural Values)</th>
<th>Factor 2 (Heritage and Symbolic Values)</th>
<th>Factor 3 (Recreation and Tourism Resource Values)</th>
<th>Factor 4 (Personal Growth and Development Values)</th>
<th>% Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Naturalists</td>
<td>.31</td>
<td>.28</td>
<td>-1.08</td>
<td>.08</td>
<td>28.2%</td>
</tr>
<tr>
<td>2 Human Oriented</td>
<td>-.71</td>
<td>.19</td>
<td>.56</td>
<td>-.73</td>
<td>29.2%</td>
</tr>
<tr>
<td>3 Players</td>
<td>-3.56</td>
<td>-3.78</td>
<td>-1.66</td>
<td>1.46</td>
<td>2.4%</td>
</tr>
<tr>
<td>4 Park Enthusiasts</td>
<td>.43</td>
<td>-.19</td>
<td>.56</td>
<td>.64</td>
<td>40.2%</td>
</tr>
</tbody>
</table>

Table 4. Support or opposition for management actions across visitor park value clusters.

<table>
<thead>
<tr>
<th>Proposed Management Action</th>
<th>Meana</th>
<th>F</th>
<th>Signif. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Require all snowmachines to meet strict, but reasonable emissions and noise standards</td>
<td>3.99</td>
<td>4.44 c</td>
<td>3.59 a</td>
</tr>
<tr>
<td>Provide more information to snowmobilers concerning appropriate behavior</td>
<td>3.93</td>
<td>4.14 c</td>
<td>3.73 a</td>
</tr>
<tr>
<td>Provide more information concerning snow and trail conditions</td>
<td>3.82</td>
<td>3.58 a</td>
<td>3.91 b</td>
</tr>
<tr>
<td>Provide more information along trails identifying points of interest</td>
<td>3.80</td>
<td>3.49 a</td>
<td>3.91 b</td>
</tr>
<tr>
<td>Maintain and groom snowmobile trails more often</td>
<td>3.76</td>
<td>3.35 a</td>
<td>4.03 c</td>
</tr>
<tr>
<td>Provide more information about things to see and do outside the park</td>
<td>3.75</td>
<td>3.53 a</td>
<td>3.72 b</td>
</tr>
<tr>
<td>Provide more information about things to do in the park</td>
<td>3.63</td>
<td>3.25 a</td>
<td>3.71 b</td>
</tr>
<tr>
<td>Be more aggressive enforcing snowmobile speed limits</td>
<td>3.63</td>
<td>3.95 c</td>
<td>3.29 a</td>
</tr>
<tr>
<td>Be more aggressive enforcing safety rules and regulations in the park</td>
<td>3.59</td>
<td>3.87 c</td>
<td>3.25 a</td>
</tr>
<tr>
<td>Provide more trails/locations for winter recreation use</td>
<td>3.56</td>
<td>3.06 a</td>
<td>3.70 b</td>
</tr>
<tr>
<td>Continue and increase advertisement of other winter areas to disperse use</td>
<td>3.56</td>
<td>3.46 a b</td>
<td>3.59 a b</td>
</tr>
<tr>
<td>Provide more park rangers in the park to educate and assist visitors</td>
<td>3.39</td>
<td>3.52 b</td>
<td>3.16 a</td>
</tr>
<tr>
<td>Increase facilities provided to visitors to encourage them to use other areas of the park</td>
<td>3.37</td>
<td>3.04 a</td>
<td>3.44 b</td>
</tr>
<tr>
<td>Provide guided snowmobile trips by National Park Service staff</td>
<td>3.01</td>
<td>2.99 b</td>
<td>2.87 a</td>
</tr>
<tr>
<td>Establish alternate use periods to help minimize conflict between user groups</td>
<td>2.96</td>
<td>3.26 c</td>
<td>2.62</td>
</tr>
<tr>
<td>Provide more winter accommodation options in the park</td>
<td>2.95</td>
<td>2.57 a</td>
<td>2.97 b</td>
</tr>
<tr>
<td>Close roads to oversnow vehicles</td>
<td>2.12</td>
<td>2.57 c</td>
<td>1.69 a</td>
</tr>
<tr>
<td>Restrict groomed roads to snowcoach travel only</td>
<td>2.05</td>
<td>2.57 c</td>
<td>1.62 a</td>
</tr>
<tr>
<td>Plow the road from W. Yellowstone to Old Faithful</td>
<td>2.00</td>
<td>1.77 a</td>
<td>1.89 a b</td>
</tr>
</tbody>
</table>

(1 = strongly oppose, 2 = oppose, 3 = neither support or oppose, 4 = support, 5 = strongly support)
a Taking each management action separately, a common letter indicates clusters did not have significantly different means. If a group has the same letter then they are statistically similar. If the two groups have a different letter then they are statistically different. If they are two or three letters, then they are statistically similar to groups that share at least one of those letters.
This pattern in our data reaffirms Garrett Hardin when he said that agreement on park management would only come from reconciliation of basic human values (Dustin et al. 1995).

Managers, who view visitors from a simplistic perspective, or identify them primarily by the mode of activity they participate in, could misinterpret visitor frustration. For example, while visitors using snowmobiles dominated our sample, nearly thirty percent of them were most closely aligned with naturalist values and were supportive of some restrictions on the very mode of transportation they were using. That is, believing that all snowmobilers are alike and value the same things misinterprets the demands and opinions of many of them.

The items within the scale used in this study reflect the cultural development of the park idea over time. Multiple values may have been discussed around the campfire of the 1870 Washburn Expedition that helped motivate the establishment of Yellowstone National Park. However, societal internalization of that set of values occurred incrementally. What began as a set of natural curiosities grew into a “place everyone should see once,” a “historic resource,” “a place for education about nature” and “a symbol of America’s identity.”

We believe that the need for an understanding of human values results partly from a limit to technical solutions for park management issues. The evolution of snowmobile access to Yellowstone may provide a distinct case in illustrating this point. Winter snowmobile use started in the 1960’s when the number of snowmobiles was small, and it appeared quite possible to accommodate a range of values including personal growth and development experiences in the park. As use increased, conflict among values emerged and it became clear that technical planning was required. The planning resulted in numerous studies of the issues, including that reported in this paper. Advocacy organizations rooted in the traditions of natural values sued the park to force the consideration of the impacts snowmobiles had on the natural values of the park (Sacklin et al. 2000). After consideration of years of research, managers proposed a ban on snowmobile access. This form of intervention was popular with none of the clusters, even those most aligned with the natural values of the park. The ban, in turn, was contested by industries and localities aligned with human oriented access values. Recent discussion has centered on a resolution that includes limited access by cleaner, quieter snowmobiles. This form of resolution seems to address the central interest of each cluster and focuses on a form of management action that was highly supported by each group. Developing a proposed resolution based on multiple values earlier in the process may have saved substantial time and money. Large scale management actions can rarely play to just one set of values without expecting other values to be expressed through legal and political outlets.

In the larger society, it is understandable why National Parks enjoy such broad public support, given the range of values and purposes they represent. While the flexibility of National Park legislation has allowed for broad expression of these values in the way people enjoy the parks, it has also allowed for the increased recognition of ecological importance. But much as the conflict between value clusters was apparent in this analysis, we can expect there will be similar conflict within mainstream America. There is still a need to know how the alignment of values demonstrated by the visitors in this study compares to those of the broader population. We also need a greater knowledge of what visitors are willing to trade off within their own experience to pursue the values they hold, and how they feel about imposing sanctions on those who do not share their values. Furthermore, the managers themselves have their own values that are also deserving of examination. The value orientations of managers might be more or less aligned with those of the visitors.

Applying scales such as the one used here could document the ebb, flow and change of the park ideal over time. Continued development of the scale may increase the amount of variance explained and help assess the values prescribed to different parks and regions. We believe that the predictive power of underlying values for those attitudes is worthy of further investigation.

Endnote

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Acknowledgments

We would especially like to thank John Sacklin, Chief of Planning & Compliance, and the many other staff of Yellowstone National Park for their support and assistance on this project. We would also like to acknowledge the financial support of the Pew Charitable Trusts, the Yellowstone Park Foundation, and the Montana Forest and Conservation Experiment Station. Finally, we would like to thank Steve McCool, Robert Manning, and Alan Watson, as well as two anonymous reviewers, for their help and constructive review of this project.

References


Abstract

Modernity’s predominantly carnivorous culture ensures the unquestioning reproduction of its values and practices through transformations of social space and its associated habitus. Klaus Eder argues that these transformations include the development of an industrial food culture and a gastronomic culture both of which represent modernity’s attempt to distance humanity from animality. Today, industry and gastronomy combine to make farm animals little more than a standing reserve of meat products ready for consumption. The abattoir epitomises these modern transformations in its organisation, practices and routines. But, because it is here that the key transformation from living animal to dead meat takes place, the slaughterhouse also remains a site of potential moral danger and conflict for contemporary cultural logic. In the abattoir we risk coming face to face with the animals themselves as self-expressive entities and sometimes, in their final moments, their voices can awaken us from our ethical apathy.

Keywords: ethics, space, expression, animal, slaughterhouse

The Voice

Every animal finds a voice in its violent death; it expresses itself as a removed-self (als aufgehobenes Selbst)

(Hegel in Agamben 1991, 45)

It begins at the lead-up chutes when the hogs are brought in from the yards. Two or three drivers chase the hogs up. They prod them a lot because the hogs don’t want to go. When hogs smell blood, they don’t want to go. [...] I’ve seen hogs stunned up to twelve times. Like a big boar would come through, they’d hit him with the stunner, he’d look up at them, go RRRAAA! Hit him again, the son of a bitch wouldn’t go. Its amazing the willpower these animals have.

(Tommy Vladak, hog-sticker, quoted in Eisnitz, 1997)
animals soon reveals the myriad ways in which they can and do express themselves in manners not entirely dissimilar to humans. Their presence in the flesh as undeniably active (rather than simply reactive) agents poses a real threat to the intellectually nurtured view of human exceptionalism. And, where they threaten to impinge on our consciousness, they also begin to trouble our conscience.

Ironically, the potential for this ethical intrusion can sometimes be averted by the deployment of moral arguments, arguments that emphasise humans’ right to remain isolated from the contaminating influences of animals. A good example is the manner in which, during the early nineteenth century, arguments for re-locating Smithfield livestock market claimed that the animals herded there for slaughter were not only a physical but also a moral danger to London’s populace. Their noisy presence and unrestrained expressions of animality, including openly sexual behaviour, were likely “not only to disturb the vulnerable minds of women and children but also to act as a likely stimulus to improper sexual practices on the part of the impressionable people living and working in Smithfield” (Philo 1998, 64). The inevitable conclusion was that “livestock animals should be “kept at a distance” from the “normal spaces” of the refined city for the good of “public morals” “ (64).

Maintaining a clear conscience thus necessitates that those animals we intend to harm are kept out of sight and out of mind, or at least that their presence is managed so as to limit their scope for self-expression.2 Thus, rather than facilitating a genuinely ethical relation to animals, one that recognises and respects them for what they are, modernity engages in a complex form of moral regulation that separates and constrains animal expression in order to minimise the potential danger to its cultural logic. This moral management regulates both the social space in which animal/human interactions take place and the hearts and minds of those involved. It works at different levels, not just consciously through the production of explicit codes of conduct, but implicitly through the unconscious adoption of specific social norms and practically through the employment of various techniques and procedures.

Retaining a “distinction” between man and beast is not then simply a philosophical project but requires what Bourdieu (1998) refers to as “transformations of social space,” transformations that foster, and are fostered by, particular social practices and the adoption of particular (discriminatory) dispositions towards one’s surrounding environment. Bourdieu refers to this system of embodied dispositions to act in certain ways as the habitus. The habitus is a form of practical sense operating without the necessary mediation of conscious thought. It is that unconscious “feel for the game” that enables individuals to respond to particular situations in a manner that meets with the expectations and norms associated with their inhabiting particular positions in social space, e.g., as a member of the working class, a professional, etc. “[I]nculcated in the earliest years of life and constantly reinforced by calls to order from the group” (Bourdieu 1991, 15) the habitus becomes “second nature.” It is a (necessary) coping-mechanism that enables us to respond immediately and “appropriately” to the circumstances of everyday life. It also absolves us from the requirement and responsibility of constantly having to think things through or to experience things for ourselves.

What follows then aims to illustrate the production and transformation of certain modern social spaces which predispose people to turn deaf ears to non-human existence, particularly at that most ethically problematic of moments, that of the animal’s death. Its subject is the ethical (or rather unethical) space associated with the abattoir, a space that exemplifies modern humanity’s attempt to distance itself from its own animality and from its ethical responsibilities to animal Others. Put simply, I argue that the modern abattoir is a factory that facilitates a “social and ethical distancing” from the messy realities of animal slaughter. It achieves this through a series of practices and discourses, including moralistic discourses of “hygiene” and “humane” slaughter, that enable those outside its walls to maintain their carnivorous habits whilst pleading, if challenged, a kind of “diminished responsibility” — as people who can’t (afford to) recognise what they are actually responsible for. This requires the suppression and silencing of the expressions of animals themselves and the removal/regulation of personal links between the animal corpse and human consumer. This is not then an argument against modernity’s predominantly carnivorous habit(us) simply on the grounds of the cruelty and killing involved. Rather, it focuses on the evolution of deliberate managerial and spatial techniques that seek to suppress the animals’ room for self-expression (especially vocally). This in turn re-enforces the boundary between human and non-human and assists us in absolving ourselves of responsibility for the existence (and killing) of animal Others.

Inside the Slaughterhouse

Once the whistle blew at six the place began to resound, the cattle would become restive at being continually disturbed and would bellow violently, or the bulls which were chained in stalls would trumpet at the cows and cause them to mill and plunge around the pens, the overhead cranes would begin to whine, the killers bawl for the benefit men who would be standing smoking in the middle of the pass with their bare arms tucked into the tops of
their aprons, the guns would start to crack and the cleavers begin to thwack into bone and flesh

(Hind 1989, 115)

the ear was assailed by a most terrifying shriek ...
the shriek was followed by another, louder and yet more agonizing — for once started on that journey, the hog never came back. ... And meantime another was swung up, and then another, and another until there was a double line of them, each dangling by a foot and kicking in a frenzy — and squealing. ... Meantime heedless of all these things, the men upon the floor were going about their work. Neither squeals of hogs nor tears of visitors made any difference to them; one by one they hooked up the hogs and one by one with a swift stroke they slit their throats. There was a long line of hogs, with squeals and lifeblood ebbing away together until at last each started again, and vanished with a splash into a huge vat of boiling water

(Sinclair, 1974, 44)

Hind’s and Sinclair’s “fictionalised” accounts illustrate the manner in which those working in abattoir’s can seemingly become immune to the horror that surrounds them. Yet Sinclair’s The Jungle, sparked such public outrage on publication that Theodore Roosevelt ordered a federal investigation into the so-called “meatpacking” industry (Schlosser 2001, 205). The final report confirmed the novels’ accuracy and resulted in the Meat Inspection Act of 1906. But though this made some recommendations on food hygiene it had little effect on either working conditions or on animal welfare. As Sinclair later remarked “I aimed at the public’s heart and by accident hit it in the stomach” (Sinclair in Adams 1990, 51).

Today, of course, slaughterhouses don’t offer sightseeing trips — there are no visitors to shed tears, and animals are supposedly stunned before they are strung up and sliced. The uproar that threatened to deafen Sinclair’s unwary visitors has subsided somewhat; the production line has become slicker. The abattoir itself has been shifted away from the city has subsided somewhat; the production line has become more frenzied — for once started on that journey, the bodies move on down the line and are progressively dismembered. The site of the New York stockyards is now occupied by, that repository of human rights, the United Nations building.

But inside the perimeter fences and factory walls things go on much as before, indeed the production lines go even faster. The Chicago slaughterhouses Sinclair described “processed” about 50 cattle an hour — today’s new plants can dismember 400. Modern “meatpacking” is really just a continuation and exacerbation of the process described by Pick (1993) as the “rationalisation of slaughter.” In fact, since its inception, the “meat” industry has employed the same formal rationality, the same language of calculation, measurement and efficiency and the same bureaucratic, accounting and scientific techniques that Max Weber deemed indicative of modernity in general. The analytic division of tasks and the rational ordering of production are designed to manage and control both working lives and animal deaths, to regulate the bodies that labour and are belaboured. The irrational elements of sweat and blood are subjugated within a scheme of things that, from its own instrumentalist perspective, is entirely reasonable. It is not coincidental that the first modern slaughterhouse, La Villette in Paris, was designed by the same Baron Haussmann whose new boulevards were constructed to “divide and rule” the disorderly masses of post-Napoleonic Paris (Pick 1993). The rationalistic social engineering that produced long straight thoroughfares to “furnish the shortest route between the barracks and the workers’ district” (Benjamin 1999, 12) was repeated in the “perfectly engineered” regimentation of his abattoir.

However what Weber termed the “iron cage” of rationalisation is far from metaphorical in the case of the factory-farmed chicken, pig or cow. Such animals find themselves incarcerated, measured, categorised, and under constant surveillance behind bars and barbed wire. Their very existence, growth and reproduction are subject to constant and minute control through the manipulation of their almost entirely artificial environments. Their light is regulated, their feed predetermined and pre-processed, and their bodies injected with antibiotics, hormones and other chemical cocktails designed to enhance their “productivity.” Finally, of course they are shipped in bulk over vast distances to a modern “disassembly” line that even Henry Ford would be proud of.3

In meatpacking, as elsewhere, “time is money,” and the modern abattoir strives to epitomise the rationalistic principles of Scientific Management associated with Taylorism (Taylor 1964) including an over-arching emphasis on efficiency, throughput, and the extensive division of (deskilled) labour. Each job in the abattoir is separated into a series of simple actions to be repeated over and over again as the bodies move on down the line and are progressively dismembered. The nature and brutality of these individual tasks is reflected in the jobs titles, “Knocker, Sticker, Shackler, Rumper, First Legger, Knuckle Dropper, Navel Boner, Splitter Top/Bottom, Feed Kill Chain” and so on (Schlosser 2001, 172). The recurrent nature of the tasks means that many workers suffer from repetitive strain injuries — including “trigger finger” in the case of the knockers who welcome the animals into the building by firing a steel bolt into their
heads. “A hog sticker may cut the throats of as many as 1,100 hogs an hour — or nearly one hog every three seconds” (Eisnitz 1997).

The rationalisation of the procedures, the repetitive nature of the tasks involved, the speed of the conveyor belt, and the partitioning of tasks all act as a form of ethical insulation, they encourage a feeling of detachment from the task in hand. Everything runs to the rhythm of the machine. As Weber argued, the inevitable corollary of rationalisation is the disenchantment (Entzauberung) of the world and its contents, the dispensing of all that is mysterious and sacred, the treatment of everything as a “means” rather than an end in itself. The animal that enters the abattoir gates is not seen as a fellow being, rather it is already no more than a resource, the raw material for raw meat. Those awaiting slaughter in the stockyards are all to intents and purposes what Heidegger refers to as a “standing reserve” (Bestand) (Heidegger 1993, 322). It is one of modernity’s “little ironies” that the first thing that happens to this particular “standing reserve” on entering the abattoir is that its feet are swept from under it as it is stunned, shackled, and suspended by its rear legs from a rail before its hoofs are chopped off.

The movements of the workers as they sever arteries, split backbones, and stack slabs of flesh seem almost as mechanistic as the factory itself. Through daily immersion in the abattoir’s atmosphere and constant repetition they have acquired a practical mastery of their respective tasks transmitted in their “practical state without reaching the level of discourse” (Bourdieu 1991, 87). (Discourse is in any case almost impossible in such conditions and the pace at which the machinery moves makes sure workers have little time for conscious reflection.) Their actions are governed by what Bourdieu refers to as bodily hexis. This is the habitus “embodied, turned into a permanent disposition, a durable manner of standing, speaking, and thereby feeling and thinking” (95). This bodily hexis “speaks directly to the motor function, in the form of a pattern of postures that is both individual and systematic, because linked to a whole system of techniques involving the body and tools, and charged with a host of social meanings and values” (Bourdieu 1991, 87). Thus, although not entirely thoughtless or feelingless, the habitus workers acquire reproduces a particular modus operandi which reciprocally “engenders all the thoughts, all the perceptions, and all the actions consistent with those conditions and no others” (Bourdieu 1991, 95).

Thus, so long as everything continues too run smoothly the ethical implications of these activities remain suppressed. When things work as they are supposed to then the animal conveniently remains (in Heidegger’s terminology) ready-to-hand (Zuhandenheit) as mere equipment in the work-world. As the historian of technology Siegfried Giedion remarked, “What is truly startling in the mass transition from life to death is the complete neutrality of the act ... it happens so quickly, and is so smooth a part of the production process, that emotion is barely stirred. [...] One does not experience, one does not feel; one merely observes” (Giedion in Rifkin 1992, 120). Even where the animal’s presence is announced to consciousness the division of labour conveniently ensures the sharing and dispersal of ethical responsibility. The stunning of the unsuspecting creature is envisaged as a “humane” act to ease suffering; the animal whose throat is slit is already unconscious and by the time its head is being skinned it’s too late to care anyway.

In fact, due to the activities of the animals themselves, the process is often far from being as smooth as Giedion suggests, but this usually makes little emotional or ethical difference. The speed and danger of the work, the need to avoid kicking hoofs, sharp knives or a fall into bone-crunching machinery from floors slippery with blood leaves workers little time for compassion. Human injuries in U.S. slaughterhouses run at three times the national average for factory work and there is every reason to think even these figures are massively under-reported (Schlosser 2001, 172). The unwillingness of governments and society at large to address these long-term safety problems may entail more than mere pandering to the economic power of the meat lobby. Because modernist moral hygiene requires that (unlike the medieval butcher’s shop) the abattoir is kept confined, away from public view, then qualms inevitably arise whenever the subject of its workings or workers are raised publicly. Such workers seem morally tainted by their noisome associations, as (apparently willing) participants in the ethically problematic process of changing farmed animals into Farm Foods. The general public remains in a state of denial about its own role (see below) and its ability to hear, in the U.S. at least, is further diminished by the fact that many of those employed are themselves regarded by the dominant culture as alien. They are immigrants whose first language is often not English (Schlosser 2001, 160).

Sometimes, however, things take another turn because, despite modernity’s rationalistic rhetoric animals are not a resource — they are living, breathing creatures who continue to express themselves and to intrude on our consciousness. Sometimes the very scale and speed of the slaughterhouse machinery means that those working or watching are forced to concede this even as they continue to work. Ramon Moreno, a “second-legger” cuts the hocks off the (supposedly dead) cattle carcasses as they pass him. “They blink. They make noises,” he said softly. “The head moves, the eyes are wide and looking around.” Still Moreno would cut. On bad days he says, dozens of animals reached his station clearly alive and conscious. Some would survive as far as the tail cut-

ter, the belly ripper, the hide puller. “They die,” said Moreno, “piece by piece”’ (Warrick 2001a, AO1). Amongst numerous other instances Warrick also reports videotape of an Iowa Pork plant that “shows hogs squealing and kicking as they are being lowered into [...boiling] water” to soften their hides for skinning.

Gail Eisnitz recounts a workers experience in the Kaplan Industries slaughterhouse in Bartow, Florida. By North American standards this is a medium size operation killing about 600 cattle a day. But as the employee states “There’s too many cows in there, and the man killing them, he doesn’t have time to do it. They hang them up anyway, kicking real hard. ... Sixty to seventy a day were kicking after they were hung up ... sometimes they start yelling, Moo! They’re hanging down and still yelling moo. They pick up their heads, and their eyes look around. Sometimes they fall down and they try to stand up again. When the cow’s hanging down from the rail and is still yelling, uh — ‘Mooing?’ I asked. ‘Yeah. Mooing. Right. I think they are still alive when they do that. Everybody could tell these cows were alive’” (Eisnitz 1997, 42).

This description is revealing, not just about the hidden practices of the abattoir, but about how difficult it is, even for those inured by their daily experiences, to avoid hearing the call of the animals involved. In speaking of his working conditions this slaughterman constantly connects the animality of the cattle’s “Mooing” with a much more human “yell.” Eventually he completely elides the difference between the two and finds himself simply referring to the cattle’s yells. This brings him up short until the interviewer intervenes to re-make the connection, thus leading him to justify his elision - first by stating his subjective opinion “I think they are still alive when they do that” and then arguing its objectivity — “[e]verybody could tell these cows were alive.” In other words contact with the dying animals confirms Hegel’s claim “everybody could tell these cows were alive.” In other words words contact with the dying animals confirms Hegel’s claim about the voice — there can be no doubt that the animal expresses its distress, nor that the animal has an unhappy awareness of its own hopeless situation — a self-identity — a removed self.

Meanwhile the meat industry continues to grow. In the United States alone during 1999 7,642,000 cattle and calves, 101,694,000 pigs, 8,287,200,000 chickens and 265,000,000 turkeys were slaughtered (Anon. 2001).

**Outside the Slaughterhouse Doors**

*Through detachment, concealment, misrepresentation, and shifting the blame, the structure of the absent referent prevails*

(A Adams 1990, 67)

Sometimes then the animals voice makes itself heard, it forces itself upon human consciousness despite the distance that modernity’s “carnivorous culture” (Eder 1996) tries to put between them and us. As Eder argues, the cultural logic of carnivory both needs and supports the systematic creation of social distance. Meat eating represents a form of shared appropriation of nature that marks a stage “of the differentiation of society away from nature” (Eder 1996, 133), a form “differentiated in modernity into a high gastronomic culture and an industrial food culture.” In other words, our anthropic prejudices about our elevated position on the “scale of nature” have been both facilitated and reinforced by modernity’s “bloody” projects. The abattoir serves as a reminder of the symbolic, physical, and emotional distance we strive to put between animals and ourselves and the methods we employ to do so. But the practices of the abattoir and the habitus it inculcates cannot be regarded as an aberration nor treated in isolation. The transformation of the social space of the slaughterhouse is indicative of and requires the production of social distance in society in general. This too operates at a number of levels, geographically, habitually and at the level of discourse, including philosophically.

We have already seen how the abattoir and its practices are increasingly separated geographically and architecturally. As Serpell argues, “[f]actory farmed pigs and poultry are kept in anonymous looking, windowless buildings that more closely resemble warehouses than animal enclosures. Once inside, the animals are out of sight and, effectively, out of mind as far as the majority of people are concerned. Their transportation to the slaughterhouses also tends to be performed surreptitiously, and the abattoirs themselves tend to be hidden from public view” (Serpell 1986, 196). The shopper in the supermarket doesn’t need to see (indeed can’t see) the stages that transformed the steer into sirloin or the pig into pork sausages. The population at large is physically shielded and spatially separated from the places where the living sources of such “succulent” morsels are slaughtered.

This may actually help to explain one of the most puzzling features of the recent outbreak of foot and mouth disease in Britain. It was tempting to see the many farmers who openly wept at the slaughter of their stock as simply hypocritical, since these animals would inevitably have been sent to identical deaths within weeks or months. But today it is even possible for farmers to distance themselves from the slaughter process since their contact usually ends with loading animals onto an articulated lorry or depositing them in cattle-market pens. The abattoir’s uncalled for arrival on their very doorstep may quite literally have brought home to them some grim realities. This also illustrates how, in normal circumstances, the shifting of responsibility facilitated by the separation of tasks extends far beyond the division of labour
in the abattoir itself. Bauman has argued just this point about the social production of distance in another context, that of the holocaust: “[T]ask splitting and the resulting separation of moral mini-communities from the ultimate effects of the operation achieves the distance between perpetrators and the victims of cruelty which reduces, or eliminates the [ethical] counter-pressure” (Bauman 1989, 198).

But physical distance and the division of labour are only part of the story. We need to understand how the vast majority of people become habituated into accepting without ethical qualms, and usually without any kind of thought at all, the presence of what is still often recognisably a piece of dead animal on their plate. Of course it isn’t always instantly recognisable — there is little resemblance between the uniform cube of a chicken nugget and the bird itself. A single hamburger can contain the mechanically recovered remains of more than a hundred different cows. Such artificial alterations no doubt help create a kind of social distancing that disconnects the dead meat from living flesh and blood. Language too plays an important part in making the animal an “absent referent” (Adams 1990). In the abattoir the pig becomes a “pork production unit” while at mealtimes the murdered sheep becomes mutton, the calf veal and the cows cooked muscles become beef or steak. But this is only part of the story. However its fleshy origins are disguised, whether through reprocessing the meat or linguistic displacement, somewhere, even if only at the back of their minds, the carnivore knows what (even if not who) they are eating. Indeed carnivores often take a kind of macho delight in ordering an undisguisable “rack of ribs” and there is a culinary cachet in ordering calves liver.

The maintenance of modernity’s carnivorous culture is, like the continuation of the abattoir’s activities, dependent on more than linguistic circumlocutions. It requires the denial (conscious and unconscious) of animals’ ability to express themselves. Only through a constant ideological process of misrecognition (méconnaissance) can we continue to deny animals our ethical attention (Althusser 1993, 46). To this end we are habituated, as Bourdieu might suggest, from an early age to make an absolute distinction between the “noises” animals make and human speech. The child learns that farm animals may moo, quack and oink, but also that this is qualitatively different from being able to speak. The picturebook representations of farm animals serve, like Adam’s naming of the animals in Genesis, only to put them in an anthropocentric order and in their “proper” places, the field, the farmyard, the sty. The child is fed a line along with its hamburgers because the farms pictured bear little resemblance to the conditions prevalent in contemporary industrial agriculture and the carnivorous rationale for farming the animals is entirely absent. (These books happily speak of milk or eggs but steer clear of the animals’ imminent deaths.)

Children’s literature only raises the issue of the connection between farm animals and their fate through anthropomorphizing the animals concerned and giving them the power of human speech. Talking animals are, of course, numerous in children’s tales, from Pooh to the Wind in the Willows. But, wherever animals speak in modern children’s tales, they suddenly drop off the menu. Thus, in Charlotte’s Web, Charlotte, a spider, weaves text messages into her web to save Wilbur the pig from slaughter; “some pig” she writes. C. S. Lewis’ famous Narnia chronicles are even more blatant, distinguishing those animals that can speak and are thereby elevated to the social realm from those that remain dumb and are therefore fair game for supper. The recent movie Babe (not, you will notice, piglet) is another case in point. The piggy hero, who as far as the cinema audience is concerned can talk, ironically saves himself and proves his (instrumental) worth by rounding up his fellow animals as though he was a sheep dog. It is clear which side of the social/natural fence he is meant to sit on! Yet, as the subsequent fall of pork consumption showed, some children did make uncomfortable connections (especially when it became known that the various pigs that played “Babe” all ended in the slaughterhouse.) Such breakdowns in the anthropic imagination are however rare and their effects usually transitory given the overwhelming weight of messages that make meat eating normal or even necessary. It is much more common to see cartoon animals happily espousing their own edibility on television or even taking a more active role, as in the case of those smiling plastic pigs that stand on two legs wearing a stripped apron and wielding a cleaver outside so many butcher’s doors. These “animals” speak with the voice of our carnivorous culture.

But real animals continue to express themselves in ways that evade and contradict a logic that deems them dumb. Despite the spatial relocation of the slaughterhouse and the distancing induced by continual habituation, some people still manage to hear animals’ cries and strive to expose and oppose the prevailing “logic.” Here, when all else fails and ethical questions begin to be raised, carnivorous culture turns at last to philosophical and moral discourses. These discourses provide theoretical justifications for habits that, before they were brought into question, seemed second nature because of their cultural dominance. As Bourdieu argues, once “the arbitrary principles of the prevailing classification can appear as such [i.e., as arbitrary and not “natural”] it therefore becomes necessary to undertake the work of conscious systematization and express rationalization which marks the transition from [implicit] doxa to [explicit] orthodoxy” (Bourdieu 1991, 169). Vegetarian heterodoxies thus force the previously unformulated practical/symbolic struc-
Moral regulation, Human(e) Slaughter and Social Distancing

The transformation of social space in modern society keeps the potential for culturally contaminating contacts with an unruly animality at arms’ length. As Bauman argues, modernity’s technology, its bureaucracy and the division of labour all serve to facilitate the “social production of distance” in a society where “the effects of human action reach far beyond the ‘vanishing point’ of moral visibility” (Bauman 1991, 193). Inside and outside the abattoir the prevailing social order ensures that there is little proximal contact between our everyday activities and their inevitable, but practically and habitually mediated, effects. There are however strands of resistance. Eder has argued that “vegetarian culture” poses a symbolic and practical threat to the usually unspoken predominance of a carnivorous cultural logic. Vegetarianism’s anti-hegemonic and anti-industrial stance forces contemporary culture to formulate and defend its principles, to explicitly justify the treatment of animal Others.

To this end modernity deploys a series of discourses and associated practices that try to defuse the ethical issues raised by vegetarianism. Just as Descartes’ did, some discourses deny that the animals’ cries in the abattoir are indicative of self-expression at all and are therefore ethically irrelevant. But this position is tenable only for those already firmly convinced of the existence of an unbridgeable gap between animals and us. The fact that many meat eaters allow other kinds of animals, such as their pets, into their lives and their hearts makes such a division extremely problematic. Such distinctions are obviously a social rather than an ontological matter.

Society must therefore be seen to be doing something to take the ethical issues raised by animals undeniable presence into account. This is where (as in the case of Smithfield market) discourses of moral regulation come into play. These discourses seek to re-impose a moral ordering on those social spaces that have been disturbed. They aim to manage and suppress those elements that threaten to disrupt the fabric of normality, to separate out and eliminate challenges to the doxa. These expressions of a new explicit moral orthodoxy must accommodate heterodoxy whilst maintaining the basic structure of the prevailing cultural logic. Inevitably then, where the doxa incorporates a form of ideological misrecognition, orthodox moral discourses also inevitably misrecognise the basic problem. They focus on ameliorating the conditions that give rise to dissent rather than altering the current “order of things.”

In the case of the abattoir this can be seen most clearly in discourses of “humane” slaughter. According to orthodox accounts the “progress” associated with increasing industrial efficiency should have gone hand in glove with moral progress. The shining new machinery was supposed to be matched by a new enlightened attitude to animal welfare. Thus “[i]n 1883 a London Abattoir Society had been founded to suppress private slaughterhouses, and to centralize the slaughter of animals in humane conditions” (Kean 1998, 130). This new moral hygiene was supposed to sanctify butchery’s gory activities through a regime of “constant inspection, regulation, sanitisation and moralisation” (Pick 1993, 181 fn.39).

But, as we have seen, economic efficiency is anathema to ethics and there is a tendency for inspection regimes to merely act as moral sticking plasters, as yet another mediating influence that enables consumers to “forget” their own responsibilities. Far from raising fundamental issues of animal life and death moral regulations focus on facilitating a clean kill and making killing clean. And even here, within their own limited and limiting terms of reference, they have proven largely inadequate to the task (Eisnitz 1997; Schlosser 2001; Warrick 2001a). As the clamour about animal slaughter has continued to grow, the carnivorous culture, and those with vested interests in its continuation, have responded by trying to diffuse the issue through the technical/moral regulation of abattoir conditions. Companies like McDonald’s have tried to establish their own voices in the meat plants as moral arbiters. “Never mind the bad old days, when slaughterhouses were dark places filled with blood and terror. As far as the world’s No. 1 hamburger vendor is concerned, Happy Meals start with happy cows” (Warrick 2001b, A11).

The difference between the “pre-McDonald’s era and a post-McDonald’s era [...] is measured in light-years” claims animal scientist Temple Grandin (Grandin in Warrick 2001b, A11). But the reality of the slaughterhouse remains light-years away from glib images of happy cows. The meat industry’s new found zeal for moral self-regulation may do something to reduce excessive cruelty but it does little or nothing to change the fundamental relationship between human and animal.9 The animal remains a resource not a creature in its own right and the key argument for humane slaughter is the “tangible economic benefits when animals are treated well [sic]. Meat from abused or frightened animals is often discoloured or soft, and it spoils more quickly due to hormonal secretions in the final moments of life, industry experts say ... “Humane handling results in better finished products” ” (Warrick 2001b, A11).

Many of those involved in ameliorating slaughterhouse conditions may genuinely feel that they are helping animal welfare in taking the fear and struggle out of the abattoir
event. But while this might be so (up to a point) from another perspective these changes represent yet another step in modernity’s movement to efficiently regulate animal spaces, further reducing their room for self-expression, and further distancing us from ethical responsibilities for their existences and ends. If anything this mechanisation of mass slaughter simply masks the underlying immorality of constraining the existence and self-expression of Others, for instrumental purposes.

The purpose of moral regulation is to maintain (the dominant) social order in the face of potential cultural chaos. It is a form of instrumental rationality that seeks to ensure the slaughterhouse’s smooth running by concentrating on the means not the ends themselves. It (mis)identifies the ethical problem of the abattoir as one of controlling animal and human behaviour and seeks to further suppress the animals’ free-expression rather than regarding such freedom as the fundamental ground of any genuine ethical relation. Where ethics would hear the animals’ voice as an expression of its (self)identity and of its difference (from us) moral regulation treats it only as a disquieting cacophony that needs to be silenced. It turns what should be a call to conscience into a technical measurement of its own managerial success. Thus cattle vocalization (sic) becomes a “simple scoring system” (Grandin 2001a, 192) and an “objective standard” by which to measure the effectiveness of an abattoir’s “animal welfare” program. And, since animals’ voices can be stilled by simple mechanisms, like the use of indirect lighting, non-slip floors, and blocking “the animals vision of an escape route until it is fully held in a restraint device” (Grandin 2001b, 30) those plants scoring acceptable or better levels have climbed to 90% in 1999 (Warrick 2001b, A11). The moral (rather than ethical) issue remains one of restraining animality. As Grandin (2001b, 30) explains, a “solid hold down cover on a conveyor restrainer will usually have a calming [sic] effect and most cattle will ride quietly” — she might have added “to their deaths.”

The broader question posed by welfare arguments is then whether allowing (facilitating) the animal to “slip” away quietly is indicative of a genuine moral relationship or best regarded as an extenuation of modernity’s persistent failure to listen (attend) to animal Others. To suggest the latter is not to argue that it is preferable that animals suffer and express distress and fear before their deaths but to state that a genuine moral relationship cannot be achieved through a project of managing the self-expression of Others or distancing ourselves from the realities of their existence and ends. In recognising the animal voice as an expression of a fearful self, as those actively involved in slaughter have been forced to do, we have options. Either we can quiet our own conscience by trying to still such expressions while leaving the basic instrumental (unethical) framework of our “relationship” intact or seriously consider the ethical implications of changing that relationship, of allowing greater freedom of self-expression to the significant Other throughout its life. This latter strategy is obviously more difficult since it contradicts the cultural logic of our society and unearths moral quandaries that many would rather not face.

**Afterward: The Voice and the Call of Ethics**

Morts are they who can experience death as death. Animals cannot do so. But animals cannot speak either. The essential relation between death and language flashes up before us, but remains still unthought. It can however, beckon us toward the way in which the nature of language draws us into its concern, and so relates us to itself, in case death belongs together with what reaches out for us, touches us

(Heidegger in Agamben 1991, xi)

This paper has tried to think what for Heidegger is not just the unthought, but the unthinkable, namely the relation between the death (mortality) of animals and the refusal to hear or heed the animal voice in the modern world. Like Heidegger, our carnivorous culture privileges the human voice as the paradigm of self-expression, the harbinger of self-consciousness and the “inner-voice” of conscience. Yet the corollary of this privilege is modernity’s conscious and unconscious use of certain voices and certain forms of language to deny self-expression to animal Others, thereby ensuring that their sufferings fail to impinge on our thoughts or our values. This paper has tried to speak of what is unspeakable in more than one sense, to give voice to those denied expression — those whose tongue is quite literally ripped from their mouth, pressed and “cured” of its impertinent articulations and then presented triumphantly on a plate.

Hegel at least recognized that animals are capable of self-expression even if not full self-consciousness. The animal announced its individual existence through the ways in which it altered its external surroundings. For Hegel even the processes of digestion and excretion were modes of expression in which the animal opposed and assimilated “that which is external to it” (Hegel 1970, 152).10 Hegel also spoke of the nisus formativus, another form of self-expression but one that reproduces the form of the animal on the external world — as in “the instinctive building of nests, burrows, lairs” (Hegel 1970, 167).11 The voice then was only one, though the finest, aspect of this self-expression, that which brought animals closest to us. And in its death the animal comes closer still because here it finally “expresses the annulment of its...
individuality ... The senses are space which is saturated and filled, but in the voice, sense returns to its inner being, and constitutes a negative self or desire, which is an awareness of its own insubstantial nature as mere space” (Hegel 1970, 140). This negative self, this existential awareness of its insubstantial nature is the pre-requisite for that self-knowledge, for the consciousness and conscience that supposedly make us humans so superior.

But the modern meat industry seeks to deny animals any form of self-expression outside of its own instrumental concerns. Animals are force-fed on the re-processed and indigestible remains of their predecessors and forced to stand in feed-lots covered with their own excrement. The metal cages and concrete floors that compose the sum total of their surroundings are impervious to their needs or form. Here the animal can leave no trace of their existence. And finally, even at the moment of their death, this carnivorous culture stops its ears, covers its eyes and relies on moralistic mantras to shield itself from what it does. It has no sense of the animal’s existence, no ethics at all.

To grant the reality of the animal voice in no way denies the myriad differences between animal and human lives but instead calls for an attentive listening to the manner in which these differences are denied expression in the factory farm and the abattoir. The kind of closeness that ethics calls for recognises yet sustains such differences, it allows the Other free-expression. Even where this Other “inhabit[s] a world that is basically other than mine” they should not be treated as “a mere object to be subsumed under one of my categories” (Levinas 1991, 13). Of course, no one can be compelled to hear the animals’ call yet nonetheless they do make an ethical call upon us. If we hear this call then, just like human words, this voice too “draws us into its concern, and so relates us to itself.” This is why the animals death should “reach out for us” and should “touch us.”

The space of the abattoir is indicative of the need to reconceptualize our social relations with the non-human world, to regain an ethical sensibility and a sense of responsibility for what happens around us that has been dissipated in the rush for economic gain and technical progress. The abattoir exemplifies the unfortunate frailty of human ethics. Its machinery dissects and grinds more than animal bones it also annihilates the space where care and compassion might otherwise survive. Its soulless architecture and its mindless repetition reveal the ethical void at the heart of modern society and the thoughtless practices that allow this carnivorous culture to continue.

Endnotes
1. 158 Marketgait, Dundee, DD1 1NJ, Scotland; email: m.smith@aber.ac.uk.
2. The case of those animals we allow to become part of society, namely pets, is of course entirely different. As Serpell (1986, 185) remarks little moral conflict arises here since “the pet lives in the owner’s home, participates in family life as an equal or near equal, and is given a personal name to which it learns to respond. It is cherished during its lifetime and mourned when it dies.”
3. Indeed, as Rifkin (1992, 119) remarks, the packinghouses predated Ford, they were the “first American industry to create the assembly line.” Ford actually claimed to have got the idea for his automobile assembly line “from the overhead trolley that the Chicago packers used in dressing beef” (Ford in Rifkin 1992, 120).
4. “Everywhere everything is ordered to stand by, to be immediately on hand, indeed just to stand there so it may be on call for a further ordering. Whatever is ordered about in this way has its own standing ... We call it the standing-reserve [Bestand] ... The word expresses something more, and something more essential, than mere ‘stock’ ... It designates nothing less than the way in which everything presences that is wrought upon by the revealing that challenges” that is, technology (Heidegger 1993, 322).
5. Which is not to deny the very real economic and political power of the meat lobby. Just four large companies, ConAgra, IBP, Exell, and National Beef slaughter eighty-four percent of cattle in the U.S.A. As Schlosser (2001) remarks, the meatpacking industry has, in general, been a major financial backer of the Republican Party. Other rather more unsavory business contacts have also been evidenced on occasion. In the 1970’s IBP were cited as a “prime example of how a mainstream corporation could be infiltrated by the mob” (Schlosser 2001, 155).
6. I mean here ideology in the Althusserian sense. “It is indeed a peculiarity of ideology that it imposes (without appearing to do so, since these are “obviousnesses”) obviousnesses as obviousnesses, which we cannot fail to recognize and before which we have the inevitable and natural reaction of crying out (aloud or in the “still, small voice of conscience”): ‘That’s obvious! That’s right! That’s true!’” (Althusser 1993, 46).
7. In Prince Caspian the children worry that a bear the dwarf accompanying them has just killed might have been a talking bear “‘Poor old Bruin’ said Susan. ‘You don’t think he was?’ ‘Not he,’ said the Dwarf. ‘I saw the face and I heard the snarl. He only wanted little girl for breakfast. And talking of breakfast [...] meats precious scarce in camp. And there’s good eating on a bear’” (Lewis n.d., 108-109). As the bear is skinned Lucy worries that, one day, some people might go “wild inside” and “you’d never know which was which.” “We’ve got enough to bother about here and now in Narnia” said the practical Susan, “without imagining things like that.”
8. The film Chicken Run might seem to be an honorable exception to this rule. The machinery of the chicken mincer is explicitly shown and the battery farm looks extraordinarily like a concentration camp.
9. Even this claim is disputable. Gail Eisnitz argues that “The industry’s self-inspections are meaningless. ... They’re designed to lull Americans into a false sense of security about what goes on inside slaughterhouses” (Eisnitz in Warrick 2001b, A11).

10. “After the mediation of digestion ... organic being returns into itself out of this opposition and concludes this matter by laying hold of itself. ... It is through this process of assimilation that the animal acquires its reality and individuality” (Hegel 1970, 163).

11. “Animals therefore have relationships with the ground on which they lie, and want to make it more comfortable. In satisfying the need to lie down therefore, they do not consume something, as they do in the case of nutriment, but preserve it and merely form it. Nutriment is also formed of course, but it completely disappears. This theoretical aspect of the nisus formativus is a check on appetite” (Hegel 1970, 167).

12. Though ironically, Levinas too is ethically impervious to animals’ existence, the only faces he speaks of are human faces.

References


Animal Rights and the Antarctic Treaty System

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Abstract

This paper outlines an investigation into the rights of individual animals belonging to species that live in Antarctica and the Southern Ocean, home to many species of mammals, birds, finfish, crustaceans and cephalopods. I address the identification of prominent animal rights issues, an assessment of the relevance of those issues to Antarctic management and an examination of Antarctic legal provisions and management guidelines.

Keywords: Antarctica, animal rights, ethics, policy

Environmental Management

It is important for environmental managers to be aware of evolving public attitudes about environmental issues and for policy-makers to accommodate changing community expectations. This is particularly true for management regimes that govern the world’s largest natural reserves such as Antarctica. These places hold value for many people that can no longer be accommodated in other parts of the world due to changes to the natural environment caused by human activities. Animal rights issues are much debated in contemporary Western societies. As a concept that is largely based on personal interpretation and opinion, the very existence of animal rights is disputed by some, whilst seen as axiomatic by others (Rodd 1990).

Considered by many as being the world’s last wilderness unaltered by humans, Antarctica provides a habitat for many different faunal species, many of which are found nowhere else on Earth. The Southern Ocean that surrounds the continent is home to a vast variety of marine species such as whales, seals, penguins, finfish, and krill. Antarctic and sub-Antarctic fauna include many species of whales, seals, penguins, albatrosses, petrels, skuas, shearwaters, prions, terns, gulls, sheathbills, cormorants and fulmars, and a large variety of finfish, mollusks, and crustaceans. Approximately 45 species of bird breed south of the Antarctic Convergence, including all of the species of Antarctic and sub-Antarctic penguins. Few bird species breed in Antarctica itself, including the Emperor, Adelie and Gentoo penguins, Snow petrels, Antarctic petrels, and South Polar skuas (Rubin 2000).

Today, Antarctic and sub-Antarctic native fauna is protected under a variety of instruments in the Antarctic Treaty System (ATS). Currently, there are 43 Antarctic Treaty Parties (states) that have all obligated themselves to abide by the provisions within the ATS. The Antarctic Treaty came into force in 1961 and applies to all areas south of 60° South Latitude. The most recent addition to the Treaty is the Protocol on Environmental Protection to the Antarctic Treaty (1991) known as the Madrid Protocol, which designates Antarctica as a natural reserve devoted to peace and science. It establishes environmental principles, including the protection of wildlife from the conduct of all human activity (Jackson cited in Rubin 2000, 61). Protection for faunal species is primarily dealt with by Annex II of the Protocol. The killing of all species of mammals, birds and plants is prohibited, with the exception of special circumstances for which a permit is required. In Australia, such permits are issued only by the Australian Antarctic Division under strict guidelines (Heap 1990). Under Annex II, permits may be granted for the taking of specimens for zoological and botanical gardens, scientific research, and educational purposes. There are guidelines for the numbers of animals that can be taken, and the circumstances under which they can be taken.

The conservation of marine species such as fish and invertebrates today is primarily dealt with by the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) (1981), an ATS instrument. Adopting the ecosystem approach, CCAMLR aims to preserve populations of different marine species in order to maintain the integrity of the marine environment (CCAMLR 2001).

Wilderness Values

Broom (cited in Paterson and Palmer 1989) and Pyers and Gott (1994) confirm that contemporary Western attitudes toward the treatment of animals vary widely, but add that the majority of Australians accept the need to protect native species. This includes species in the wild that they may never have seen, such as wildlife in Antarctica. Antarctica’s remoteness is understood to add to the romantic picture that many people hold about its wildlife, adding to the desire to protect it. Dawkins (1980) has commented that the media have been highly instrumental in evoking public sympathy for seals, due
to footage of fluffy seal pups with big round eyes lying helplessly on the ice. Penguins have also become high-profile animals, perhaps not so much for their capacity to evoke sentimentality as for their unique and peculiar appearance and behavior. Antarctic birds of flight such as albatrosses and petrels also capture the imagination of the public, often being depicted as symbols of freedom and beauty. Many people also consider Southern Ocean whales as being charismatic. Their exposure through the media has contributed much to the general public’s increasing admiration for Antarctic and sub-Antarctic wildlife. Today they have become icons for the rights of wild animals and have been the center of much attention over animal rights issues (Skare 1994; Carwardine 1998; Gill and Burke 1999).

Public Support

Animal welfare organizations in the Western world have done much to promote the rights of animals in the past few decades. The Antarctica Project is one conservation organization that works exclusively for the Antarctic environment. It leads the Antarctic and Southern Ocean Coalition (ASOC) that is comprised of 240 member groups in 50 countries, running international campaigns to protect Antarctica’s wilderness (The Antarctica Project 2001). ASOC works to ensure that the environment comes first when management decisions are made about Antarctica. The Antarctica Project works towards protecting the Antarctic environment because its members believe that as the world’s last wilderness unaltered by humans, it is important for the citizens of the world to protect it. They also believe that Antarctica is important because there is much scientific knowledge to be gained from it, because it is highly valued as a tourist destination, and because the unique Antarctic environment represents wilderness values that cannot be enjoyed by people in other parts of the world (The Antarctica Project 2001). There are many Australian organizations in ASOC that work for the welfare of Antarctic animals. Some of these include Greenpeace, World Wide Fund for Nature (WWF), the Animal Liberation Society, Friends of the Earth (FOE), Australians for Animals, the Australian Conservation Foundation, the Wilderness Society, and the World League for the Protection of Animals (ASOC 2001). These organizations run independent campaigns in an attempt to influence policy-makers when making decisions about policy and legislation concerning the welfare of Antarctic animals and their environment.

Are Animal Rights Relevant to Antarctic Management?

In democratic countries it will always be the extent of public support for a particular issue that determines its relevance to management strategies. Antarctic managers and operators, like managers and operators of public services, are obligated to make decisions about Antarctica based on the desires of the general population. In order to gain some insight into public support for animal rights issues in Antarctica, a statewide telephone survey was conducted within the Australian state of Tasmania. The survey was planned according to guidelines established by de Vaus (1990) and Neuman (1997). The survey was conducted between 27 August 2001 and 6 September 2001. A sample population of 123 participants was selected at random from Tasmania’s telephone books. According to de Vaus (1990), at a 95% confidence level a sample size of 123 reduces the sampling error to 9%. Participants were presented with four statements and asked to respond according to a Likert scale from 1 to 5 (see Table 1).

As approximately 64.2% of the sample population (between 55.2% and 73.2% calculated against the sample error (c.a.s.e.)) strongly agree with Statement 1, we can conclude with 95% confidence that most people in Tasmania do not want to see Antarctic animals disturbed by tourists. As 65.8% of participants strongly agreed with Statement 2, it

Table 1. Results from “Entitlements of Antarctic Wildlife: A Statewide Survey in Tasmania, Australia 2001” (% of sample population) n = 123.

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<td>1. Tourism to Antarctica is best kept to a minimum in order to control disturbances</td>
<td>4.8 %</td>
<td>4 %</td>
<td>11.3 %</td>
<td>15.4 %</td>
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<td>to Antarctic animals.</td>
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<td>2. It is important that the public is informed about scientific research on animals</td>
<td>2.4 %</td>
<td>.8 %</td>
<td>11.3 %</td>
<td>19.5 %</td>
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<td>in Antarctica.</td>
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<td>3. Animals living in natural reserves such as Antarctica are entitled to live out</td>
<td>6.5 %</td>
<td>2.4 %</td>
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<td>their natural lives without being disturbed by human beings.</td>
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<td>4. It is justified to catch/ kill fish and squid in the Southern Ocean to</td>
<td>23.5 %</td>
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<td>provide people with food.</td>
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can be estimated that most people in Tasmania want to be informed about research on Antarctic animals. Statement 3, supporting the entitlement of Antarctic animals to not be disturbed by human beings, has been supported by 82% of the sample population. It can be estimated from this percentage that in the opinion of most Tasmanians, people should not disturb Antarctic wildlife. We can also assume that there is a strong trend in Tasmania’s population towards the entitlement of Antarctic wildlife to live out their natural lives without hindrance from human beings. Statement 4 claims that it is justified to kill fish in the Southern Ocean to feed people; 36.5% of participants were neutral in their opinion about this statement, 23.5% strongly disagreed, 17% generally agreed and only 13.8% strongly agreed with the statement. These results indicate that the majority of Tasmanians do not hold very strong opinions about the killing of fish in the Southern Ocean for the purpose of providing people with food.

In order to further assess the relevance of animal rights to Antarctic management, a case study of public opposition to scientific research involving animals was carried out. The issue selected for the study was the recent hot iron branding of seals on Macquarie Island. Results from this study also confirm that opposition to scientific research involving animals exists in Western societies, and that public opinion can influence the direction of scientific research. Although Macquarie Island is not situated south of 60° South Latitude and therefore not strictly under the regime of the Antarctic Treaty System, as a sub-Antarctic island it is relevant to Australia’s management of the Australian Antarctic Territory because of the concept of dependent and associated ecosystems embraced by the Madrid Protocol.

Branding of the Macquarie Island Southern Elephant seals was part of a research project by the Australian Antarctic Division (Gales 2001, 2-3). The project began in 1993 and was intended to run its course over ten years. Breeding patterns within seal populations were studied, with a focus on reproductive females. Prior to commencement, the Animal Ethics Committee of the University of Tasmania, which was involved in the project, as well as the Animal Ethics Committee of the Australian Antarctic Division had both sanctioned the project. According to Gerald Harwood (2001), Ministerial Liaison Officer in the Antarctic Treaty and Government Section of the Australian Antarctic Division, at the time that the branding was exposed through the media, there was a feeling of public revulsion to the branding. The Division received approximately 250 letters from the public about the branding, an unusually large number of letters from the public regarding a single issue. The letters expressed concern that acts of cruelty were being carried out on the seals, with quite a number of letters commending the Minister for the Environment for taking such prompt action in stopping the branding. Animal rights were a consistent theme in many of the letters, especially those that came from other countries such as the USA (Harwood 2001).

When the seal-branding story first broke, criticism was specifically aimed at the branding of seals, but this soon changed, with criticism being increasingly aimed at seal research in general. For many authors, the main concern seemed to be the handling of seals in general (Harwood 2001). Newspapers such as The Advocate, The Examiner and The Mercury printed several articles about the issue for several months. The Mercury received many Letters to the Editor about the issue, with authors stressing that the branding was cruel, unnecessary and inhumane (Buenger 2000; Burkhalter 2000; Penprase 2000; van den Berg 2001). Burkhalter (2000) asks how the public’s outcry against current research practices can be ignored by scientific research organizations. The following letter typifies many letters sent to the Editor:

It still amazes me to read about useless people, namely scientists paid by taxpayers, committing unnecessary and cruel acts on animals. I am referring to the seals on Macquarie Island...As for the scientists who branded the seals, I am sure many people, like myself, would like to see the scientists branded on their backsides. Maybe they would stop saying that it does not hurt. Members of the ethics committee who gave their approval to the program should perhaps also have a taste of it.

(Buenger 2000, 15)

One author commented that “it’s time the Antarctic Ethics Committee members investigated more humane methods of marking individual seals” (Penprase 2000, 18). Michael Lynch, Director of the Tasmanian Conservation Trust (2000), wrote that animal ethics committees have a statutory responsibility “to ensure such barbaric research does not occur.” Scientists are not deliberately cruel, according to Lynch (2000), but they can become ‘desensitised and handicapped by the illusion of knowledge and can be blinded by the single-minded pursuit of what they regard as overwhelmingly important.’

It is significant that concerns expressed by the public in this case were for the experiences of individual seals, not for the survival of seal populations or for the survival of the species. As such, the sentience of the seals was necessarily acknowledged by the public and considered important enough to take action for. The public’s outcry was for the physiological and perhaps psychological suffering of seals, which is primarily experienced on the individual level. This is evidence that the public is concerned about the well-being of individual animals, not just the survival of populations and species.
According to Andrew Jackson (2001), manager of the Australian Antarctic Division’s Antarctic Treaty and Government section, it was the perception of the public that the branding was inhumane that directly led to the abandonment of this project. This is an example of how the expectations of the broader community can influence the direction of scientific research. Jackson commented that if community attitude about human activity in the sub-Antarctic can have such an effect on management decisions, then it could also have the same effect on management decisions in Antarctica itself. Whether or not the public is misinformed about the specifics of a research project is irrelevant, according to Jackson, because the Minister for the Environment will act on behalf of the public, regardless of their knowledge about an issue. Jackson confirms, however, that input from scientists and managers from the Division always informs decisions that are made by the Minister about Antarctic research.

Michael Stoddart (2001), Chief Scientist for Australia’s National Antarctic Research Expeditions (ANARE), has commented that animal rights issues will make themselves felt on research in the future. He claims that the extent to which that research is used in management of the Antarctic will be the same extent to which research-based management is used in other geographical regions. He adds, however, that there is a view that Antarctica is somehow special, almost holy, which may enhance the public’s desire to keep it in its pristine state.

As policy relating to animal rights issues is influenced by the public, Stoddart (2001) estimates that there is a real chance that public support for the rights of animals will direct the course of relevant policy in the future. Even though it will be a controversial issue for policy-makers, it is ‘the way things are moving’ (Stoddart, 2001). He adds that the current expansion of ethical considerations in society is a community-driven development; it has originated from the public itself. Jackson (2001) has “no hesitation” in saying that animal rights as an emerging issue in society will absolutely become relevant to Antarctic management in the future. He states that as an issue that is increasingly important in the broader community, it will definitely translate into the Antarctic. “It is inevitable” (Jackson 2001). In reference to the seal-branding affair, Jackson states that “The effect of the recent decisions to stop research into seals which involved branding of seals in the sub-Antarctic, will inevitably rub off on our attitude to research in the Antarctic.” This view is supported by Harwood (2001).

Williams (2001), a CCAMLR fisheries biologist working for the Australian Antarctic Division, has stated that harvested marine species such as fish and squid are generally not thought of in ethical terms by the broader community. According to Williams, such animals are generally not valued in the same way as mammals and birds are. This is supported by Jackson (2001) who has stated that fishing is not an inhumane activity according to most people in Western societies. Jackson claims that it is for this reason that several Antarctic marine species are today being harvested for human consumption. He has commented that the ecosystem approach to environmental management adopted by CCAMLR is consistent with ordinary expectations in contemporary society regarding how animals should be dealt with by humans. Williams estimates that this situation will not change in the near future.

Antarctic Law and Management

Existing legal provisions within the ATS restrict all Antarctic human activities. As such, all human-animal interaction in Antarctic and sub-Antarctic regions must operate within the parameters established by the ATS. The Antarctic Treaty itself makes very limited reference to Antarctic animals. Article IX (1.f) states:

> Representatives of the Contracting Parties shall meet for the purpose of exchanging information ... consulting together ... and recommending to their Governments, measures ... regarding preservation and conservation of living resources in Antarctica.

This statement contains the only reference to the management of Antarctic animals within the whole Treaty. There are no guidelines for how the Representatives of the Contracting Parties shall approach the preservation or conservation of the ‘living resources’ or what the essential considerations should be in formulating measures. The fact that the Treaty refers to Antarctica’s native wildlife as “living resources” reveals that at the time of the drawing up of the Treaty, the native wildlife was appreciated primarily as exploitable commodities for human beings. Whatever appreciation existed outside this scope at that time was not deemed important or relevant enough to acknowledge within the Treaty. This wording is still employed today by the Treaty, as well as other instruments within the Treaty System. This paper argues that changes that have occurred to this appreciation of Antarctic fauna within many Western states in the last few decades needs to be acknowledged by Antarctic managers, researchers, and policy-makers.

The Agreed Measures for the Conservation of Antarctic Fauna and Flora (1964) were the first formal extension made to the Antarctic Treaty. As the title suggests, the purpose was to provide guidelines for how human beings should treat Antarctic fauna and flora. Measures were introduced to allocate ‘specially protected areas’ and to list ‘specially protect-
ed species’ as needing extra protection. The permit system introduced by the Agreed Measures allows specific numbers of mammals and birds to be killed or captured for specific reasons considered necessary by Antarctic management. Although these restrictions prohibit the harvesting of mammals and birds, individual animals belonging to these classes cannot be guaranteed protection as they stand the risk of being selected by permit-holders. The survival of individuals that have not been killed has therefore been the consequence of permit-holders selecting other individual animals, and not because surviving individuals have been granted a right to life. The permit system introduced by the Agreed Measures does therefore not accommodate the rights of individual animals to life.

The Convention for the Conservation of Antarctic Seals (CCAS) (1972) gives legal sanction to the harvesting of seals, which had been banned by the Agreed Measures. In the drawing up of this Convention, restrictions on sealing imposed by the Agreed Measures were recalled. The inauguration of CCAS was thus detrimental to emerging animal rights issues within Western societies in the 1970s. In terms of animal welfare and animal rights, this was a step backwards. Although CCAS restricts harvesting to certain seal species and numbers, there are no favourable developments in terms of animal rights implemented by this Convention. The very purpose of CCAS was to give legal sanction to sealing in the Southern Ocean, which in spite of restrictions imposed by the Agreed Measures, was still taking place in the early 1970s (Masicott 2001, 1-2; World Wide Fund 2001, 1).

At the time of the drawing up of CCAS, certain species of seal were considered more vulnerable than others. Killing and capturing of Ross seals, Southern Elephant seals, and Fur seals of the genus Arctocephalus were forbidden under any circumstances. The harvesting of other species (Crabeater seals, Leopard seals, and Weddell seals) was limited to certain numbers, and the killing of Weddell seals one year old or older was forbidden during their breeding season in order to ensure breeding success of the species. This Convention still stands today and can be taken advantage of by sealers at any time. Even the Madrid Protocol does not override this Convention, leaving Southern Ocean seals in a vulnerable position.

Although the ecosystem approach adopted by CCAMLR is aimed at maintaining faunal populations and their species, individual animals also benefit from measures taken by this convention. By maintaining the natural balance that exists between different species within the Southern Ocean ecosystem, CCAMLR serves the purpose of providing individual animals with an environment conducive to their well-being. In this way, the ecosystem approach to management adopted by CCAMLR contributes towards the welfare of individual animals, as well as populations and species. CCAMLR was the first Antarctic Treaty System fisheries management instrument, and the first legal instrument to introduce the concept of managing an ecosystem (CCAMLR 2001, 1). However, although these measures taken by CCAMLR are favorable for the welfare of marine animals, it should not be overlooked that one of CCAMLR’s main objectives is to regulate commercial fishing. Being referred to as “living resources” by the Convention, marine animals are being valued as exploitable entities, not individuals with rights of their own.

Environmental ethicist Pelli (2000) has commented that humankind’s relationship with aquatic species such as fish is the most controversial within the animal rights debate. As the sentence of such species is much debated, so is the value of their lives. Mammals such as seals, however, are reported as being widely accepted as truly sentient creatures (Carruthers 1992, 58). Jackson has commented that it is not the intention of any of the instruments within the ATS to implement regulations that are not consistent with the expectations and standards of the broader public. He adds, however, that whether or not the interests of animals have been considered satisfactorily or meet contemporary standards within society satisfactorily, is an issue that will be looked at in the upcoming review of the Madrid Protocol’s annexes. He further states that this issue will be one of the up-front issues looked at within the review (Jackson 2001).

As the title confirms, the Protocol on Environmental Protection to the Antarctic Treaty (1991) is a measure taken specifically to protect the Antarctic environment and not to regulate its exploitation. Article 3 (2) establishes that human activities in the Antarctic Treaty area shall be conducted so as to limit adverse impact on the environment. Specifically, it stresses that activities shall avoid detrimental changes in the distribution, abundance or productivity of species or populations of species of fauna and flora (b.iv). Item b.v adds that activities should avoid further jeopardy to endangered or threatened species or populations of such species. Yet again, the lives of individual animals are not acknowledged as being in jeopardy.

Annex II of the Madrid Protocol is primarily based on the Agreed Measures (1964). Article 3 of Annex II implements the same permit system introduced by Article VI of the Agreed Measures, with minor alterations. In addition to restrictions placed on the killing, injuring, capturing and molesting of native mammals and birds by the Agreed Measures, the Madrid Protocol places restrictions on the handling of animals. This is significant in terms of the rights of individual animals. By restricting the handling of animals, the experiences of individual animals have been acknowledged by the Madrid Protocol, as stress caused to animals by
being handled is primarily experienced on the individual level. Article 3 (6) confirms this acknowledgement by stating that “All taking of native mammals and birds shall be done in the manner that involves the least degree of pain and suffering practicable.” This obligates permit-holders to use research techniques that are considerate of the pain that they may cause animals in their research activities. Although the killing of animals is still allowed under certain circumstances, by introducing measures that aim to reduce pain and suffering, the sentience of animals has necessarily been acknowledged (Orlans 1993, 129-130). As such, it becomes evident that experiences of individual animals have gained some recognition within the ATS instruments. Yet does it afford animals with their just entitlements?

The upcoming review of the Madrid Protocol will essentially focus on the category of Specially Protected Species. Attention will be given to the concern that the category may still not be necessary, with the increased protection afforded all species by the Madrid Protocol. According to Jackson (2001), ambiguous language within articles will be a major focus in the review. The consensus method, as the means by which terminology within all Antarctic law is determined, will undoubtedly come under scrutiny within this context (Jackson 2001).

It is Jackson’s prediction that the issue of animal rights in some form will arise at the review, whether it will be within the context of terminology within articles addressing standards for the treatment of animals, or within the context of how to minimize the suffering of animals (2001). Non-governmental organizations (NGOs) represented at the review, are anticipated to raise the issue of animal rights. NGOs such as Greenpeace are accepted by the Australian Antarctic Division’s policy-makers as representing the broader community to a certain degree. Although it is acknowledged that many such organizations often support radical environmental views, their concerns are still considered as providing a guide for the Division’ policy-makers when determining concerns of the public (Jackson 2001).

The review will undoubtedly result in increased protection for certain species within specific circumstances, with protection and entitlements of animals estimated to remain focused on populations of animals, not individuals. According to Jackson (2001), the terms conservation and preservation have always been interpreted by Antarctic law as being relevant to populations of species, not individual animals. We thereby discover that individual animals can in fact not be guaranteed protection through the Antarctic Treaty System as it is today. As such, the main focus of conservation and preservation measures for Antarctic and sub-Antarctic animals has not changed since the drawing up of the Antarctic Treaty in 1959.

The Australian Antarctic Division’s Animal Ethics Committee (AAEC) was established in 1986. It serves the purpose of providing Antarctic researchers with ethical guidelines for all biological research. The Ethics Guidelines apply to species of fish, birds and mammals, as is consistent with the Australian Code of Practice (AAEC 2001, 1). The guidelines provide instructions for how animals should be treated within different research activities. These activities include moving around breeding animals, as well as killing, capturing, transporting, restraining and handling animals in general.

The fact that killing of animals is sanctioned through the Australian Code of Practice is in itself an issue that has caused much public outcry (Rose cited in Patterson and Palmer 1989, 124-125). While most instructions within the AAEC guidelines include ways in which to minimize impact on animals during research activities, killing them under certain circumstances is sanctioned.

**Human Impact**

Human impact on Antarctic and sub-Antarctic fauna occurs within many different contexts. Tourism, biological research and the harvesting of marine species are acknowledged as currently incorporating human activity that impacts the most severely on the region’s wildlife. Whilst the harvesting of non-mammal marine species in the Southern Ocean is currently the cause of millions of individual animals dying each year, it is the disturbing, harming and killing of mammals and birds that receive the most attention by the media and hence the most opposition by the public. As the sentience of such species is less debated, their rights to not be disturbed, injured or killed are also less debated.

As the tourism industry is growing faster in Antarctica than anywhere else in the world today, there is growing concern for its impact on the local wildlife. According to the Antarctic Project (2001, 2), the number of Antarctic tourists has increased 133% from 4,800 during 1990/1991 to about 11,200 during 1998/1999. Although some reports confirm that tourists travelling to Antarctica are generally very careful and conscientious around native wildlife, other reports confirm that tourists are often unaware that their behaviour impacts on the local wildlife. In an incident witnessed by Antarctic scientist Barbara Wienecke (2001), a tourist photographing seals blocked a pathway used by penguins to reach the safety of the ocean. In doing so, two penguins were forced to take an alternate route, resulting in both of them being squashed to death by a seal that rolled onto its back. Wienecke claims that this incident could have been avoided had the penguins been allowed to access the water via their usual path.
There are a number of documented problems associated with Antarctic tourists impacting on local wildlife. All seabirds must come ashore to breed, and in Antarctica and sub-Antarctica this is often in the coastal regions where tourists disembark from ships. As seabird colonies are often audible, visible and located within walking distance, they become easy targets for human visitation (Giese 1999, 12). A current concern for Antarctic managers is that almost all commercial tour groups visit a small number of breeding colonies on the Antarctic Peninsula (The Antarctica Project 2001, 1). Repeated visits are estimated to place a great deal of stress on the local animals, which need to conserve their energy in order to survive the extreme conditions of the Antarctic environment. Studies into the breeding success of Antarctic bird species have found that human disturbance around nesting sites can significantly affect breeding success (Trivelpiece and Fraser cited in Fraser 1993, 29; Valencia and Sallaberry cited in Fraser 1993, 31).

Although numerous attempts have been made to manage the problem of disturbances caused by human visitation to Antarctic and sub-Antarctic regions, an existing problem is that adherence to guidelines recommending appropriate behaviour by tourists is voluntary (Giese 1999, 14). Compliance with guidelines depends on the integrity of the individual visitor. In a survey of Antarctic visitor behaviour, it was found that 74% of visitors from commercial tour ships admitted to violating regulations for approach distances to penguins (Giese 1999, 14).

Biological research, whilst contributing to the scientific community’s general knowledge of different Antarctic species, is also reported as impacting on individuals and populations unfavourably. Monamy (1996, 38) has stated that there are several factors that can cause psychological stress for animals involved in scientific research. Some of these include confinement, handling in general, exposure to unusual noises and harmful stimuli such as injections. According to Levine (cited in Rollin and Kesel 1990, 175) and Rollin (cited in Rollin and Kesel 1990, 28) factors such as noise level, researcher personality and the method of handling an animal, have all been reported as having demonstrable and metabolic effects on animals involved in research. As an example of the numbers of mammals and birds that are handled by researchers each year, Table 2 includes data on numbers of mammals and birds captured and released by Australian Antarctic researchers south of 60° South Latitude in a one-year period. In light of concern for individual animals, these figures reveal that many individual Antarctic mammals and birds are disturbed every year by researchers. Whilst only a single colony of mammals or birds may have been disturbed, that colony may comprise a very large number of individual animals. It should also be acknowledged that Australia is only one of many countries carrying out Antarctic biological research.

### Discussion

Overall findings have revealed that the issue of animal rights is relevant to Antarctic management. As an issue to be addressed by Antarctic policy-makers it is relevant within the context of law. As an issue to be addressed by Antarctic managers, it is relevant within the realm of public relations, particularly within the context of trends in public opinion. As an issue to be dealt with by researchers it is relevant within the context of human impact in general. The extent to which specific issues are relevant needs further research.

Antarctic and sub-Antarctic wildlife is among the world’s most remote, which is understood to add to its value for human society. As human activity has significantly altered most other wilderness areas in the world, people’s dreams about an unspoiled natural environment with abundant wildlife cannot easily be accommodated any more. Antarctica serves as a reminder that the original, natural state of our planet was not one encumbered by pollution, exploitation or malformation. This reminder has the potential to inspire humankind to work towards a healthier natural environment, as well as encourage research into our original constitutional position in relation to the natural environment (Cremo and Mukunda Goswami 1995, 35, 116; Kofahl 1995, 1; The Antarctica Project 1998, 1-2).

While it is difficult to make accurate predictions about the future, a consideration for Antarctic managers might be: If Antarctica loses its remoteness through increased tourism and other human activity, how will society’s appreciation of the region change? Will it decrease, resulting in less concern and less effort being made for it? If Antarctica loses its exoticness and sacredness, what is there to stop the human race exploiting it as we have other wilderness areas on Earth?

It is understood from these investigations that it is important for people to think about their relationship with...
animals. Reflections on ethical issues by environmental managers, scientists and policy-makers, as well as the general public, are predicted to enhance decision-making on critical environmental issues. While anthropocentricism leads the world today in decision-making on global environmental issues, it is considered that time taken to appreciate the experiences of animals may well result in a better environment for human beings as well.

It is also considered that reflection on the quality of life ordinarily experienced by Antarctic animals outside the parameters of human influence can assist people in comprehending the full spectrum of human impact on the Antarctic environment. Reflection on human impact on individual animals is also understood as being particularly conducive for human beings to appreciate the needs and desires of different types of animals within different circumstances. As residents in a world that is dominated by human beings, individual animals’ vulnerability needs to be acknowledged.

Evaluation of the findings from the research carried out within this study indicates that there are no quick solutions or panaceas for implementing animal rights issues into Antarctic law and management guidelines. As a topic grounded in ethical debate, the nature of animal rights is so elastic that shaping it into some practical form for implementation will be difficult under any circumstance. The problem, of course, is that the much needed framing of key issues necessarily depends on trends in philosophy, which are themselves elastic.

Overall findings reveal that it is important for Antarctic managers to accurately reflect community expectations when making decisions about animal welfare. Specific animal rights issues therefore need to be accurately identified as they evolve within Australian and international communities. Constant monitoring of ethical trends in society needs to be carried out by Antarctic researchers. In order to accurately gauge community expectations regarding animal rights, researchers may first need to investigate appropriate methods for such monitoring. Community support for specific issues will regularly need to be quantified. After support for specific issues has been confirmed, they can confidently be raised at Antarctic Treaty Consultative Meetings. Concerns about restrictions placed on resources for such research must also be addressed as a management issue.

**Conclusion**

One of the most significant animal rights issues is the need for environmental management regimes to acknowledge the needs and/or rights of individual animals, not just the needs and/or rights of populations of animals and their species. The case study into the hot iron branding of Southern Elephant Seals on Macquarie Island highlighted public concern for individual animals. Public outcry in this case was for the (perceived) suffering of individual animals, not for the survival of populations, although this may have been a subsidiary concern. As such, this case study revealed that a significant number of people within the broader community is concerned about the needs of individual animals, not just the continuance of biodiversity.

It is concluded that the optimum starting point for future research into animal rights issues is the contrast between the appreciation of the intrinsic value of animals and the appreciation of the instrumental value of animals. This dichotomy necessarily exposes questions about humankind’s relationship with animals, as well as the implementation into law and policy of different environmental values. It is also concluded that ethical considerations for animals can themselves act as effective tools in accurately identifying human impact on animals. This is supported by Jamieson and Bekoff (1996, 367), who have suggested that human beings who work with animals may have a moral responsibility to protect animals involved, even advocate for them as a physician would for a patient. If efforts are made by researchers to understand the experiences of individual animals, insight into their particular needs is anticipated to be consequential.

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Human Ecology Forum


Hungry for Profit: The Agribusiness Threat to Farmers, Food and the Environment

Edited by Fred Magdoff, John Bellamy Foster and Frederick H. Buttel
ISBN 1583670165

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Hungry for Profit is an expose of the agro-industrial apparatus and the myriad ways in which our food supply has fallen prey to capitalism and corporate hegemony. This book is a compilation of articles, each dealing with the social, scientific and environmental aspects of agribusiness, with a common contention woven throughout that our food supply is in danger; it is becoming increasingly insecure due to corporate control and its consequent concentration. What follows is an undemocratic agricultural system in which the public has little say or knowledge about the production process(es). Such social closure includes the introduction of new technologies (e.g., biotechnology) that putatively offer solutions to present day concerns such as global hunger, but whose risks to human health and the environment are either glossed over or ignored. Hungry for Profit offers a new discourse wherein the political is inextricably tied to the agricultural. This is articulated in Middendorf et al. when they assert that “technical choices [within the agricultural industry] are simultaneously political choices...” (see 116). As a result, the ultimate goal comes to be profit-maximization at the expense of human and environmental well-being.

This examination begins with Wood’s historical analysis involving the evolution of capitalistic domination within agriculture, wherein she debunks the notion that the embryonic form of capitalism (i.e., agrarian capitalism) got started in the cities. Rather, capitalistic principles arose in the countryside where new conceptions of “property” and the transformation of property relations emerged — communal property and use-rights came to be privatized and based on exclusivity. As a result, the peasants were dispossessed and their labor power appropriated by the owners of production. In addition, the emergence of the market as sole regulator of production turned both the direct producers and capitalists into market-dependent actors—a dependence fundamental to a capitalistic society. Thus, it was here that the very tenets of capitalism (i.e., competition, accumulation and profit-maximization) were first realized. These conditions in turn gave rise to the mass migration of the direct producers (i.e., peasants) to the cities in search of work. Foster and Magdoff build upon Wood’s historical analysis by making reference to this rural exodus as the separation of town and country or what Marx calls the “metabolic rift” in relation to food production. That is, no longer were people (and society in general) producing for themselves and thus connected to the land; rather, the production of food came to be controlled and consolidated by capitalists, thereby becoming removed from the very consumers of these products. Such “distancing” helped promote the concentration of capital and the consolidation of corporate power within the agricultural industry.

The techniques associated with capitalism’s “treadmill of production” (e.g., Schneiberg and Gould 1994) coupled with the removal of sustainability from production has brought with it serious and in some cases irreversible environmental degradation. Altieri exposes this corporate-agricultural nexus and its link to the deterioration of our ecosystems. For instance, with specialization and monocropping (the large-scale production of a single crop) has come the development of a more genetically uniform milieu as well as increased dependence on synthetic chemicals. Not only is our food supply more vulnerable to disease (since genetic diversity provides protection against pests), but it is also being contaminated with these chemicals. Altieri refers to this increasing use of such toxins as the “pesticide treadmill” (82). Such exposure (to these pesticides) is harmful, but the actual “risks” (c.f., Beck 1992) associated with this contact in terms of human health are not fully known.

Economic concentration is also a function of vertical integration, in which a firm comes to dominate a number of stages in the agricultural industry (68-69). This has in turn fostered and perpetuated the “proletarianization of the farmer” as noted by Lewontin: “The essence of proletarianization is in the loss of control over one’s [the farmer’s] labor process ...” (97), since firms now own and control not just the output, but the input (e.g., equipment, synthetic chemicals, the seed itself, etc.) as well. Ironically, one consequence is the “modern” contract system, in which the farmer becomes essentially a “putting out” worker under contract with a major corporation. In addition, the farmer must use by law the corporation’s products throughout the entire farming process. In addition, vertical integration and thus corporate power extends into the realm of biotechnology (notably, the major players within biotechnology are those same companies that dominate both the seed and chemical industries). A function of biotechnology involves the manipulation of genetic material — in this case, the transformation of an organism (e.g., a seed) into a more “productive” variety. Thus, efficient seed and livestock varieties are the goal, with undesirable traits selected out and removed. Yet, as Hungry for Profit points out, this “standardization” leads to a reduction in genetic diversity and an intensification of market con-
centrally, both of which make the agricultural system increasingly inefficient. Corporate hegemony vis-à-vis biotechnology is made precariously clear with what is known as “terminator technology” where the seed itself is made sterile after each harvest. As a result, growers are forced to return to seed companies every year; thus, the traditional practice of “saving seed” is rendered moot.

Once a novel entity is created (e.g., seed from this terminator technology), it becomes the property of its creators via such policies as the Plant Variety Protection Act and Intellectual Property Rights (IPRs). As a result, corporate ownership now extends into the reproduction of life itself. In addition, these patents make the exchange of information illegal and exclusive (a condition I refer to as “intellectual closure”), creating additional distance between the citizenry and the scientific community. In essence, such social closure turns the corporate elite into the “monopoly owners of knowledge” (Shiva 2000). More importantly, such corporate control now extends across the globe and has been referred to as a type of “agricultural imperialism.” For instance, biotech companies have expropriated and laid claim to indigenous plants, which Shiva refers to as “biopiracy,” i.e., gene theft.

The economic liberalization and deregulation of agriculture through economic policies that favor First World nations, such as the implementation of green revolution technologies, have also worked to strengthen the agro-industrial apparatus. The green revolution following World War II focused on rapid production in the Third World at the expense of environmental health and sustainable development. One such policy as dictated by the World Bank (of which the United States is a primary participant), was the implementation of an intense agro-export strategy. Such a strategy was reinforced and perpetuated by later trade agreements such as GATT, which promotes economic liberalization via free trade and deregulation (which strengthens capital control). Such non-sustainable production leads to the degradation of land which in turn hinders future productivity. Not coincidentally, there has been increased famine, malnutrition and hunger in the Third World — problems brought about by agro-industrial practices originating in the First World which are the very problems biotechnology now purports it can “fix.”

Hungry for Profit calls for a transformation of agriculture, a radical departure from the status quo with a move towards sustainable production via environmentally sound practices. Such a direction would involve the input of the community and an opening up of information to the public. Thus, no longer would we be “blind” to current practices that are potentially risky and which compromise the public welfare. Of course, these developments can only take place in a context where profit is not pursued with such vigor. Yet, Hungry for Profit falls short in at least one way; such profound changes will not occur until our ideological framework itself is radically readjusted, recognizing that the planet is first and foremost our sustainer. An ideological vision wherein the contradictions of capitalism are acknowledged as a shortcoming to humanity’s future needs is necessary in this renaissance of change.

Secondly, while this book focuses on the political economy, on occasion it overlooks the central role the nation-state has in reinforcing and fostering the concentration and control corporations have in today’s society. The state as the creator of social rules and ideology is itself inextricably tied to and dependent upon capitalism (and vice versa). Given this, we need to examine in detail the state’s role and complicity within not only the agricultural industry but in society as well.

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Agency, Democracy, and Nature: The U.S. Environmental Movement from a Critical Theory Perspective

By Robert J. Brulle
Cambridge, MA: MIT Press, 2000
ISBN 0-262-52281-0

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Robert Brulle sets out with the ambitious project of examining environmental movements in the United States through the lens of social theory. He lays the groundwork with a detailed review of previous work, and particularly of Habermas’s framework of communicative action, highlighting its usefulness for the understanding of social movements. His extensive review of major (and some of the minor) organizations associated with environmental movements in the U.S. is both scholarly and, at the same time, accessible to a larger audience.

Following Habermas, Brulle sees the money, power and rationalization of the market as having trumped other institu-
tions and compromised moral and aesthetic considerations. This in turn distorts the ability of citizens to address problems through civic discourse. The state, rather than acting as a healthy counter-balance to the market, further disempowers citizens by acting through opaque bureaucratic structures populated with amoral technocrats. In this view, established interest groups, themselves tailored to negotiate through the nuances of this organizational structure, are able to exert undue power and influence at the expense of the public good.

These problems form such a potential juggernaut for private citizens that they typically need to be addressed collectively through vehicles such as social movement organizations. Organizations engaged in trying to influence discourse of any sort have oligarchic tendencies, and those attempting to influence social action relative to the natural environment — the subject of this particular study — are no exception in this regard. Further, the distortions of the market affect the organizations themselves. Particularly in the bourgeois public sphere, the tone of much of the rhetoric of social movement organizations, and especially those where power resides in the hands of a few people, tend to reflect the material interests of their primary funding sources.

With this framework as his backdrop, Brulle traces the development of a wide array of ideas motivating environmental movements and the organizations associated with them in the U.S. He searches for common themes of discourse, identifying the most salient of these as: 1) Manifest Destiny, which assumes the natural environment has value only as it is “developed” for human exploitation; 2) Wildlife Management, which emphasizes the scientific management of “game,” primarily for recreational hunting and fishing; 3) Conservation, or a utilitarian view in which natural resources should be managed in such a way as to bring “the greatest good for the greatest number of people over the longest period of time”; 4) Preservation, which stresses the value of nature sui generis, and thus the need to keep wilderness undisturbed by humankind; 5) Reform Environmentalism, which emphasizes the link between the environment and human health, and the need to act responsibly and in a scientifically informed manner; 6) Deep Ecology, or a belief that all life, non-human as well as human, has inherent worth and, because of this, human impact on the natural environment should be radically curtailed; 7) Environmental Justice, which focuses on the uneven impact of environmental degradation and risk on different sectors of society, and emphasizes the need to make fundamental social change, particularly in stratification systems; 8) Ecofeminism, which stresses the complementarity between men and women and between humans and the natural environment, the imbalance of which — historically in terms of the dominance of male ideas and institutions — leads to ecological degradation; and 9) Ecotheology, which emphasizes that the natural environment is God’s creation, and that humanity has a moral obligation to provide stewardship and protection of it from harm (p. 98).

Brulle does an extensive examination of literature produced by the movement organizations, identifying major themes therein. But what is really behind the rhetoric of the literature? Cherchez l’argent. Brulle’s approach, clever though simple, is to examine the sources of their funding (most notably from their tax returns, obtained directly from the U.S. Internal Revenue Service).

The empirical analysis largely bears out Brulle’s theoretically based expectations. Not surprisingly, he finds that material interests go a long way in explaining ideology or, as he puts it: “The influence of external funding creates a dynamic that can be seen as financial steering of the environmental organization” (256). The other key finding is that many organizations tend toward oligarchy, and that tendency often is exacerbated by the way organizations garner funds from external sources.

Brulle (280 ff.) concludes with the recommendations that: 1) “The influence of foundation funding on the structure of environmental organizations should be addressed”; 2) The potential for developing environmental organizations with democratic structures should be explored; and 3) “We need to invent new ways of envisioning our relationship with nature and one another, then act to realize our visions.”

So much of the book’s argument is couched in Habermasian terms (in fact, Brulle’s background work is thorough enough that parts of the book could stand alone as a secondary source on Habermas), that the book suffers from many of the same problems as Habermas’s project in general. Brulle (e.g., 24 ff.) adopts Habermas’s definition of the “ideal speech situation ... [as] ... interaction in which all participants harmonize their individual plans of action with one another and thus pursue their aims without reservation” (Habermas 1984, 294). Like Habermas, Brulle does a stellar job at uncovering aspects of the social order that compromise the ideal speech situation, particularly as it applies to discourse about the environment.

Yet after a painstakingly researched and closely argued critique of the problems, the book is vague on precisely how the ideal speech situation is to be accomplished in a world of over six billion people, how that ideal speech situation could ameliorate the world’s pressing environmental problems, and how it could be done in a timely enough manner to avert environmental catastrophe. As is the case with ideal types in general, the ideal speech situation serves as a useful comparison point in the analytical process; the potential for its actual occurrence remains problematic.

Far outweighing these problems, the book stands on the basis of its considerable strengths. Brulle’s command of the
history of environmental movements in the U.S. and the rhetoric they employ, of the literature in social movements and in critical theory are formidable. His writing style is accessible and engaging, and he His writing style is offers hope for positive solutions to the crushing environmental problems we face. Robert Brulle does a service by bridging the gap between the world of scholarship and the real life world of the common citizen. His book deserves a wide reading.

References


Human Ecology: Basic Concepts for Sustainable Development

By Gerald G. Marten
London: Earthscan Publications Ltd., 2001
ISBN: 1-85383-714-8

Reviewed by A. Terry Rambo
Kyoto University
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Gerald Marten’s book is intended for use as an introductory text in undergraduate courses on human ecology and environmental science. As Maurice Strong notes in his foreword, it “is a valuable step towards making human ecology a scientific discipline ...” This volume represents a highly original contribution to the literature of human ecology because it employs ecological principles to understand interactions between ecosystems and human social systems. Marten has adapted and elaborated this reviewer’s earlier systems model of human ecology (Rambo 1984) into a useful tool for helping students to understand the extremely complex interactions between humans and their environment.

This book is divided into 12 chapters. Chapter 1 introduces the concept of human ecology, chapter 2 deals with population and introduces the concepts of positive and negative feedback, and Chapter 3 discusses the human population. Chapters 4, 5, and 6 introduce some basic organizing concepts of ecosystems, Chapter 7 discusses the coevolution and coadaptation of human social systems and ecosystems, while Chapter 8 describes the services that ecosystems provide to humans. Chapter 9 deals with environmental perceptions, and Chapters 10 and 11 deal with unsustainable and sustainable human interactions with the environment. Finally, chapter 12 offers two brief case studies of ecologically sustainable development, the first the use of copepods to control the mosquito vector for dengue hemorrhagic fever and the second a regional environmental management program for the estuary of the Mississippi River. A useful glossary and a short reading list round off the text.

Marten presents a rather provocative view of both ecosystems and social systems as complex adaptive systems by employing the concept of emergent properties, which the author defines as “the distinctive features and behaviour that ‘emerge’ from the way that complex adaptive systems are organized.” Although the concept of emergent properties has long been employed in agroecosystems analysis, Marten uses it in a quite innovative way as a general tool for understanding human ecology. After describing the self-organizing characteristics of ecosystems and social systems, Marten introduces the concept of complex system cycles involving the stages of growth, equilibrium, dissolution, and reorganization. He suggests that all complex societies, as well as their constituent parts (e.g., clubs), follow this cycle. He asserts that societies eventually become so complex that they can no longer function effectively, leading to lowered productivity, declining standards of living and, ultimately, system collapse — a view that is reminiscent of Spengler’s and Toynbee’s grand theories of human history. The causes of social system decline seem to this reviewer to be too idiosyncratic to be amenable to such general theorizing.

Chapter 9, on perceptions of nature, is in many ways the least satisfactory part of this book. To try to summarize religious attitudes towards nature in seven pages using the rubrics of animism, Eastern religions, and Western religions, inevitably leads to the making of sweeping generalizations about a social institution that displays immense diversity. The chapter also does not give adequate recognition to the very problematic nature of causal links between ideology and behavior toward the environment. As Tuan Yi-Fu (1968) long ago pointed out, the high value assigned by traditional Chinese culture to living in harmony with nature did not prevent the occurrence of massive environmental degradation in pre-modern China whereas, in their research on American environmental values, Kempton et al (1996) have found that the Christian belief that God has assigned people stewardship over nature is a powerful determinant of positive American attitudes toward environmental protection. Conversely, recent unpublished research by the reviewer and colleagues on popular environmental perception in Japan, Hong Kong, Thailand, and Vietnam, has, to our surprise, produced no evidence that the environmental attitudes of modern Asians are strongly influenced by religious beliefs. Instead, they display an anthropocentric view of nature in which protection of the environment is justified only in terms of the benefits it provides to humans.
Marten developed his text in the course of a decade of teaching a required introductory course on human ecology to undergraduates in the School of Policy Studies of Kwansei Gakuin University in Sanda, Japan. The need to communicate with large numbers of students having limited understanding of English forced him to write in simple, straightforward language, employ vivid illustrative examples (which he refers to as “stories”), and make maximum use of figures to illustrate key points. This is both a strength and weakness of this volume, which is clear and concise, but also sometimes excessively simplistic and lacking in nuances. The topics for further discussion by the students in the boxes labeled “Things to Think About” found at the end of each chapter are reminiscent of a high school textbook. Such “guided thinking” may work well with Japanese students but I can’t imagine it appealing to American undergraduates.

Perhaps understandably for an introductory text that does not provide detailed references to the literature, not all of the concepts and examples presented by Marten are clearly attributed to their originators. This shortcoming might be alleviated by a more comprehensive set of references but the list of suggested “further readings” is quite brief and omits many of the works on which the author relied.

Despite some shortcomings, this volume is a valuable addition to the all too thin literature that deals with human ecology from a systems perspective. It may well be the first introductory human ecology text to offer students a systematic framework for thinking about the relations between people and the environment.

References


Human Ecology

Basic Concepts for Sustainable Development

GERALD G. MARTEN

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It should become the standard text in the area.

GERALD G. MARTEN has forty years of research experience at sites around the globe. He is a professor at the School of Policy Studies, Kwansei Gakuin University, Japan.

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